City of Nedlands

Species Selection and Planting Guidelines

Acknowledgement of Country

The City of Nedlands acknowledges the traditional custodians of this land, the Whadjuk people of the Noongar Nation, and pay our respects to culture and Elders, past and present.

The City of Nedlands also values the contributions made to the community over the years by people of diverse backgrounds and cultures, including those who have served and sacrificed.

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1.0 Introduction

1.1 Purpose of the Guide

The Species Selection and Planting Guide provides a clear and consistent framework for selecting and planting street trees and public realm vegetation within the City of Nedlands. It has been developed to ensure all tree planting is guided by evidence-based principles that support the delivery of a resilient, diverse, and climate-adapted urban forest.

This guide aims to:

- Ensure tree selection aligns with Council's strategic vision for canopy cover, biodiversity, and livability.
- Provide a transparent and defensible process for species selection that can be consistently applied across projects, contractors, and staff.
- Increase successful tree establishment rates, reduce ongoing maintenance costs through informed species choice and appropriate planting practices.
- Supporting community engagement and the education of species selection and planting approaches.

1.2 Alignment with City of Nedlands Strategies

This Guide has been developed to directly support and implement the City of Nedlands adopted strategies and policies. It translates high-level goals into practical, on-ground actions for species selection and planting.

- **The Council Plan 2023-2033** sets a clear vision for a sustainable, livable, and well-shaded city, with a healthy and growing urban forest forming part of the City's long-term environmental and community priorities. This Guide operationalises that vision by ensuring that all tree planting decisions contribute to the creation of cooler, greener streets and public spaces, improved biodiversity, and enhanced community amenity.
- **The Urban Forest Strategy 2025-2035** identifies the need to increase canopy cover, improve tree diversity, and adapt planting to climate change. This Guide provides the framework and tools to achieve those goals in a consistent, measurable way. It also complements related City policies, such as the Street Tree Policy and Local Planning Policy- Tree Retention, by providing practical guidance on species selection, planting standards, and maintenance responsibilities.

1.3 Intended Users of this Guide

The Species Selection and Planting Guide is a reference document for the planning, design, planting, and management of trees across the City of Nedlands' public realm. It is intended for use by anyone involved in influencing, implementing, or overseeing tree planting outcomes within streets, parks, reserves, and other public spaces.

This includes:

Council Staff and Contractors

- Parks and Open Space: teams responsible for tree planting, establishment, maintenance, and renewal.
- Arborists and asset managers: undertaking risk assessment, species selection, and long-term canopy planning.
- Infrastructure, engineering, and civil works teams: ensuring trees are integrated into transport, drainage, and urban upgrade projects.
- Customer service, planning, and development assessment: officers responding to community requests and coordinating planting or protection requirements.
- Council contractors: engaged in tree planting, establishment, or maintenance on behalf of the City of Nedlands.

Urban Designers, Landscape Architects, and Developers

- To guide the selection, placement, and integration of trees into new developments and public realm upgrades.
- To ensure species choices and planting design treatments align with the City's urban forest objectives and site-specific requirements.

Residents and community groups

- To understand the City's approach to species selection, planting, and long-term maintenance.
- To participate in tree planting initiatives or request planting through appropriate channels.
- To contribute to the shared responsibility of protecting and supporting the City's trees as they establish and grow.

Utility Providers and Service Authorities

- To coordinate above- and below-ground infrastructure planning and works with tree planting and retention outcomes.

This guide provides a unified framework for improving canopy cover, biodiversity, livability, and climate resilience across the City of Nedlands. It supports consistent decision-making, evidence-based planting, and long-term investment in a healthy and resilient urban forest.

1.4 Using This Guide with the Tree Selection Matrix

The guide should be used in conjunction with the Tree Species Selection Matrix - a supporting tool that lists approved species, their key characteristics, and their suitability for specific planting contexts within the LGA.

When planning a planting project:

1. Refer to this guide to understand the principles, objectives, and selection criteria that underpin all planting decisions.
2. Use the Species Selection Matrix to identify species that meet the functional, environmental, and aesthetic requirements for the planting site.
3. Understand the requirements of urban infrastructures.
4. Understand the requirements for healthy trees in urban environments.
5. Apply the planting and maintenance guidelines to ensure trees are planted in accordance with industry best practice and Council standards.

When used together, this guide and the matrix ensure that all planting projects are strategic, coordinated, and contribute to a long-term, resilient urban forest for the City of Nedlands.

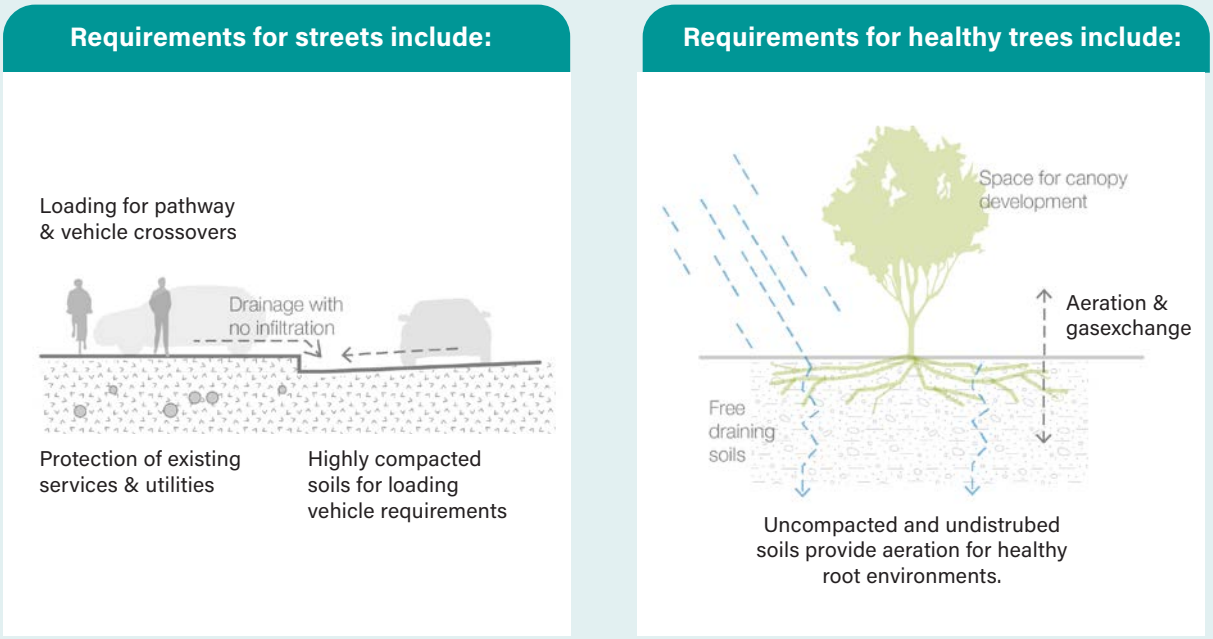


Figure 1: Requirements for urban infrastructure and trees. Image credit: Grafted Studio

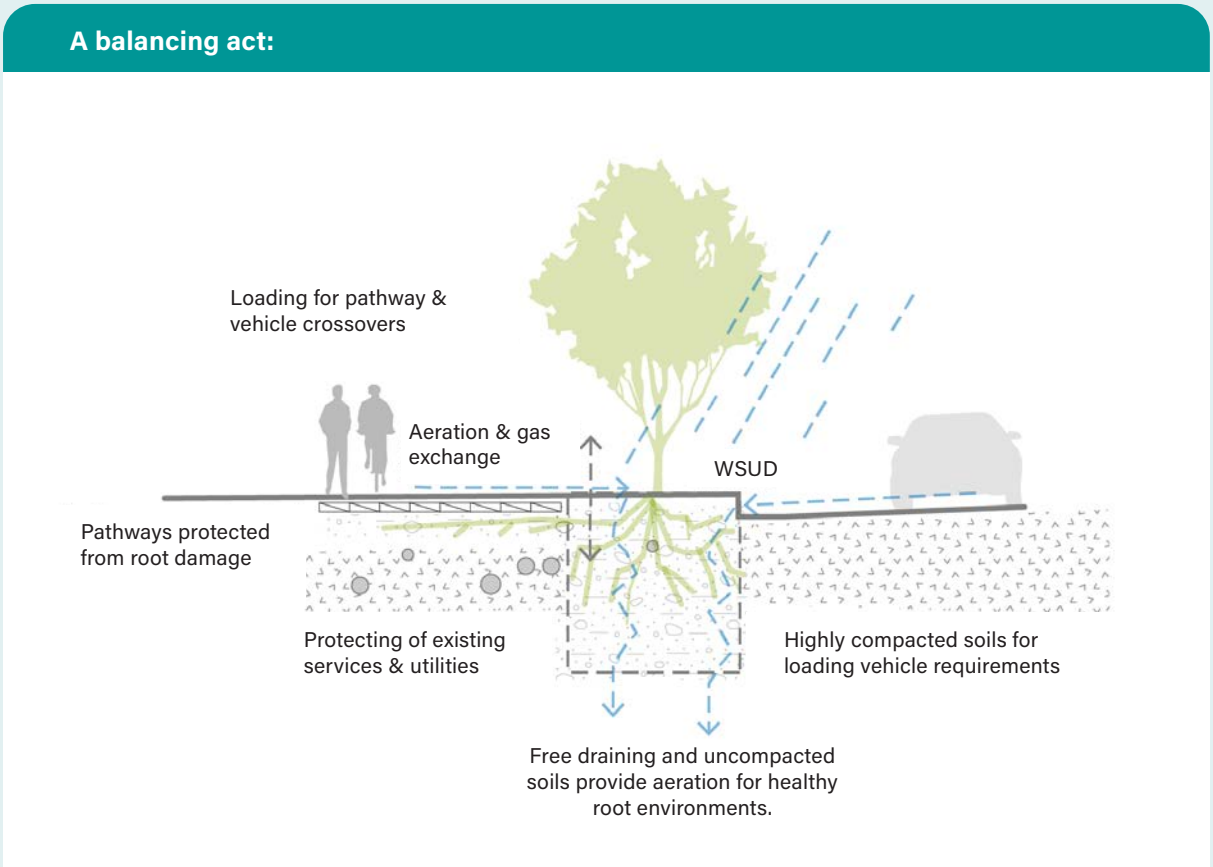


Figure 2: Combining urban infrastructure requirements with the critical need to increase urban forest trees

2.0

Principles and Objectives

2.1 Vision and Goals

The Species Selection and Planting Guide supports the City of Nedlands' vision as provided in the 2025-2035 Urban Forest Strategy for a greener, cooler, and more resilient urban forest. Tree planting across the City of Nedlands will:

- Enhance livability by providing shade, cooling, and amenity.
- Strengthen biodiversity by increasing the diversity and habitat value of tree species.
- Build climate resilience by selecting species adapted to current and future conditions.
- Deliver safe, functional, and attractive streets and public spaces.
- Protect and grow canopy cover in alignment with the City's strategic targets.

2.2 Key Principles

The following principles underpin all species selection and planting decisions:

3.0

Species Selection Criteria

3.1 Core Selection Priorities

Every species included in the Matrix has been carefully evaluated against a set of guiding criteria. These criteria ensure that selections are not only botanically appropriate but also aligned with the broader goals of building a resilient, sustainable, and high-performing urban forest.

3.1.1 Climate Resilience

Climate change is driving significant shifts in weather patterns, with impacts becoming increasingly evident in urban areas. Changing rainfall patterns, rising temperatures, and more frequent extreme weather events are creating challenges for the resilience of our natural and built environments.

These changes threaten the suitability of existing urban tree species, highlighting the need to transition towards more resilient vegetation. Proactive adaptation measures are essential to ensure sustainable, livable communities with healthy urban canopy cover into the future.

Climate resilience considers a tree species' capacity to perform well under both current and projected climate conditions. Selecting species with strong resilience to heat, drought, and poor soils is critical. This involves balancing ecological responsibility with adaptive urban planning to ensure species are both environmentally appropriate and robust to climatic challenges.

While local native species have strong ecological and cultural value, they may be less suited to future climate conditions if adapted to milder environments. Selecting native species from warmer, drier regions within Western Australia can provide greater resilience to heat and drought. Incorporating these climate-analogue species into planting strategies can help maintain canopy cover and reduce reliance on intensive maintenance in a warming future.

Key considerations include:

- Tolerance to heat stress, reduced rainfall, and prolonged dry periods.
- Proven performance in climates with similar challenges.
- Resistance to pests and diseases linked to climate stress.
- Adaptability to varied soil conditions with minimal irrigation needs.
- The role of deciduous trees in supporting seasonal light access.

By prioritising climate-resilient species, urban forests can retain canopy cover, reduce long-term maintenance demands, and ensure sustainable landscapes for the future.

3.1.2 Urban Forest Diversity

A resilient urban forest requires more than species variation. It depends on diversity across species, age, structure, function, and genetics. Strengthening diversity across these dimensions helps the tree population withstand pests, disease, climate extremes, and urban pressures, while continuing to deliver environmental and community benefits over time.

Key considerations include:

Species Diversity: A wide range of species reduces the risk of widespread canopy loss from threats such as Polyphagous Shot Hole Borer, Myrtle Rust and other emerging threats. Species diversity also supports biodiversity, provides seasonal interest, and ensures trees suit different site conditions.

Age Diversity: An even age distribution avoids simultaneous canopy loss when many trees reach end of life. A balanced mix of newly planted, semi-mature, and mature trees supports continuous canopy cover, spreads maintenance demand, and provides a clear pathway for succession planning strategies.

Structural Diversity: A well-structured urban forest includes a mix of forms, such as large shade trees, upright species, and multi-layered planting tailored to site function and space. This improves outcomes for solar access, amenity, traffic calming, and habitat, and reduces conflict with infrastructure.

Functional Diversity: Different trees perform different roles. Some provide dense shade; others intercept stormwater or support pollinators. Functional diversity ensures the urban forest meets multiple objectives, from climate adaptation and cooling to biodiversity and community identity.

Genetic Diversity: Genetic variation within species improves resilience. Clonal or narrowly sourced stock is more vulnerable to pests and environmental stress. Where possible, stock should be sourced from diverse seed origins or include different cultivars to reduce risk and improve adaptive capacity.

3.1.3 Biodiversity and Habitat Values

Urban forests are critical for biodiversity, providing food, shelter, nesting sites, and movement corridors for birds, pollinators, micro bats, reptiles, and small mammals. Diverse, well-structured plantings improve ecosystem services (pollination, pest control, soil health, water management) and stitch together ecological corridors across streets, parks, and private lots, lifting overall urban livability.

The matrix prioritises species with strong ecological performance, with an emphasis on native species and local provenance where feasible. Utilising species that offer broader flowering, fruiting and seed production timelines helps maintain year-round resources and supports higher species richness.

Key considerations include:

- Native vs. exotic status: preference for local provenance where site and climate allow.
- Mature tree sizes: Estimating mature height and crown spread dimensions that inform space suitability above and below ground.
- Seasonal foliage: whether ever green or seasonally deciduous.
- Species tolerances and sensitivities: Informing of natural adaptations to soils and climatic conditions which may transfer to new sites.
- Resource provision: nectar, pollen, fruit, seed, foliage for herbivores.
- Faunal associations: demonstrated support for invertebrates, birds, micro bats, and reptiles.
- Structural complexity: branching architecture, bark type, leaf density, and potential for hollows/ refuges.
- Phenology: timing of flowering/fruiting to bridge seasonal resource gaps.

Integrating these attributes aligns with the City's environmental objectives and fosters community connection to nature.

3.1.4 Pests and Diseases

Effective pest and disease management is vital for maintaining healthy urban forests. Trees are vulnerable to a variety of threats that, if unmanaged, can cause severe damage and loss of canopy. Diseases can be caused by a wide range of abiotic (e.g. drought, heat stress, nutrient issues) and biotic factors (pathogens such as Phytophthora and pests such as the Polyphagous shothole borer and associated Fusarium fungus).

Key considerations include:

Selecting trees with lower susceptibility/higher resistance to the most common pests and diseases impacting urban trees in the Perth region.

Selecting a variety of species and genetic diversity, to reduce the impact of pests and diseases to overall populations.

Maintaining tree and soil health through correct planting, watering, and soil management increases resilience to stressors.

Soil testing and amendments support long-term tree vitality.

3.2 Functional Requirements

This Plan aims to identify the right tree for the right location; this section identifies how this will be achieved. Trees will naturally grow, shedding leaves, bark, fruit, flowers, and even branches. Roots will extend, and trunks will broaden. Striking a balance involves selecting species that maximise benefits while minimising negative impacts. However, it's crucial to acknowledge that compromise is inevitable in the context of a busy and densely populated urban environment.

3.2.1 Function and Role of Streetscapes

Streetscapes form the interface between built infrastructure and the public realm, shaping local character, environmental performance, and community experience. Their function varies by context, influencing both design priorities and ongoing management.

3.2.1.1 Residential Streetscapes

Residential areas typically emphasise amenity, shade, privacy, and neighbourhood identity. Streetscape character may be leafy and intimate, often with narrower verges and lower vehicle speeds. Management priorities include maintaining healthy, well-formed trees for shade and visual appeal, minimising conflicts with driveways and overhead services, and ensuring safe pedestrian access. Low-impact species selection and consistent maintenance promote longevity and reduce infrastructure conflicts.

3.2.1.2 Commercial Streetscapes

Commercial zones balance functionality, high pedestrian activity, and visual vibrancy to support business activity and civic pride. Planting design often features robust, high-impact species, seasonal colour, and complementary street furniture. Management priorities focus on maintaining clear sightlines for signage, accommodating outdoor dining and events, managing litter and tree debris, and ensuring species resilience to higher soil compaction, restricted rooting space, and intermittent irrigation.

3.2.1.3 High Public and Vehicular Traffic Corridors

These corridors serve as movement arteries, prioritising safety, visibility, and durability. Streetscape design often incorporates larger canopy species for shading and heat mitigation, planted in medians or verges with engineered soil volumes to withstand heavy use. Management priorities include maintaining clearance for vehicles and pedestrians, ensuring driver sightlines, reducing roadside hazards, and managing tree health under higher pollution, wind exposure, and restricted rooting conditions. Species selection must account for resilience/frangibility to mechanical damage and minimal maintenance disruptions to traffic flow.

3.2.2 Street Orientation

Maintaining human thermal comfort is important for pedestrians, residents and business. Modification of street microclimates using tree canopy cover can provide important cooling and warming benefits throughout the day and seasons. The reduction in heat is greater for east west streets than for north south streets.

3.2.2.1 East west orientated streets

The midday thermal benefits are restricted on E-W streets which are oriented in the same direction as the summer sun's zenith. Therefore, it is important to create a fully closed tree canopy to maximise shade and thermal benefits. Using a mix of deciduous and evergreen trees on the north side of the street will provide thermal warming in winter. Planting evergreen trees on the south side of the street will maximise shade and thermal benefits all year round.

3.2.2.2 North south orientated streets

For N-S streets air temperature, mean radiant temperature and solar radiation are greater on the east side in the early morning and greatest on the west side in the mid-afternoon. Planting small to medium deciduous trees on the east side of the street will take advantage of the thermal warming of winter morning sun. Planting large and small evergreen trees on the west side of the street will block the undesirable afternoon sun all year round.

3.2.2.3 Sunscald

Some species are prone to severe sunscald damage to their trunks on the western aspect due to the afternoon sun. Such damage is exacerbated by water-stress and prolonged exposure.

3.2.3 Above and Below Ground Constraints

Urban environments are complex, with trees competing for limited space alongside neighbouring vegetation, power lines, adjacent properties, signage, underground services (sewerage, water, gas, communications), and hard surfaces such as roads, footpaths, and paved public areas.

Expanding root systems, particularly in constrained sites, can cause disruption to hard surfaces, potentially leading to pavement lifting, cracking, or misalignment. While these impacts are generally low in frequency and severity when appropriate species are selected, sites are appropriately fit-for-purpose engineered and planted at desirable distances.

Inappropriate species selection in potential conflict areas may result in infrastructure damage, ongoing maintenance issues, premature tree removal and reputational damage.

3.2.4 Existing Character

In areas where existing street trees contribute a strong, defined character that enhances the sense of place, species selection should respect and reinforce this established aesthetic. Choosing appropriate species in these locations ensures continuity in the streetscape, preserves the area's unique identity, and maintains community appreciation for the local environment.

3.2.4.1 Match Existing Species

Match existing tree species scale and form to reinforce existing character however, species diversity shall be increased. If the existing species is unsuitable due to issues such as risk of exposure to pest and disease (i.e. Polyphagous Shot Hole Borer) or weed propensity, choose species that complement the existing character in form, colour, and scale, ensuring they contribute to the established sense of place without disrupting it.

3.2.4.2 Native and Biodiversity Considerations

In areas with significant native plantings or areas adjacent to bushland, prioritise species that are native to the region to support local biodiversity. Native species help sustain wildlife, strengthen ecological connections, and enhance the resilience of the urban forest by promoting a diverse and adaptable tree population.

3.2.4.3 Seasonal Interest

Where applicable, align the seasonal characteristics (e.g., flowering or autumn foliage) of new trees with the existing palette to preserve the seasonal rhythm and visual appeal of the streetscape.

3.2.5 Transitioning Street Tree Species

Building on the discussion of Existing Character, where retaining the dominant species is often desirable, it is also important to recognise when a species shift becomes appropriate. As dominant populations age, a practical benchmark is when around 50% of the dominant trees in a street show decline or reach end-of-life, signalling that their character can no longer be maintained through simple replacement. In some situations, a lower threshold of 30–40% decline may justify phased replacements to manage risk and maintain canopy continuity.

These thresholds provide clarity while still allowing flexibility for professional judgement. They should be considered alongside wider factors such as adherence to diversity principles (e.g., the 10-20-30 rule), canopy cover targets, resilience to climate and pests, and the heritage or aesthetic value of the existing streetscape. In this way, the transition from retaining to rethinking species choice is both measurable and sensitive to long-term urban forest goals.

3.2.6 Infrastructure Compatibility

Infrastructure compatibility refers to how well trees can coexist with urban environments and the constraints posed by surrounding infrastructure. This involves considering both above-ground and below-ground space, as well as the interaction between tree growth habits and built structures.

Key factors include:

- Available space around footpaths, roads, and buildings.
- The presence of underground services and overhead utilities.
- Soil quality (e.g. pH), composition, and oxygen availability.
- Root system behaviour and potential for structural conflicts.
- Canopy size and the need for regular pruning to manage shared spaces.

Selecting species suited to these conditions helps reduce maintenance needs, avoid infrastructure damage, and supports long-term tree health and urban canopy sustainability.

3.2.7 Solar Exposure

Tree placement should consider the degree and timing of sunlight available at the site, balancing shade, solar access, and thermal comfort.

Key factors include:

Seasonal benefits

Deciduous trees can provide summer shade while allowing winter sun, supporting passive heating and solar panel efficiency; evergreen trees offer consistent shade and screening year-round.

Thermal comfort and efficiency

Well-sited trees can reduce cooling loads, improve pedestrian comfort, and enhance solar performance for nearby infrastructure.

3.2.8 Water Availability

Water availability is a key factor in tree establishment, long-term health, and maintenance costs.

Key considerations include:

Establishment phase: Reliable watering in the first few years supports strong root and canopy development.

Long-term needs: Selecting drought-tolerant species reduces failures and costs in low-water environments.

Irrigation efficiency: Positioning trees near existing irrigation systems minimises extra infrastructure.

Passive harvesting: Incorporating swales, rain gardens, or permeable surfaces directs rainfall to roots, boosting resilience.

3.2.9 Locating Street Trees

The street is a highly contested space, and the placement of street trees often comes with many restrictions. When choosing final planting locations, it's crucial to consider the distance from infrastructure components, such as intersections, pedestrian crossings, light and power poles, stormwater inlets, underground service pits, and bus stops.

Position street trees to minimise interference with existing usage of the streets, such as:

- Vehicular movement through the street.
- Entries to buildings and businesses.
- Clearance for pedestrians, vehicular traffic, light poles and other infrastructure/ services.
- Vehicle, cycle and pedestrian sight lines.

Planting trees will typically always require an individual site assessment and the final planting location decided on an individual basis.

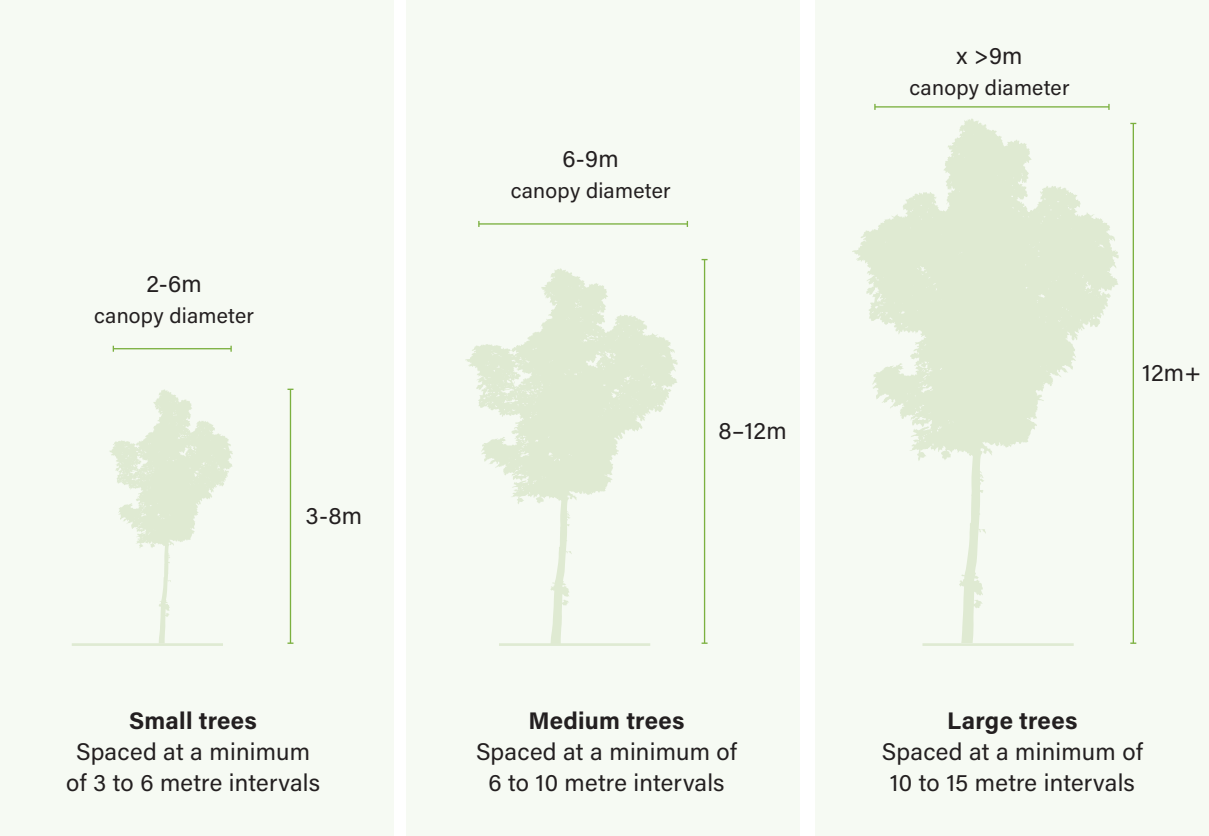
Table 1 outlines the minimum distances to be applied when determining a tree planting location. When it can be demonstrated that tree placement will not jeopardise the safety or the long-term integrity of neighbouring infrastructure or sight lines, the City may modify these dimensions on a case-by-case basis. Existing established trees in the streetscape that have been planted within these distances will not be removed by Council unless the impacts of keeping the tree are deemed undesirable and cannot be otherwise addressed through suitable pruning.

Street Situation	Tree Planting Clearance
Street intersection: distance from projected line of the intersecting kerb line on approach side	10m
Street intersection: distance from projected line of the intersecting kerb line on non-approach side	7m
Street Light pole: distance of trunk away from centre of pole in plan view	5m
Stormwater inlet pit: distance from nearest edge of pit structure	2m
Driveway: distance from driveway edge on approach side	5m
Driveway: distance from driveway edge on non-approach side	3m
Traffic Lights: distance from signal pole on approach side	10m
Pedestrian crossings: distance from outer edge of crossing on either side	10m (on approach) 7m (on departure)
Street lighting pole: minimum distance from pole to centre of tree trunk (unless there are other light sources to consider)	3m
Cycle way: clearance from edge of cycleway path to centre of tree trunk	0.5

Table 1: Proposed distances from street infrastructure for tree planting

3.2.10 Street Tree Spacing

Tree spacing distances when planting trees is fundamentally important in the streetscape. Final mature canopy size must be considered when planting new trees to avoid conflicts and maximise canopy potential. Trees planted too close together will be competing for soil volume and above ground space. Street trees should be planted as follows:



Small trees
Spaced at a minimum
of 3 to 6 metre intervals

Medium trees
Spaced at a minimum of
6 to 10 metre intervals

Large trees
Spaced at a minimum of
10 to 15 metre intervals

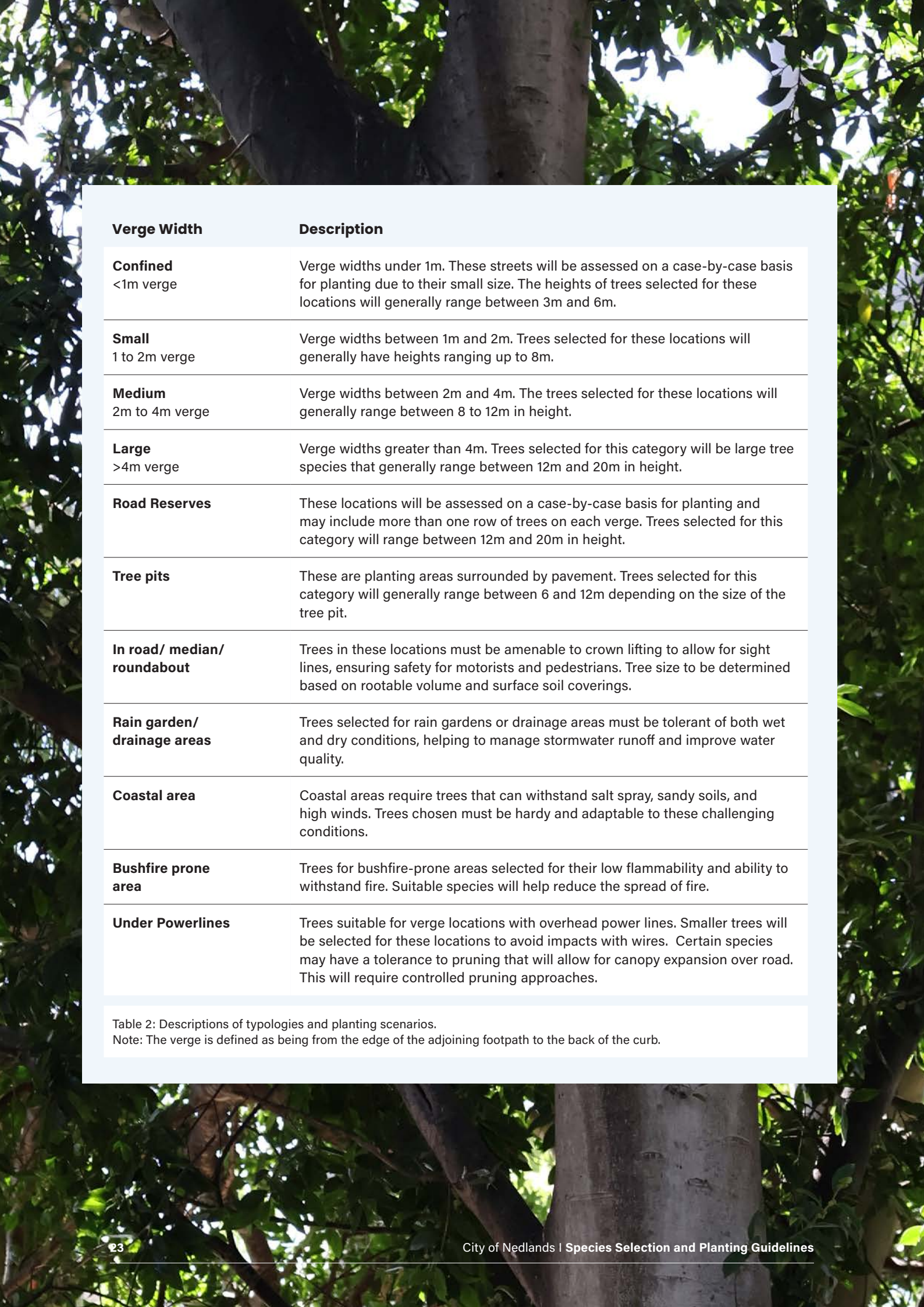
3.2.11 Typologies

Typologies refer to planting situations defined by verge width and street classification, which determine suitable tree species. Planting choices must balance canopy potential with space constraints:

- Small trees on wide verges miss the opportunity for larger shade trees and canopy benefits.
- Oversized trees in narrow verges risk infrastructure damage, safety hazards, and high maintenance costs.

Average verge widths were estimated from site inspections, with species assigned to four classifications (Table 2). Each typology has species nominated for both powerline and non-powerline sides. Where feasible, Council should collaborate with utilities to underground or bundle powerlines or reallocate road space to widen verges for planting.

The goal is to match tree size with available space, ensuring long-term stability, safe pedestrian and vehicle movement, and minimal infrastructure conflict. At the same time, maximising canopy size supports shade, air quality, and urban heat island mitigation. Careful species selection will achieve both resilience and maximum urban forest benefits.



Verge Width	Description
Confined <1m verge	Verge widths under 1m. These streets will be assessed on a case-by-case basis for planting due to their small size. The heights of trees selected for these locations will generally range between 3m and 6m.
Small 1 to 2m verge	Verge widths between 1m and 2m. Trees selected for these locations will generally have heights ranging up to 8m.
Medium 2m to 4m verge	Verge widths between 2m and 4m. The trees selected for these locations will generally range between 8 to 12m in height.
Large >4m verge	Verge widths greater than 4m. Trees selected for this category will be large tree species that generally range between 12m and 20m in height.
Road Reserves	These locations will be assessed on a case-by-case basis for planting and may include more than one row of trees on each verge. Trees selected for this category will range between 12m and 20m in height.
Tree pits	These are planting areas surrounded by pavement. Trees selected for this category will generally range between 6 and 12m depending on the size of the tree pit.
In road/ median/ roundabout	Trees in these locations must be amenable to crown lifting to allow for sight lines, ensuring safety for motorists and pedestrians. Tree size to be determined based on rootable volume and surface soil coverings.
Rain garden/ drainage areas	Trees selected for rain gardens or drainage areas must be tolerant of both wet and dry conditions, helping to manage stormwater runoff and improve water quality.
Coastal area	Coastal areas require trees that can withstand salt spray, sandy soils, and high winds. Trees chosen must be hardy and adaptable to these challenging conditions.
Bushfire prone area	Trees for bushfire-prone areas selected for their low flammability and ability to withstand fire. Suitable species will help reduce the spread of fire.
Under Powerlines	Trees suitable for verge locations with overhead power lines. Smaller trees will be selected for these locations to avoid impacts with wires. Certain species may have a tolerance to pruning that will allow for canopy expansion over road. This will require controlled pruning approaches.

Table 2: Descriptions of typologies and planting scenarios.
Note: The verge is defined as being from the edge of the adjoining footpath to the back of the curb.

4.0

Community Notification and Participation

4.1 Community Consultation

Community consultation supports more successful tree planting by increasing transparency, addressing local concerns, and encouraging long-term community support. A simple, well-structured approach ensures residents feel informed and included without placing undue burden on Council resources.

Consultation should be transparent, inclusive, accessible, and timely. It must clearly communicate what is being proposed, why trees are being planted, and how the community can be involved. Reaching a broad cross-section of the community, including renters, business owners, and culturally diverse residents, is essential. Based on site constraints and urban context, identify whether additional design treatments are required.

The approach aims to improve public understanding of the benefits of urban trees, invite meaningful input into planting decisions, and build community confidence in the planting process. It also seeks to address local concerns around safety, visibility, species selection, and maintenance.

4.1.1 Engagement Stages

Stage One: Pre-Planting Notification

Timing: at least 14 days before tree planting begins.

Council will letterbox properties adjacent to the proposed planting location. The notification will:

- Explain the location and timing of planting
- Identify the proposed tree species and reasons for selection
- Provide contact information for any access, safety, or other concerns

This stage provides early awareness and an opportunity for residents to raise practical issues before planting occurs. It is not a voting process, but a courtesy notification and transparency measure.

Stage Two: Supporting Tree Establishment

Signage or an accompanying flyer will suggest small ways residents can help the new tree thrive during its establishment period, including:

- Avoiding damage from bins, vehicles, or lawn care equipment
- Reporting vandalism or tree health issues to Council
- Watering during extended dry periods

4.1.2 Special Considerations

In rare cases, Council may consider modifying or deferring a proposed street tree planting in response to a resident request. Decisions will be made case by case, balancing community benefit with site-specific needs. Considerations include;

- Disability access needs: where planting may obstruct mobility aids, footpath width, accessible parking spaces, or tactile ground surface indicators.
- Emergency vehicle or driveway clearance: where a proposed tree may restrict essential access to private driveways, loading zones, or emergency service routes.
- Solar access: where a new tree would significantly reduce the performance of existing rooftop solar panels.

Council will assess each request in the context of its urban forest objectives, infrastructure constraints, and the availability of alternative planting opportunities nearby.

4.2 Tree Planting by Residents

4.2.1 Policy Position

The City of does not permit residents to plant street trees in the verge or any other public place. Street trees are public assets and must be sourced, installed and recorded by the City or its authorised contractors to ensure quality, safety and long-term performance. Trees planted without approval may be removed or relocated at the City's discretion.

4.2.2 Street Tree Success

Street tree success depends on nursery stock that meets AS 2303, correct planting methods, site preparation, utility clearances, and follow-up establishment. Uncontrolled planting risks poor stock quality, planting faults, utility strikes, pavement damage, biosecurity issues such as Polyphagous Shot Hole Borer, Phytophthora or Myrtle Rust, and gaps in asset records. A single, consistent process protects public safety, reduces long-term costs and ensures trees are maintained under an agreed schedule.

4.2.3 Requesting a New Street Tree

Residents can lodge a request for a street tree at any time. The City of Nedlands will assess site suitability, select an appropriate species using the Species Selection Matrix, and schedule planting within the next programmed season. Where a site is not suitable, officers will advise alternative locations or treatments.

4.2.4 What Residents Can Do

Residents may wish to participate in Council planting events where trees are supplied by the City of Nedlands, planted to specification and supervised on site. Residents are encouraged to request a street tree and to support its establishment once planted. Ways you can help establish new tree include:

a) **Watering:** Apply 10-20 litres per watering, poured slowly onto the mulch ring so it soaks the root ball. Aim for twice weekly in hot, dry weather and weekly in milder conditions; skip if there's been good rain. Check moisture by hand 10–15 cm below the mulch, water only if it feels dry.

b) **Heatwave support:** Give an extra drink in the early morning or evening on extreme-heat days; a second small drink may be needed if leaves droop. Avoid hosing foliage in full sun.

c) **Mulch and basin:** Maintain 50-75 mm of coarse mulch, pulled back from the trunk flare. Keep a shallow basin so rainfall collects and infiltrates, and re-shape it if it settles.

d) **Weeds and litter:** Remove weeds and rubbish from the tree surround so water and air reach the roots.

e) **Protect the trunk and root zone:** Keep bins, vehicles, trailers, mowers and whipper-snippers off the root area. A small edging strip helps prevent line-trimmer damage to the stem.

f) **Report issues early:** Let Council know about vandalism, pests or disease, blocked inlets, poor drainage, leaning trees or damage. Include the street address and a photo if possible.

g) **Please don't:** Prune or lop branches, add soil against the trunk, use herbicides/pesticides or fertiliser, drive new stakes into the ground, or hang items from the tree or stakes. These can harm the tree or affect underground services.

4.2.5 Private Property Guidance

This policy applies only to public land. Residents are encouraged to plant trees on private property using species suited to local conditions. Refer to the Species Selection and Planting Guide for advice on size at maturity, setbacks from structures and services, and maintenance during establishment

1.0 Appendix

1.1 Procurement and Planting Guidelines

Planting trees represents a significant investment for the City of Nedlands, so tree planting programs must be well structured and based on solid asset management principles. It is no longer good enough to simply plant a tree and hope for the best.

Successful tree planting and establishment can be divided into four key success factors:

1. Planning and species selection	**3. Correct planting**
2. Quality stock	**4. Establishment maintenance**

Each of these key success factors is of equal importance. If one step is ignored, the entire process can be compromised. The process should also be underpinned by good communication and monitoring throughout all stages to ensure that all stakeholders understand the process and that each stage is monitored for quality and correct practices (Figure 3).

The quality of tree stock at the point of planting is a critical determinant of a tree's future performance, longevity, and cost-effectiveness. This guideline ensures that all trees installed in the public domain are healthy, structurally sound, and fit for purpose.

This section applies to:

- Tree procurement for major projects or capital works
- Stock inspection
- Tree supply – specification
- Planning for tree planting
- Trees planted by or on behalf of Council
- Trees planted as part of development conditions of consent

Figure 3: Key success factors for tree planting and establishment.

1.2 Procurement Contract Considerations

1.2.1 Tree Procurement

To support diverse planting programs, the contracted supply of quality tree and plant stock may be necessary. Reference should be made to AS 2303:2018 – Tree Stock for Landscape Use as a guiding standard. In addition to this WALGA provides a Local Government Authority Contract Specification Template to assist with procurement standards as described below. The City of Nedlands is likely to have received this document (Local Government Tree Stock – Contract Specification Template) otherwise can be obtained by contacting WALGA direct.

Western Australia has over 120 production nurseries, with approximately 35% accredited. While accreditation implies compliance with industry standards, evidence indicates ongoing challenges with quality assurance. Structural issues such as canopy imbalances and root defects within containers remain common, often leading to establishment failures.

In particular, root spiralling and other hidden defects may not become apparent until years after planting, creating long-term health and structural risks. These problems can result in premature tree removal, loss of amenity, and significant avoidable costs.

1.2.2 Nursery Supply Practices and Risks

Nurseries typically begin propagating seed or tube stock in spring, allowing around nine months of growth before the main winter planting season in May. By this stage, stock is usually available in 35–45L containers, with some advanced material potted up into larger sizes (75–90L, 150–200L+).

However, smaller container sizes and unsold stock retained beyond their optimal shelf life are more susceptible to root defects and related health or structural issues. These risks highlight the importance of timing supply and selection to ensure long-term plant quality and performance.

1.2.3 Tree Supply Contracts

A tree growing contract is a formal agreement between purchaser and supplier that sets out specific requirements for producing and delivering quality tree stock. Reliance solely on AS 2303:2018 – Tree Stock for Landscape Use may not guarantee suitable outcomes. By including additional tailored measures within the contract, purchasers can help secure higher quality and more reliable tree supply.

1.2.4 Stock Inspection

- The purchaser or City of Nedlands approved inspector shall undertake a minimum of two onsite inspections, aligned with critical grow-points such as container transitions or relocation within the nursery. These stages typically involve root pruning or crown adjustments, which are essential to tree quality.
- Contracted stock must be stored collectively in a clearly demarcated area, separated from other nursery stock. This facilitates inspection, performance tracking, and assessment of sanitary conditions, spacing, and overall horticultural practices.
- A final inspection shall occur at least one month prior to dispatch, allowing sufficient time to identify and rectify any issues in line with contract requirements.

Inspections shall primarily focus on (but are not limited to):

- Irrigations and fertilization.
- Root system condition.
- Structural integrity of trunks, stems, and branches.
- Evidence of damage from staking, ties, or incorrect labelling.
- Formative and/or practical pruning.
- Adequate spacing to allow unimpeded crown development.
- Sanitary conditions of the storage area.
- Presence of weeds, pests, or diseases affecting the stock or surrounding plants.

1.2.5 Destructive Testing/Sampling

- Destructive testing involves the random sampling and sacrifice of tree stock to assess hidden root defects within containers. It is essential for verifying root structure, development quality, and contract compliance.
- The growing contract must stipulate the batch size of stock (by species/batch) allocated for testing. Sample sizes vary, for example (reference WALGA Local Government Tree Stock – Contract Specification Template):

> **The LTSS defines the sampling units based on a 95% confidence in detecting a 5% prevalence of plants with faults. For example, for a batch of 100 plants the number of units sampled is 45, while for a batch of 900 plants the number of units sampled is 58. When performing a destructive root inspection, Local Governments may sample less, but not exceed, the defined number of sampling units.**

- While destructive testing incurs unit costs, these are minor compared to the significant downstream costs of planting defective stock. This process provides assurance of overall batch compliance.

Destructive testing shall include:

- Random selection of trees for removal, with root balls separated to assess root condition, volume, and architecture.
- Documentation of findings, including photographs, referenced to contract requirements, undertaken by the purchaser's representative in the supplier's presence.

Cost liability:

- Supplier bears costs if non-compliance is identified.
- Purchaser bears costs if compliance is confirmed.
- The supplier shall provide appropriate space, tools (sharp cutting instruments), water, and manage disposal of debris.

1.3 Standard Deliverables

1.3.1 Minimum Stock Size and Dimensions

Each tree stock size is defined by minimum thresholds for:

Container volume (L)

Height (m)

Stem calliper at 300 mm above ground (mm)

Minimum root ball diameter (mm)

The following table summarises the expected specifications for common nursery stock sizes:

Container Size (L)	Min Height (m)	Min Caliper (mm)	Root ball Dia (mm)
25	1.2-1.8	20-25	300
45	1.5-2.5	25-35	400
75	1.8-2.8	30-45	450
100	2.2-3.3	40-55	500
200	2.5-4.0	50-65	600

Table 3: Expected specifications for common nursery stock sizes.
Note: Actual dimensions may vary depending on species form and growth habit. Trees must demonstrate proportionality between height, calliper, and root ball size.

1.3.2 Structural Quality

Trees must demonstrate strong structural integrity:

- Single central leader or clearly dominant stem (unless species typically multi-stemmed).
- Uniform branching with good lateral distribution.
- Minimal lean (no more than 15° from vertical).
- No included bark or major pruning wounds. Note: some species have a natural genetic predisposition for stem inclusions i.e. Agonis, Melaleuca, others.
- Clear trunk height appropriate to species and planting location.
- Graft unions (if present) must be strong and proportionate to the trunk with no suckering.

Trees with unbalanced crowns, major defects, or signs of poor form will be rejected.

1.3.3 Root System Health and Configuration

High-quality tree stock must:

- Retain 90% of growing media in the container during handling.
- Display a well-structured lateral root system with no girdling or circling roots.
- Have a clearly visible root collar located at or just above the soil surface.
- Exhibit no major kinks or root deformations at the container base.
- Be free from symptoms of root-bound stress.
- For trees in larger containers:
- Root systems must divide evenly within the top 50 mm of media.
- Roots should not be matted or circling at the container edge.

1.3.4 Species Identification, Suitability and Labelling

All trees must:

- Be true to type, correctly labelled with botanical name and cultivar (if applicable)
- Be suited to the planting location, local soil conditions, and streetscape objectives
- Match the approved species palette in the accompanying Species Matrix.

Suppliers must clearly label each tree and provide a batch manifest or delivery note listing:

- Species and cultivar
- Container size
- Batch quantity
- Nursery origin

Where sun acclimation is relevant, the nursery must mark north-facing orientation on the trunk or container.

1.3.5 Stock Delivery

During transport and delivery:

- Trees must be well-watered prior to loading
- Root balls must be protected from drying or mechanical shock
- Trees should be delivered upright and inspected upon arrival

Council reserves the right to reject any stock that arrives damaged, dehydrated, or showing signs of transport stress.

1.4 Tree Planting Specification

1.4.1 General

This specification sets the required methods and minimum standards for installing new trees within City of Nedlands streets and public places. Any departure from these methods must be described in a Work Method Statement and approved by the City of Nedlands before work starts. All planting must be performed by a suitably qualified Arborist or Horticulturist holding a minimum Australian Qualifications Framework (AQF) Level 2, with site supervision commensurate with project risk and complexity.

1.4.2 Scope of Works

Tree planting works typically include all activities required to deliver a functional, compliant planting site and an established tree. As a guide, the scope covers:

- Site preparation and demolition of existing tree pits or surfacing.
- Excavation to design depth and width.
- Supply and placement of approved soils and sands; tree delivery, handling and installation.
- Installation of stakes, ties and any guards.
- Installation of tree surrounds or bases after initial settlement.
- Reinstatement of adjacent surfaces.
- Maintenance through the defined establishment period.

1.4.3 Standards

All works must comply with the following current Australian Standards. Confirm the most recent amendments:

AS 4419:2018 - Soils for landscaping and garden use - sets requirements and test methods for landscape soils.

AS 4454:2012 - (amended) Composts, soil conditioners and mulches - defines quality criteria and pasteurisation for organic inputs and mulches.

AS 4373:2007 - Pruning of amenity trees - governs pruning methods including formative and remedial pruning.

AS 2303:2018 - Tree stock for landscape use - provides above and below ground quality criteria for tree stock

AS 4970:2025 - (current) Protection of trees on development sites.

1.4.4 Statutory Requirements and Environmental Controls

The contractor must obtain all required permits and approvals for working within the road reserve, including traffic and pedestrian management plans that meet Main Roads WA's Traffic Management for Works on Roads Code of Practice and relevant Austroads guidance. Where works affect major roads or intersections, additional approvals and advance notices may be required. Utility location must follow the Utility Providers Code of Practice for WA and Before You Dig Australia (BYDA) requirements.

Work methods and materials must minimise environmental impact and be consistent with sustainable practice. Manage dust, noise, erosion and sediment, and prevent tracking of soil or debris onto roads and paths; always keep the work zone tidy. Implement pathogen hygiene measures to reduce the risk of spreading Phytophthora dieback and myrtle rust, including cleaning down plant and tools before entering sensitive areas and rejecting any nursery stock showing symptoms.

1.4.5 Inspections

Provide at least 48 hours' notice for City of Nedlands inspections at the following hold points:

1. **pre-delivery stock inspection.**
2. **trees set out in pits prior to backfilling.**
3. **completion of planting including staking and mulching.**
4. **reinstatement of pavements.**
5. **interim inspections during the establishment period.**
6. **final establishment sign-off.**

The City of Nedlands may require photographic evidence and batch documentation to accompany inspections, including AS 2303 compliance records.

1.4.6 Site investigations and Existing Services

Confirm pit locations and verify all underground and overhead services via BYDA plans and, where needed, ground penetrating radar, potholing or vacuum excavation. Treat all services as live until proven otherwise and maintain minimum clearances specified by utility owners; notify the City of Nedlands immediately if conflicts arise. Record any discovered services, obstructions or toxic wastes and adjust the planting layout or pit design to maintain safe separations.

1.4.7 Pavement Cutting

Cut asphalt and concrete with appropriate saws to achieve clean, straight edges parallel or perpendicular to the kerb; do not undercut kerbs. For unit paving, dismantle along joint lines where practicable to reduce damage and facilitate reinstatement. Dispose of slurry and cutting residues in a controlled manner so that stormwater is not polluted.

1.4.8 Excavation

Excavate each pit to the measured root ball depth plus any allowance for drainage layers and final surface levels. The minimum plan dimension should be at least 2 to 3 times the container diameter to provide adequate loosened backfill for early root extension. Where excavation encounters services, hand-dig within the nominated tolerance and protect exposed assets; provide temporary barriers and maintain public safety around open pits.

Remove surplus excavated material and deleterious material from site daily unless the City of Nedlands approves reuse. Do not reuse soil contaminated with stump grindings, weeds, rubble or building debris in planting pits. Where feasible, salvage pavers or stone for reuse in tree surrounds to reduce waste, provided they meet the specification and are undamaged.

1.4.9 Soil Handling and Testing

Avoid stockpiling on pavements and avoid trafficking over prepared subgrades; move soil directly from truck to pit wherever practical. If excavation reveals poor drainage, compaction or contamination, cease work in the affected area and notify the City for direction, which may include laboratory testing and remediation. Where specified, provide soil test results for bulk deliveries confirming AS 4419 and AS 4454 compliances, including pasteurisation of compost inputs.

1.4.10 Subgrade Preparation

Loosen the base and sidewalls of each pit to at least 100 mm to break glazing and reduce compaction; incorporate specified amendments during this operation. Remove stones larger than 70 mm and any deleterious material brought to the surface. Shape the base to uniform grade to ensure the root ball will sit level and stable without rocking or settlement.

1.4.11 Root Barriers

Root barriers are not standard and will only be installed where specifically directed by the City of Nedlands to protect critical infrastructure. Where used, barriers must be continuous, installed to the specified depth and orientation relative to the target asset, and terminated with turned, overlapped or sealed ends to reduce and minimise root bypass. Ensure barriers do not reduce the effective soil volume below the minimum required for the selected species. Root barriers must not be covered by surface soils/mulches that will encourage roots to breach over time.

1.4.12 Soil Mixes

Provide soils that comply with AS 4419 texture and performance requirements and that are compatible with local soil profiles to avoid texture-contrast and perched water tables. Typical mixes are:

- **Type A (top half of tree backfill):** A 50:50 blend of approved site topsoil (or imported topsoil that meets AS 4419 criteria) with Type A, screened to remove debris.
- **Type B (lower half of backfill):** Premium manufactured sandy loam complying with AS 4419 (landscape soil) with organic matter sourced from AS 4454 compliant composts.

Set target properties at procurement (for example, pH in $CaCl_2$ appropriate to species, EC within acceptable range, organic matter in the design band, and absence of contaminants) and verify with supplier test certificates.

1.4.13 Drainage

Install subsoil drainage only where directed or where field conditions indicate waterlogging risk, using perforated pipe with graded outlets or connection to lawful discharge. Provide geotextile-wrapped aggregate trenches to prevent fines migration, maintain inspection and clean-out points where feasible, and ensure the design does not draw excessive moisture away from the root ball. Where WSUD systems are present, confirm overflow and bypass arrangements so that tree pits are not inundated for prolonged periods.

1.4.14 Planting Conditions

Do not plant during extreme heat (temperatures exceeding 34°C), high winds or heavy rain. In the Perth metropolitan climate, the preferred planting window is late autumn to winter so roots establish during cooler, wetter months; spring planting may be acceptable with elevated watering and heat protection. Set a maximum ambient temperature for planting activities and define heat policy triggers in the Work Method Statement.

1.4.15 Planting Hole Hydration

Where heavy or hydrophobic soils exist a pre saturation with a City of Nedlands approved soluble wetting agent may be required.

1.4.16 Lifting and Handling (small stock 45-90litre)

Handle trees by the container/root ball wherever possible. Prevent root ball collapse by supporting from beneath and avoid impacts, abrasion or compression damage during unloading and placement. Any tree damaged in handling or showing signs of desiccation will be rejected and replaced at the contractor's cost.

1.4.17 Lifting and Handling (large stock 100+litre)

With large stock mechanical assistance may be required if trunk lifting is unavoidable and weight exceeds safe manual handling. Protect the stem and bark with padded soft slings, using lift points on bag/container if available. If lifting from main stem, ensure protection and choke slings to avoid slipping and associated bark/main stem damages during movements.

1.4.18 Bag or Container Removal

On occasion where roots may not be fully established into soils post potting up size placement of tree into hole with bag may be required to avoid excessive root ball damage during placement and planting. In these cases, using a sharp blade to shallow cut the bag sides, peeling the side down to enable careful movement of tree root ball to extract the bag without overly damaging or loosening the root ball.

1.4.19 Root ball Damage Notification and Recording

In the event of root ball damage or part collapse it is important to record the extents of damage and notify the City of Nedlands. These trees may suffer from root damage and present trauma symptoms which can be practically managed through the seasonal watering and nutrition program.

1.4.20 Root ball Pruning

Inspect the outer faces of the root ball and remove circling, kinked or J-rooted material by shaving or slicing 10-25 mm from each face with clean, sharp tools. Remove girdling ties or bindings and locate the root flare by carefully exposing the top of the root ball if necessary. Keep root balls covered and moist if delays occur; do not allow roots to dry out prior to backfilling.

1.4.21 Placement, Alignment and Orientation

Place the tree on a firm, level base so that the top of the root ball is set flush with, or slightly above, finished surrounding grade to allow for settlement and to keep the root collar above persistent moisture. Ensure the tree is centred within the pit with trunk in a vertical position, with spacing and setbacks as per approved drawings and sightline requirements. Orient primary scaffold branches to optimise clearance from carriageways and infrastructure and to promote balanced canopy development. Locate the nursery-applied north mark on the pot (if applicable) and orientate the tree so the pot's north mark aligns with actual north.

1.4.22 Backfilling

Backfill using the specified soil mix. Apply soil lifts (layers) in 150mm thickness, lightly firming each lift (layer) and thoroughly water to remove voids without over-compaction that would impede root growth. Do not place soil over the top of the root ball or bury the stem flare; finish at design grade and shape the surface to capture water within the bund. Avoid placing fertiliser in the planting hole; if nutrient amendment is required, apply as surface dressing or slow-release product per the City of Nedlands direction.

1.4.23 Watering Bund

Provide an earthen bund around the pit perimeter to capture irrigation and rainfall during establishment, adjusting after settlement to maintain effectiveness.

1.4.24 Staking and Guards

Provide protective staking where risk of mechanical damage or vandalism is high; trees should be self-supporting and not reliant on stakes for structural stability. Use two stakes positioned outside the root ball with flexible, broad ties that do not abrade the bark and allow limited movement for taper development. For larger, taller trees that may be subjected to higher wind loads 3 stakes may be required.

Maintenance inspections will highlight ongoing adjustments or renewals if required to ensure ongoing protection and support. Stakes are to be removed if they are no longer required as determined by tree establishment, crown development loads and main stem stability. Install guards only where specified, ensuring they do not restrict stem growth, trap heat or impede inspection.

1.4.25 Mulching

Apply clean, weed-free organic mulch immediately after planting to a nominal depth of 75 -100mm, tapering away from the stem so the trunk and root collar remain visible and dry. Avoid fine mulches that can cap and repel water; coarse, open-textured mulch is preferred for aeration and infiltration. The City's preference is for 'leaf mulch' available from tree contractors providing it meets AS 4454.

1.4.26 Seasonal Watering Program

Establish a watering regime based on season, stock size, soil type and rainfall, or adopt moisture-based scheduling; document frequencies and volumes in the establishment plan and adjust based on inspections.

1.4.27 Tree Surrounds and Bases

Where specified, install tree grates, guards, kerb inlets or decorative surrounds only after an initial settlement period unless otherwise directed, so that levels can be adjusted accurately. Ensure surrounds maintain the specified clear soil area and do not impede irrigation, infiltration or gas exchange. Where permeable pavements are used, confirm base construction and bedding are compatible with tree health and adjacent drainage.

1.4.28 Quality Assurance and Records

Maintain a planting register for each tree including species and cultivar, container size, batch and supplier, AS 2303 compliance evidence, site location, planting date, soil batch certificates and photographs at key hold points. Capture as-built coordinates suitable for GIS and asset management use and record any variations from the specification. Provide a completion report at practical completion and an establishment report at the end of the maintenance period summarising survival, defects, replacements and recommended refinements.

1.4.29 Defects and Replacement

Trees that fail to establish, suffer catastrophic structural defects, are planted incorrectly (e.g. stem buried), are damaged beyond recovery, or do not meet the specification at inspection will be deemed defective. Replace defective trees like-for-like at the contractor's cost unless the City of Nedlands directs a change in species or size for site reasons. Replacements reset the establishment period for the affected tree unless otherwise agreed.

1.5 Establishment and Maintenance

1.5.1 Establishment Period and Responsibilities

The establishment period begins from the moment of installation until the establishment period formally commences (24 months), during this period the contractor remains responsible for day-to-day tree care in line with this specification. All works must be undertaken by a suitably qualified Arborist or Horticulturist with a minimum AQF Level 2.

Before the establishment period starts, the contractor must submit a programme that sets out the sequence and frequency of all tasks, resources, inspection points and reporting. The programme must cover watering schedules, fertilising strategy, weed suppression, mulch upkeep, pest and disease monitoring, rectification of minor defects, and protocols for replacing dead, damaged or stolen trees.

1.5.2 Watering and Moisture Management

Watering is the most important determinant of early survival. As a baseline, apply approximately 10 to 15 percent of container volume per watering event for the first two weeks, every two to three days, then shift to 15 to 20 percent per event weekly for months one to three. Taper to fortnightly in months four to six, with frequencies reduced during winter and increased during hot, dry periods. Always check soil moisture by hand with a calibrated soil moisture probe to a depth of 100 to 150 mm and adjust volumes to avoid waterlogging or prolonged dryness. Include a simple heat policy for Perth conditions that provides an additional watering before forecast heatwaves and a follow-up within 48 hours.

1.5.3 Weed, Mulch and Surface Management

Keep tree surrounds free of weeds, litter and debris so water and nutrients reach the root zone. Maintain the specified mulch layer of 75 to 100 mm and keep mulch away from the trunk and root collar. Reinstate any bunds or shallow basins that help retain rainfall and irrigation, ensuring the trunk flare remains visible and dry.

1.5.4 Pest, Disease and Biosecurity

Inspect regularly for pests and pathogens and act promptly using methods suitable for the site and species. Maintain clean tools and equipment to reduce cross-contamination risks and follow local hygiene guidance for pathogens of concern. Replace stock that shows persistent decline due to nursery-origin pests or diseases and report any suspect biosecurity issues (inkling PSHB) to the City immediately with photographs and location data.

1.5.5 Pruning, Staking and Guard Management

Undertake formative pruning in accordance with AS 4373 to establish a dominant leader, well-spaced scaffold branches and balanced crown, while retaining sufficient foliage to drive calliper growth. Pruning should be light and targeted: correct nursery defects at planting only, then inspect and prune again at 6-12 months and at least annually through the establishment period, or until structural goals are met. Trees should be self-supporting; use protective staking only where needed to prevent physical damage and adjust or remove as soon as it is no longer required. Guards may be installed only where specified for vandalism or traffic exposure; inspect regularly so they do not abrade bark or restrict growth.

1.5.6 Fertilising and Soil Health

Apply a slow-release, tree-appropriate fertiliser at planting in accordance with manufacturer guidance, avoiding fertiliser placement in the planting hole. During establishment, use light, surface-applied supplements only if inspection indicates deficiency or poor vigour, and prefer low-phosphorus formulations for sensitive species. Do not fertilise drought-stressed trees until adequate soil moisture is restored; prioritise watering and mulch management first. An organic water-soluble fertiliser applied within the seasonal watering program is an additional option.

Applying a soluble wetting agent within the watering program during Autum and late summer also to be considered if required.

1.5.7 Tree Bases and Surrounds During Settlement

In paved contexts, leave the tree base as exposed soil or with a thin, compacted decomposed granite layer for approximately six months to allow for settlement and adjustments. After settlement, install the nominated tree grate, permeable surround or finished surface so levels match adjacent pavements and do not impede infiltration or gas exchange. Always keep surfaces safe and even; rectify any depressions, uplift or cracking that could trip pedestrians.

1.5.8 Monitoring, Reporting and Records

Maintain a complete record for each tree, including species and size, planting date, watering log, maintenance visits, and any defects or treatments. Provide progress reports to the City at agreed intervals, typically monthly for the first three months and then every two months thereafter, including photographs and a summary of survival and condition. Use the reports to recommend any changes to frequencies or methods based on observed performance.

1.5.9 Replacements and Defects

Replace trees that die, fail to establish, suffer significant structural faults or are planted contrary to specification, unless the City directs otherwise. Replacements must be like-for-like in species and size unless the City of Nedlands approves a change and they restart the establishment period for that location. Notify the City within seven days of any incidents of vandalism, vehicle strike or storm damage and propose rectification, including temporary protection where risk remains.

1.5.10 Completion and Handover

At the end of the establishment period, request a final inspection and provide a short completion report confirming survival rates, average height and canopy spread for a sample of trees, and the status of stakes, guards and bases. Any defects identified must be rectified prior to handover. On acceptance, transfer maintenance responsibility to the City or to the party nominated in the contract, along with the final asset records suitable for GIS and asset management systems.

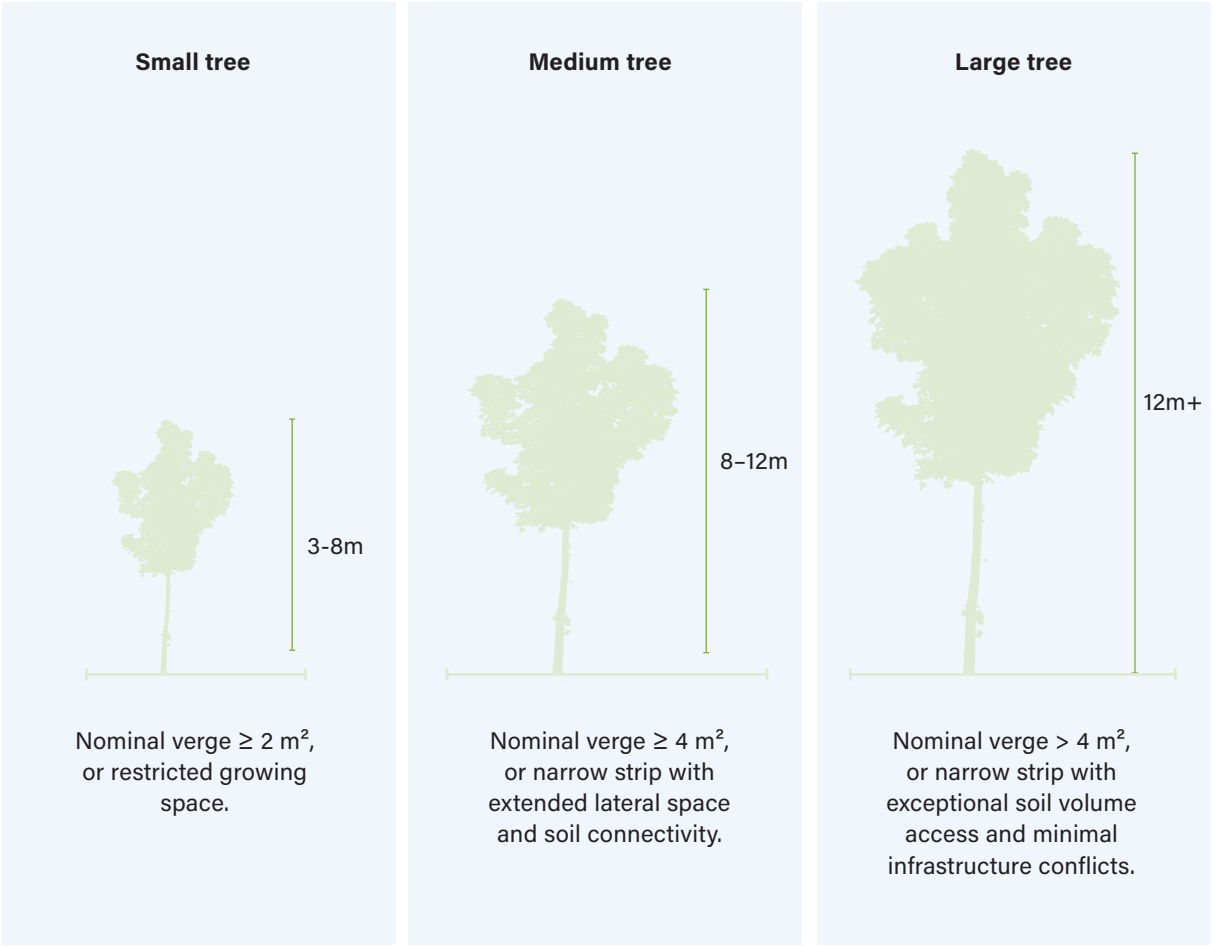
1.6 Planting Spaces

While verge strip width is often the primary measure for determining tree size suitability, it does not always represent the total functional growing space available to a tree. In many urban streetscapes, a verge may measure only 2m between the curb and property boundary yet offer greater horizontal spread opportunities along the verge corridor.

Such conditions may allow for the successful establishment of medium or even large-form trees if:

- Lateral canopy growth can extend parallel to the roadway without impeding vehicle sightlines or pedestrian movement.
- Root development can utilise unsealed or connected soil volumes along the verge.
- Conflicts with overhead and underground services can be managed through species choice and engineering solutions.

The Tree Species Matrix recognises that these contextual factors can modify the traditional size thresholds:



By considering both measured verge width and functional growing potential, this approach supports more diverse species selection and maximises urban canopy outcomes, even in space-limited environments.

1.7 Introducing Trial Species into Annual Plantings

To maintain a resilient and diverse urban forest, it is important that councils actively test and evaluate new tree species suited to local conditions.

The Tree Species Matrix includes a curated list of recommended trial species, each assessed for its potential canopy contribution, climate resilience, and compatibility with various streetscape and open space environments.

For each species, commercial availability is noted as either:

- Nursery-ready stock (immediately available for purchase), or
- Seed supply (available for propagation by council-contracted tree growers).

It is recommended that a minimum of 5% of the Council's annual planting program be allocated to these trial species. This modest but strategic allocation enables the testing of new species without compromising the consistency of established planting outcomes.

Over time, this approach can identify high-performing species that can be scaled up, while phasing out species that underperform in terms of growth, canopy spread, maintenance needs, or resilience to pests, disease, and climate stressors.

By embedding species trials into the procurement process and planting program, the council can:

- Future-proof the urban forest against emerging environmental challenges.
- Increase species diversity, reducing vulnerability to monoculture risks.
- Expand the palette of commercially available species for future projects.
- Strengthen partnerships with growers through targeted contract growing initiatives.

Trial plantings should be monitored over a 3–5-year period, with data collected on survival, growth rates, and maintenance requirements. This evidence base will inform ongoing updates to the Tree Species Matrix and ensure that the council's urban forest remains adaptable, resilient, and ecologically diverse.

1.8 WSUD and Passive Irrigation

Water Sensitive Urban Design (WSUD) should be integrated into all new plantings and retrofits in the City of Nedlands where practical. In Perth's dry climate, the principle is simple: capture rain where it falls, direct it into the tree pit, allow infiltration, and safely move excess away.

Passive irrigation is best practice as it provides trees with a reliable water source while improving stormwater management. This relies on small, low-maintenance systems that channel runoff into the root zone, distribute it evenly, and keep the trunk flare visible and dry. Solutions should be tailored to street context using familiar, adaptable components that remain easy to access for cleaning and inspection.

Typical WSUD interventions for street trees include:

Kerb cut-outs:

small openings divert runoff into a basin around the tree; simple and effective.

Leaky kerb with verge swale:

kerb slots feeding a planted swale to irrigate multiple trees.

Raingarden/ stormwater planter:

contained beds filtering runoff and soaking water into roots; suited to constrained sites.

Permeable paving:

pavers over a reservoir that laterally irrigate roots; ideal for high-traffic areas.

Tree basin with low bund:

shallow depressions or bunds to hold rainwater briefly while protecting the trunk flare.

Hardstand runoff harvesting:

channels or inlets directing water from paved areas into tree zones.

Traffic calming greening:

kerb extensions or chicanes designed as planted pockets that capture street runoff.

Level spreader/ dispersion trench:

trenches or perforated pipes distributing water evenly across the root zone.

1.9 Soil Volume and Structural Soil Cells

Adequate, connected soil volume is the most important determinant of street tree health, longevity, and canopy size. Small, isolated pits produce weak trees, higher failure rates, and more pavement damage. The City treats below-pavement rooting volume as core urban infrastructure. Where conventional pits cannot meet the target volume for the intended mature tree size (see Section 3), the City will provide sub-grade, uncompacted rooting space using load-bearing systems, structural soils, raft systems, or soil vault/cell systems, so trees can establish and reach their design canopy.

- Soil vault/cell systems (modular structural cells) Purpose-built modules that support heavy surface loads (footpaths, medians, parking lanes) while containing large volumes of high-quality, uncompacted soil. Highly configurable, readily integrated with inlets, dispersion pipes and inspection points, and typically paired with WSUD so stormwater feeds the cell network. Use in town-centre and CBD streets, high-load/high-footfall locations, and anywhere maximising soil volume and predictable performance is critical.
- Structural soils (engineered stone–soil matrix) A uniformly graded rock "skeleton" with soil in the voids, compacted to form a load bearing, aerated, free-draining sub-base beneath pavements. Reduces root–pavement conflict and provides continuous root paths, especially where depth is limited or services are dense; often combined with pockets of higher-quality soil near the root ball and permeable surfaces or inlets to maintain moisture. Use where shallow cover or service corridors constrain excavation, or to create root continuity under narrow verges and crossovers.
- Raft systems (gravel raft over geocells/honeycomb mats) Interlocking plastic geocells filled with gravel form a stiff "raft" that spreads loads, reducing the degree of subgrade compaction needed under adjacent pavements. Suited to sites near existing trees or sensitive utilities where excavation/compaction must be minimised; when combined with permeable paving, improves infiltration and air exchange. Use where protecting existing roots or sensitive subgrades is the priority and a moderate increase in rooting volume enables planting without deep reconstruction.

Where we prioritise: town-centre and CBD main streets, high-footfall precincts and transport nodes, narrow verges with frequent crossovers, medians, utility-dense corridors, mapped urban-heat "hot spots", and renewal/redevelopment areas targeted for larger shade trees.

When we deliver: design in from the outset and install whenever streets are opened for capital works (streetscape upgrades, pavement/footpath renewals, power undergrounding, drainage/WSUD projects, and developer works in centres). If design review identifies a soil-volume shortfall, a below-pavement solution is the default response.

How we integrate: coordinate dedicated utility corridors and setbacks; connect sub-grade volume to WSUD/passive irrigation so captured rain reaches the rooting zone; use permeable or vented surface finishes where appropriate; maintain the root collar above finished level.

Asset records: capture as-built extents (plan and depth), connections and access points in the City's asset management system (GIS-referenced) to support maintenance and future extensions.

If not feasible: where structural solutions are demonstrably impractical (e.g., insurmountable service conflicts or prohibitive cost), document the constraint, adjust species/size or location, and deploy complementary measures (additional trees nearby, shade structures, or WSUD elsewhere) to meet the street's shade and cooling objectives.

1.10 Co-planting and Multi-layered Diverse Vegetation

Urban streetscapes often contain a variety of underutilized micro-spaces that, while unsuitable for large street trees, can still support smaller or complementary plantings. These niche planting areas may be in traffic islands, road verges with irregular geometry, widened footpaths, or recessed building frontages. Through strategic co-planting, these pockets can be transformed into productive green assets, contributing to canopy expansion and overall streetscape quality.

Companion planting in these areas can provide multiple benefits:

- Enhanced canopy coverage by layering vegetation at different heights, filling gaps between larger trees.
- Biodiversity gains through increased habitat variety and seasonal flowering or fruiting species.
- Urban cooling by reducing heat island effects in paved or exposed areas
- Visual continuity along streetscapes, creating a cohesive and attractive green corridor.

Plant selection for co-planting should consider the site's microclimate, available root and canopy space, visibility requirements, and maintenance capacity. Smaller native species, shrubs, and groundcovers can complement larger tree plantings without competing for resources, while flowering species can add seasonal colour and pollinator support.

Incorporating co-planting into the streetscape design guidelines ensures that every available planting niche is utilised. This approach not only supports the broader urban forest canopy targets but also enhances street character, resilience, and ecological function.

City of Nedlands

71 Stirling Highway Nedlands WA 6009
PO Box 9 Nedlands WA 6909
T 9273 3500
E council@nedlands.wa.gov.au
nedlands.wa.gov.au