



Tree Management Plan

For

Hepburn

SHIRE COUNCIL

Prepared by

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Table 1: Table of Revisions

Rev No.	Report Date	Description	Author	Internal Review Date	Reviewed by
4.1	25.08.2021	Minor update to definitions	CB	-	-
4	24.08.2021	Final report for public consultation	CB	-	-
3	27.07.2021	Final report for Councillor Briefing	HSC	-	-
2	21.10.2020	Amended based on Council feedback	CB	-	-
1	01.10.2020	Amended based on Council feedback	CB	-	-
0	12.08.2020	Draft submission to Council for review	CB	18.02.2021	DN/BJN

1. Introduction

Hepburn Shire is in the Central Highlands region of Victoria, approximately 110 kilometres north-west of Melbourne. It has a population of over 15,000 people (ABS, 2016) dispersed across many localities. Just over half of the population (55%) reside within five urban areas of Daylesford, Creswick, Clunes, Trentham and Hepburn (ABS, 2016).

As a popular tourist destination, Hepburn Shire is renowned as the 'Spa Capital of Australia (Figure 1)', attracting over 70,000 visitors a year and hosting a huge range of events.



Hepburn's landscapes are enhanced through its parks, reserves, tree lined avenues and native and planted exotic forests. In addition, mature exotic specimen trees and remnant native trees add to the character of the Shire.

Trees are pivotal in adding to the unique character of Hepburn, and Council recognises the importance of trees and the diversity of benefits provided, from shade, amenity and promoting well-being to capturing carbon and providing wildlife habitat.

Studies have revealed the public consider shading and cooling as the most important benefit provided by urban trees. This was closely followed by their aesthetic characteristics, ability to calm people and increased property values (Gorman 2004, Lohr *et al.* 2004).

Trees on roadsides and parks may be part of habitat corridors. Tree-dependent species include threatened and 'iconic' species such as Greater Gliders, Powerful Owls, Swift parrots and Koalas. Some trees themselves have conservation significance including Brooker's Gum and the Fryerstown Scentbark.

Recent trends in Australia have shown a loss of urban trees, particularly on private land (Moore, 2009). This has raised the importance of the retention and protection of trees on public land in order to provide a safe and sustainable environment for our community into the future.

To maintain the benefits of a large tree population as well as manage associated risks a strategic and proactive approach is required.

Purpose

The Hepburn Tree Management Plan was developed to provide guidance for the management of public trees to ensure a consistent approach whilst providing a safe environment for the community.

Council's tree management is based on relevant legislative requirements and existing Council policies and strategies (Appendix 1 and Appendix 2), as well as accepted best practice tree care.

This plan is intended for use by staff dealing with issues relating to trees on Council managed land and as a document that can be referred to by the community.

A periodic review of this plan be undertaken at least once every 5 years, and updated as necessary, in consultation with the relevant stakeholders.

Objectives

The objectives of this plan are:

- Improve overall outcomes for public trees through raising awareness of tree related matters;
- Protect existing public trees through providing tree protection and retention measures;
- Maintain public safety and optimise resource allocation through implementing a risk-based public tree management program;
- Provide a consistent approach to management and protection of trees in the Shire's Significant tree register;
- Integrate and streamline public tree care, tree planting and emergency response; and
- Manage public trees in accordance with legislative requirements, such as the Land Use Activity Agreement (LUAA) and Native Vegetation Removal Regulations.

Scope

Hepburn Shire covers an area of 1,825km² with 26% of this managed as public land. Council is responsible for all trees on Council managed land, such as road reserves, parks, open spaces, recreational reserves, and various community facilities. Council managed land includes all land owned by Council as well as in some cases land owned by other agencies:

- Where a management agreement is in place, Council is responsible for managing trees on land owned by the Department of Environment, Water, Land and Planning (DEWLP); and
- Council is responsible for managing trees on land owned by VicRoads where these form part of a main throughfare (e.g. through a town centre) or an Avenue of Honour.

Council managed trees will be referred to as 'public trees' throughout this document. All of Council managed land has been mapped and zoned in accordance with Section 6.

Trees not managed by this plan:

- Trees on private property;
- Trees on road reserves managed by VicRoads, or in National, State and Regional Parks (either managed by Parks Victoria or DEWLP); and
- Trees within Council managed bushland areas – except for those adjacent to formal walking tracks.

Council is not responsible for trees and vegetation on private properties. Where there is an issue between neighbouring properties, this should be resolved between property owners. The [Dispute Settlement Centre of Victoria](#) can assist with resolution.

Principles

Whilst the costs of managing trees is widely known, environmental and economic benefits of trees are often undervalued (Moore, n.d.). Council highly value the life supporting, environmental and economic services provided by public trees.

Appropriately treed streetscapes and landscapes provide shade, ambient temperatures and character and can greatly benefit community pride and well-being.

In recognition of the benefits provided by trees, Council will manage public trees in line with the following principles.

1. The management of public trees will be proactive and systematic. To ensure the ongoing safety of the community and efficient use of resources, tree management will be prioritised based on risk.
2. Public trees are long-term environmental and community assets and where possible will be protected from activities detrimental to their health and / or longevity.
3. The overall management of public trees will be collaborative and in line with best practice management to ensure optimal community and environmental outcomes.
4. Removal of public trees will only be approved when feasible alternatives to removal have been explored, and with consideration to site suitability, historical, aesthetic and environmental significance. Public trees will not be managed to reduce perceived nuisances, such as leaf or fruit drop.
5. Public trees will be maintained to provide a diverse urban forest that is adaptable to climate change. Replacement planting will consider landscape context (e.g. nature strip width, existing underground and overhead infrastructure), existing character and climate suitability.

1.1 Benefits of Trees

Trees are an important feature of both rural and urban landscapes.

On a landscape scale, trees soften built form, link and unify landscapes, emphasise seasonal changes and contribute to liveability and community well-being (Moore, 1997).

Many of the benefits offered by trees are diverse and provide value in a range of areas, with larger trees tending to provide greater benefits. For example, shade offered by trees can reduce ambient temperatures, leading to a reduction in air conditioner use and carbon emissions (Moore, 2012). Some benefits of trees are provided in Figure 2.

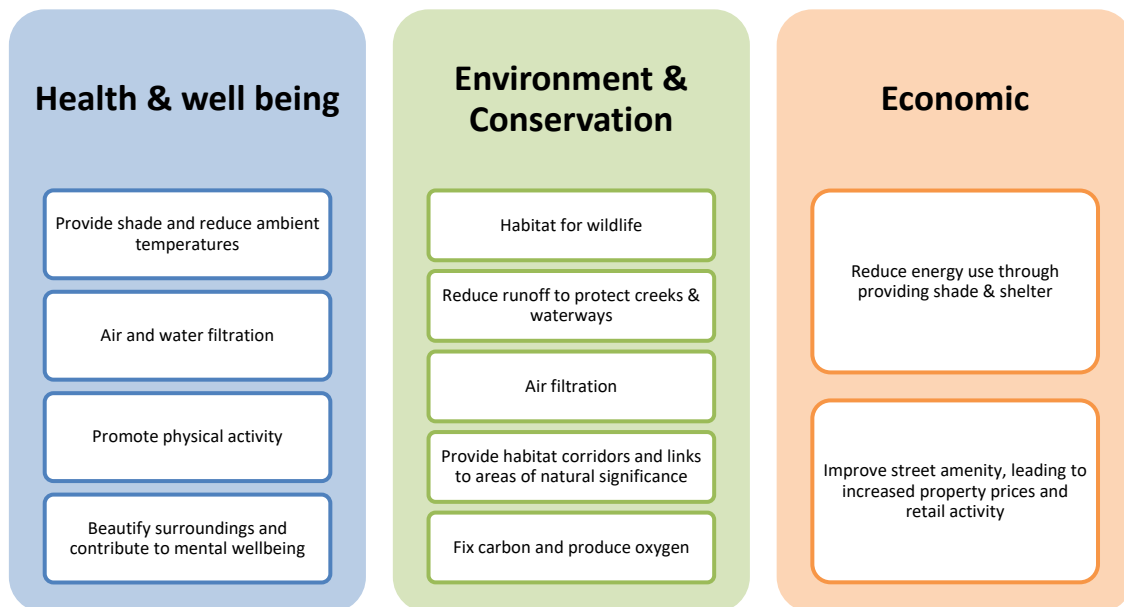


Figure 2: Benefits of trees (adapted from Moore 1997 & Moore 2012)

1.2 Legislative Requirements

Where pruning or removal of a tree is required that is not part of normal maintenance activities (e.g. property clearance, formative pruning, deadwood removal), or part of an emergency response (i.e. where there is an imminent risk of harm), internal consultation will be undertaken with Councils Planning Team to determine any planning requirements.

Legislation relevant to tree works include:

- *Planning and Environment Act 1987*
- *Aboriginal Heritage Act 2006*
- *The Traditional Owner Settlement Act 2010*
- *Electricity Safety Act 1998*
- *Flora and Fauna Guarantee Act 1988*
- *Environment Protection and Biodiversity Conservation Act 1999*

For a summary of the application of this legislation refer to Appendix 1.

2. Consultation

Hepburn Shire Council manages public trees on behalf of the community and consultation on all major tree projects and programs will be undertaken. Consultation with the local community is vital to ensuring successful tree management across the Shire.

A well-informed community who participates and has input into the management of their surrounding environment will help ensure optimum outcomes for public trees.

2.1 Key Stakeholders

This plan was developed in consultation with the Parks and Open Space, Works, Engineering and Planning (Biodiversity) Teams. Working group meetings were used to review the draft plan with feedback incorporated into a final draft plan which was used in subsequent consultations.

Councillors

Proposed consultation includes a Councillor briefing. Participants include a representative of Homewood Consulting, the Open Space and Parks Coordinator, Manager of Operations and each Councillor(s). Feedback from these sessions will then be reflected in the final plan.

General Public

Council Officers have assessed this plan in line with Councils' Community Engagement Policy 2021. Given the significant community interest in arboriculture practices, the potential budget implications from the initial tree auditing process and the risks associated with such a large number of trees under Council responsibility, we have derived a 'Medium' level of engagement is necessary in the development of this plan.

Council Officers proposes to run a similar process as per the Annual Budget & Road Management Plan and place the draft Tree Management Plan on public exhibition for a 28 day period and invite submissions on the plan.

3. Definitions

The following is a list of terms used throughout this plan:

'Tree'- A tree is generally defined as a woody plant with a height greater than five (5) metres with a trunk diameter of 150mm or greater in diameter at a height of 1.4 metres above natural grade. Trees less than this are either young or considered to be shrubs.

'Public tree' – Trees Council are responsible for managing, located either on Council owned land or land managed by Council.

'Council Arborist' – An arborist approved by Council as suitably qualified to undertake public tree assessments. Council arborists must hold a minimum AQF Level 4 Qualification in Arboriculture, and where undertaking tree risk assessments must have QTRA user accreditation. May be an internal staff member or consultant)

'Diameter at Breast Height' or **'DBH'** – Refers to the tree characteristic of trunk girth. in centimetres as measured at 1.4m above ground level.

'Tree Protection Zone' or **'TPZ'**- 'A specified area above and below ground at a given distance from the trunk set aside for the protection of a tree's roots and crown to provide for the viability and stability of a tree to be retained where it is potentially subject to damage by development' (AS4970-2009).

The TPZ is established as a radius, calculated by multiplying its DBH by 12 (Figure 3). AS4970-2009 indicates that the TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 metre outside of the crown projection.

$$\text{TPZ} = \text{DBH} \times 12$$



'Tree Risk Assessment' – A systematic approach to the identification, analysis and evaluation of risks associated with whole tree or branch failure.

'Likelihood of occupancy'– Is the likelihood of people, vehicles or property being present at the time of tree or branch failure.

'Habitat tree' – Habitat trees are “standing live or dead trees providing ecological niches (microhabitats) such as cavities, bark pockets, large dead branches, epiphytes, cracks, sap runs, or trunk rot” (Bütler, R et al, 2013). In many tree species it can take up to 120 -150 years to develop natural hollows and as such habitat trees are usually large old trees (VTIO, 2010).

'Habitat stump or tree' – Large old trees that are dead or dying but are retained in the environment for flora or fauna habitat. These trees usually have a high proportion of sound wood (very little decay) and are reduced to a size where they are unlikely to present a risk to people and infrastructure (VTIO, 2010). Where hollows are not naturally occurring, artificial hollows should be created and/or nesting boxes installed (Figure 4).



‘Significant Tree’ – Any tree included by the ‘Hepburn Significant Tree Register’ for its local, state or national significance (e.g. visual, aesthetic, historical, commemorative, social, cultural, horticultural/botanical, age or size). In order to be included on the register ‘Significant Trees’ must go through a nomination process (Figure 7), which includes approval from the State Planning Minister.

‘Notifiable Tree’ – Public tree with key characteristics that could be of value to the community and environment, and meet one or more of the following criteria:

- amenity trees (greater than five metres tall and trunk diameter greater than 80cm);
- trees that represent more than 30% of the tree population in any street/park
- habitat trees - living or dead;
- remnant indigenous vegetation;
- trees of ecological, historical or aesthetic significance
- trees of cultural or environmental significance; or
- rare or threatened trees.

4. Tree Protection

Trees can take decades to establish, with benefits provided by a mature canopy tree far outweighing that of a new planting. As such Council is committed to preserving existing trees and the services they provide.

Trees need specific environmental conditions to ensure their ongoing health and stability, and it is important to protect all parts of a tree both above and below the ground. Damaging tree roots should be avoided as it can affect the ongoing viability of a tree as well as its structural integrity. Once damaged it is 'rarely possible to repair stressed and injured trees' (Standards Australia, 2009).

Two Australian Standards exist to protect trees and public trees should be protected from works or construction impacts in line with these standards.

- AS4970-2009 – *Protection of trees on development sites*
- AS4373-2007 – *Pruning of amenity trees*

Where there is the potential for public trees to be impacted by works or construction, a Council Arborist can assist in determining tree protection requirements.

Where it is determined a Tree Protection Zone (TPZ) is required, this should be established in accordance with AS4970-2009. Some common activities which are restricted within TPZs include: excavation, trenching, cultivation, parking or storage of vehicles / equipment, preparation of chemicals, refuelling, dumping of waste, placement of fill and lighting of fires.

Where large roots (>40mm diameter) of a public tree are damaged, an assessment by a Council Arborist is essential to ensure it can remain in the landscape safely. Either whole tree removal or selective root pruning may be required.

The Council for Arboriculture of Victoria provide support for best practice arboriculture and their [Reporting Guidelines](#) for impact assessments will be used by Council.

4.1 Tree Retention and Removal

Council aims to invest in the protection and maintenance of public trees as long-term community, environmental and landscape assets, in a strategic and risk-based manner (Section 6). Trees planted in Australia's urban landscapes are often chosen due to their capacity for long lives. For example, planted and appropriately managed Elms, Planes and Oaks can live for more than 150 years.

Removal of public trees will only be approved when feasible alternatives to removal have been explored, and with consideration to site suitability, historical, aesthetic and environmental significance.

Possible alternatives to tree removal include, Council authorised pruning, restricting access (through fencing or planting) repair or relocation of infrastructure, innovative / modified designs or the installation of root barriers.

Council will not manage (prune, lop or remove) trees based on any of the following:

- Dropping leaves, fruit, bark, sap or twigs;
- Leaf litter blocking drains or gutters;

- Animal / bird droppings or noise;
- Impeding views, signage or solar access;
- Causing a minor irritant; and
- Causing minor or unsubstantiated damage to infrastructure or property (private or public).

In most cases the amount of pruning required to mediate these issues is detrimental to the health, structure and longevity of the tree.

The removal of public trees should be approved by either the Parks and Open Space Coordinator or Works Coordinator and may be considered in the following situations:

- **Dead, dying, in decline, or hazardous**
 - Where concerns are raised regarding the safety of a public tree, a risk assessment will be undertaken by a Council Arborist an internationally recognised method (e.g. QTRA – refer to Appendix 8). Trees assessed as hazardous will be removed where no other options for the mitigation of risk are available. To assist in guiding decisions, risk thresholds have been defined in Section 6.1.
 - Where large old trees have died (>80cm DBH), consideration will be given to retaining the stump for habitat.
 - Council will not remove small (<30 cm DBH) dead or dying trees where there are no targets (e.g. people, vehicles, buildings) within the impact zone, unless they are deemed to be a fire risk by an authorised Council Officer or State Officer (e.g. Country Fire Authority)
 - Where it is suspected that a public tree has died or is dying as a result of vandalism (e.g. ringbarked, poisoned, lopped), the tree will remain in situ as per Section 4.2. Risk reduction pruning may be required.
 - Trees can sometimes become unsafe during and after severe weather events, for Councils approach to this refer to Section 7.2.
- **Pest, disease or biosecurity**
 - Where pests or diseases cannot be managed effectively without tree removal, or due to a biosecurity threat.
- **Environmental threat**
 - Where the tree is considered an environmental weed and is threatening biodiversity values of a significant natural area (e.g. wilding Pines).
- **Significant / irreparable damage to property or infrastructure**
 - A significant and substantiated claim of damage to property or infrastructure.
 - It is the responsibility of the owner (e.g. Council Team, resident, business) of the infrastructure to provide expert evidence (e.g. engineer, plumber) the damage is being caused by the tree (e.g. written, photographic).

- Where claims are substantiated, alternatives will be considered (e.g. root barriers, infrastructure replacement) prior to the approval of tree removal.

Where tree removal becomes a contentious issue, Council will seek the opinion of an independent arborist. Internal consultation will be undertaken with the Governance Team as required.

If trees are removed from road reserves or parks where there is frequent pedestrian access, stumps will be removed via stump grinding to prevent trip hazards and allow grass cutting.

Crossovers

In line with Councils 'Guidelines for Vehicle Construction', construction and maintenance of vehicular crossings to individual properties is the responsibility of the property owner. New crossovers require a 'works within a road reserve' permit from Council.

- Where possible, public trees should be retained and protected throughout construction with a tree protection zone (TPZ).
- Design modifications may enable the retention of trees, such as the installation of permeable surfaces.
- Internal liaison between Engineering, Works and Parks and Open Space will assist in achieving a collaborative and balanced outcome.
- Where a new crossover potentially impacts an existing public tree(s), this should be assessed by a Council Arborist.
- Where tree removal is approved, the applicant will be responsible for both tree removal and replacement costs.
- A planning permit may also be required for tree removal subject to the Victorian Planning Provisions.

Events

Whilst trees provide atmosphere and shade for events, increased pedestrian and vehicle access can often be detrimental to tree health through compaction and mechanical damage to trunks and canopies.

The establishment of TPZs or other mitigation measures (e.g. raised walkways, mulching, or other ground protection) should be considered where events are held in proximity to public trees.

4.2 Damage to Public Trees

Where possible, Council will investigate suspected vandalism to public trees (e.g. ringbarking, poisoning, lopping).

- Where a public tree has been intentionally damaged, it will be pruned and left in-situ. Informative signage which requests information from the community will be installed in the immediate area.
- The tree will be replaced with a new tree in the same or a similar location in the next planting season.

Where a public tree is damaged as the result of construction works or a development:

- Under the Victorian Planning Provisions, Council can apply to the Victorian Civil and Administrative Tribunal (VCAT) for stop work orders and can also further prosecute at the Magistrates court.
 - Council may request an independent arborist's report prior to the recommencement of work.
 - The relevant contractor, authority or property owner will be liable for costs associated with the independent arborist's report as well as any associated tree removal or replacement costs (as determined by Section 4.3).

Any incidence of damage or unauthorised removal of a public tree may also be referred to Council's Local Laws department or Victoria Police.

4.3 Tree Valuation

From time to time it may be necessary to assign a monetary value to a public tree. Some instances where this may be appropriate include:

- Unauthorised removal;
- Vandalism or damage that results in tree death / removal; and
- Where the requirements of Section 4.1 are not met.

Where tree valuation is required, an recognised industry approach will be used (e.g. Burnley method). Existing methods consider the cost of removal and reinstatement, as well as amenity and ecological services.

Tree valuation methods will not be applied where trees have a DBH of less than 6cm, with only removal and reinstatement costs considered appropriate.

4.4 Biodiversity

Biodiversity is short for biological diversity and refers to the variety of life on Earth. Loss of native vegetation and fragmentation of habitats is a major threat to biodiversity and the species that make up ecological communities.

Roadside tree management results in relatively small-scale changes compared to forest management or land use-conversion. However, for some threatened species, individual trees or stands on a roadside or reserve may form a critical part of a habitat for a local population.

Native Vegetation

Native vegetation includes any plants, including trees, that are Indigenous to Victoria. Native vegetation is important for providing habitat for native flora and fauna as well as providing ecosystems services. Trees may also be Indigenous to the Hepburn area.

Under local planning schemes a permit is usually required to remove, destroy or lop native vegetation, and Appendix 2 details relevant legislation and exemptions. Relevant exemptions may include 'road safety, or 'emergency works'.

Emergency works may include trees that present an immediate risk of personal injury or damage to property, and [Hepburn's Vegetation Exemptions Protection Policy \(Policy 78\)](#)

provides guidance on dealing with risks associated with native trees including risk assessment requirements.

Section 2.4 of the [DELWP native vegetation exemptions guidance](#) defines emergency works as:

- Works required to allow access at the time of an emergency; or
- An immediate risk of personal injury or damage to property as ‘the only option to manage the risk is by removing native vegetation within a shorter timeframe than it would take to apply for and be issued with a permit for its removal’.

Where risk assessments recommend works within **three months** to mitigate risks presented by native trees, these works will fall into the category of ‘Emergency Works’ and a planning permit will not be required.

Threatened tree-dependent fauna

Among nearly 200 species listed as threatened or near threatened within the Hepburn Shire (EPBC, FFG, and Advisory list) a number of tree-dependent fauna, such as the Brush-tailed Phascogale and Powerful Owl, have been identified as being more likely to be impacted by Council’s tree management activities. A list of species within the Shire can be found in Appendix 3 and imperatives for protection of these species include:

- Specific training of staff to identify and protect critical habitat features
- Retention of large trees with hollows, retention of mistletoe and protection of large Yellow Gums in the Clunes area.

Threatened tree species

There are five tree species listed as threatened in the Hepburn Shire and these are included within the list of threatened species in Appendix 3. Two of these, Gum-barked Bundy and Fryers Range Scentbark, have only been recently described. Along with Buloke, they have a relatively restricted known range within the Shire. Brooker’s Gum and Yarra Gum are more widespread.

Mapping of known occurrences of these species has been developed for inclusion on Council Asset Management and for future inclusion in the Significant Tree Register as described in Section 5.1.

4.5 Community Consultation

Council understands the importance of providing notification of tree removal works to affected residents. The high value placed on trees by the community means that issues relating to tree management can generate considerable public interest. As a consequence, a commitment to engaging and working with the community is essential to facilitate effective tree management. Particularly, notification of the timing and type of works is important for the success of tree management programs.

There are scenarios by which consultation isn’t deemed necessary. Council Officers have developed some key criteria in order to differentiate between Notifiable vs. Non-Notifiable trees for the purposes of community consultation. Notifiable public trees are considered to meet one or more of the following criteria:

- amenity trees (greater than five metres tall and trunk diameter greater than 80cm);
- trees that represent more than 30% of the population of trees in any street/park
- habitat trees - living or dead;
- remnant indigenous vegetation;
- trees of ecological, historical or aesthetic significance
- trees of cultural or environmental significance; or
- rare or threatened trees.

4.5.1 Urban Road Reserves

a) Notification for Removal of a Non-Notifiable Tree

As part of the customer service process or at the time of tree removal works being undertaken in a road reserve in an Urban Zone, the resident immediately adjacent to the site is to be given written or verbal notice of the proposed action including arrangements for stump removal, reinstatement and tree replacement.

b) Notification for Removal of a Notifiable Tree

Community consultation and notifications public tree removal will be driven by the Community Engagement Policy 2021 and the associated Level of Engagement Matrix.

At a minimum, prior to the works being undertaken in a road reserve, residents immediately adjoining or adjacent to the site ("visually" affected by the trees removal) are to be given no less than fourteen (14) days written notice of details of the proposed action, including arrangements for stump removal, reinstatement and tree replacement if appropriate. When more than 30% of street trees are to be removed from a given street or location and their removal may impact upon the wider community, the following will apply:

- Resident and Ward Councillor notification will be undertaken as above.
- Signage, that explains the reason/s for tree removal and providing Council contact details for further information, will be erected no less than fourteen (14) days prior to the proposed works occurring. Size of signage will be a minimum A3.

4.5.2 Rural Road Reserves

Tree removals within the shires Rural Zones is usually undertaken in response to a hazardous or potentially hazardous situation. The tree or group of trees may be deemed to be hazardous or the trees location may pose a hazard to property or road users.

In this instance, notification of Council's intention to remove a tree or group of trees is not required.

4.5.3 Parks, Reserves and Other Council Managed Land

a) Notification for Removal of a Non- Notifiable Tree

No resident, management or Park Committee notification is required for the removal of non- notifiable trees in parks, reserves and other Council managed land.

b) Notification for Removal of a Notifiable Tree

Prior to the work being undertaken in parks, reserves or other Council managed land, any Park Committee, Friends of Group or residents immediately adjoining or adjacent to the site ("visually" affected by the trees removal) are to be given no less than 14 days written notice of details regarding the proposed works, including arrangements for stump removal, reinstatement & tree replacement.

When the extent of tree removal works are significant enough to have an impact upon the wider community, council will use appropriate media forums to publicise the works. Consultation and notification requirements will be driven by the Community Engagement Policy 2021 and the associated Level of Engagement Matrix.

4.5.4 Emergency Works

- In emergency situations, where tree removal is required to maintain levels of safety and / or in line with Council's Emergency response (Section 7.2) notification prior to removal may not be possible.

As part of the planning process, it may be necessary to consult with additional stakeholders, such as Heritage Victoria, DELWP and Dja Dja Wurrung.

5. Significant Trees

A Significant Tree Register (Appendix 6) identifies and protects trees which are an important part of Hepburn's natural, cultural or historical heritage.

Trees can be significant for many reasons including their visual, aesthetic, historical, commemorative, social, cultural, horticultural/botanical, and age or size.

Some trees may be remnants of original vegetation. Some trees may be located prominently in the landscape and contribute local significance to streetscapes or the wider landscape.

Large old trees in particular play a disproportionately important role in habitat provision through their scale, provision of hollows and reliable nectar flows. Several species including Powerful Owls and Greater Gliders nest in large hollows that may take centuries to form. Encouraging the protection of LOTs on both private and public land aligns with Action 6 in the Hepburn Shire Biodiversity Strategy.

Some significant fauna species that rely on trees are listed in Appendix 3.

There are six Avenues of Honour across the Shire (Creswick, Daylesford, Drummond, Kingston and Trentham (2)) that have historic associations and were planted for commemorative reasons. To date only the Kingston Avenue of Honour is listed on the Significant Tree Register.

5.1 Hepburn's Significant Tree Register

Guidance for the development of the 'Hepburn Significant Tree Register' has been taken from the development of the National Trust Register.

- To date (2021), 37 public trees (including individuals and groups) are listed on the 'Hepburn Significant Tree Register' (Appendix 6).
- For trees to be listed on the register, they need to go through a nomination process (Figure 7), and be assessed against specific selection criteria (Appendix 5).
- Significant Trees can be located on public or private land.

Management and Protection of Significant Trees

Significant Trees are protected by local planning controls, or state environmental / heritage laws. To allow the identification of Significant Trees (Figure 5 and Figure 6) via interactive mapping tools (see VicPlan) Planning Overlays are mapped. Some Significant Trees may not be mapped due to cultural sensitivities.

Appendix 6 provides details regarding the protection offered to existing Significant Trees.

To ensure their appropriate and ongoing management, Significant Trees should be captured within a tree inventory. This will allow Significant Trees to be easily identified through Council databases and proactively managed where appropriate.

- Independent of location, all public Significant Trees should be mapped and recorded via an individual tree assessment (Level 2).

- Where Significant Trees are of the same species and in groups, rows or avenues, it may be more appropriate to map and record them as a collective group (rather than individually).



Figure 5: Significant tree (*Eucalyptus obliqua*) within 60 Mulcaheys Road, Trentham



Figure 6: Significant tree (*Eucalyptus viminalis*) outside 45 Rothes Road, Little Hampton

Significant Tree Nominations

Council invites members of the public to nominate Significant Trees for inclusion on the register via email at any time. In addition, Council may identify and nominate trees as part of routine and proactive inspections.

The nomination process is shown in Figure 7 below.

- To be considered significant, applicants must demonstrate how the tree(s) meet at least one of the criteria in Appendix 5.
- Not all Significant Tree nominations will be accepted for inclusion on the register, and nominees will be advised accordingly.
- An independent review of the nominations and the submission of trees for inclusion on the 'Hepburn Significant Tree Register' is expected to occur every five years.
- Any Hepburn Shire trees on the National Trust Register which are not already captured by the Planning Scheme should be included in the Significant Tree Nominations process. The National Trust Register does not offer statutory protection of Significant Trees.
- Whilst awaiting statutory protection, trees that are accepted by Council as part of the nomination process will be recorded within the tree inventory to offer interim protection.

- Through appropriate dataset design, the Proactive Tree Management Program will also assist in the ongoing identification of Significant Trees on public land.

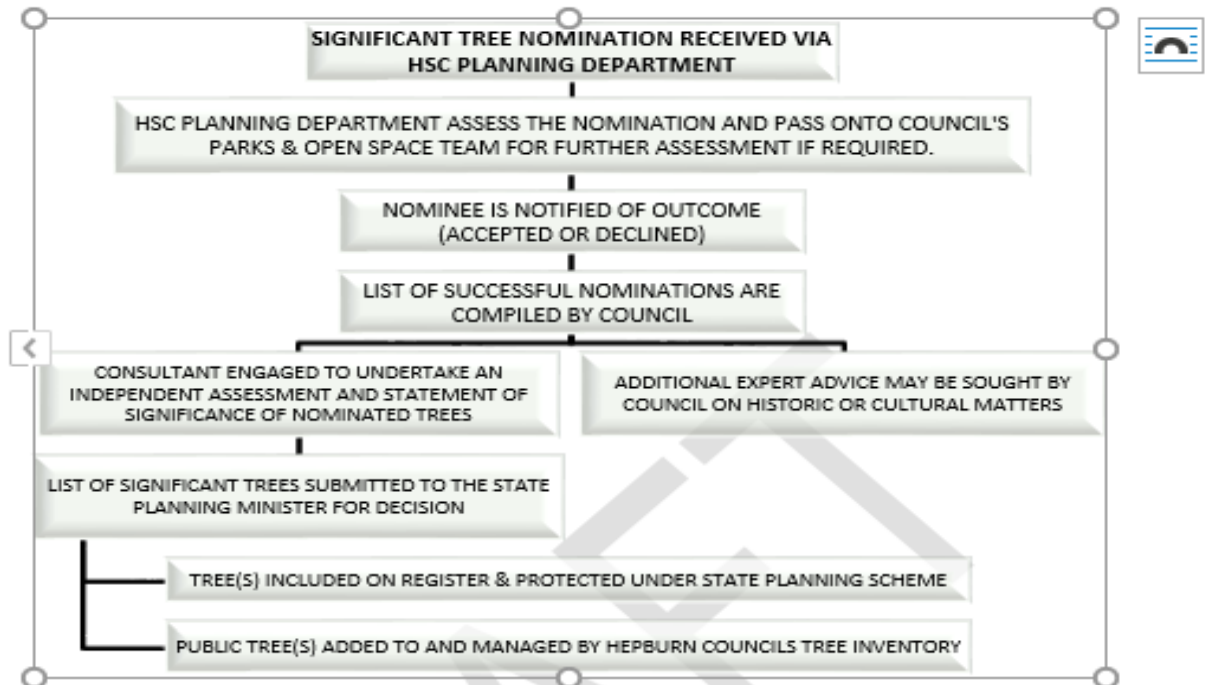


Figure 7: Hepburn Shire Significant Tree Nomination Process

6. Proactive Tree Management

Mature trees in urban environments provide aesthetic, social, health, economic and environmental benefits (McPherson 2007, Moore 2009) but also present a risk of causing harm (injury, death, property damage, disruption of activities).

To protect public safety and optimise resource use, Council have developed a proactive tree assessment program based on managing risk.

The principles of the tree assessment are captured in the Visual Tree Assessment (VTA) method developed by Mattheck and Breloer (1997). VTA is a method of evaluating structural defects and stability in trees.

Proactive Tree Management can also offer many opportunities for the strategic management of large tree populations, such as:

- Analysing the age and condition of trees to prevent aging populations
- Analysing species diversity and ensuring adaptability to changing climates
- Determining carbon sequestration and storage capabilities
- Suitability of tree in respect of location and species type
- Recommendations for the Significant Tree register

6.1 Tree Risk

People have a range of attitudes towards trees and the risks associated with them (Helliwell 1990), however in some cases perceived tree risk has led to disproportionate levels of tree risk management (Ball & Watt 2013).

Council recognises that whilst the risk from falling trees is usually very low (QTRA, 2019), many mature trees are associated with some level of risk.

Undertaking proactive tree risk assessments using a recognised method (Appendix 8) aims to maintain levels of safety, and where appropriate prescribe works to mitigate the risk of branch or tree failure. Setting acceptable risk thresholds and managing public perceptions is an important part of this program.

6.1.1 Inspection Zones and Timeframes

Land use is 'by far the most important component of QTRA' (QTRA, 2019) and inspection zones have been defined in relation to land use, independent of the presence of trees.

Land managed by Hepburn has classified into inspection zones, guided by pedestrian and vehicle usage and the likelihood of occupation (Table 1).

These zones have been mapped and are used to guide an inspection regime, with more frequent inspections undertaken in areas with high levels of use (Zone 1), and less frequent inspections undertaken in areas with low levels of use (Zone 3).

For further details regarding zoning and inspection regimes refer to Table 10 and Table 11 in Appendix 8.

Inspection zones are intended to be dynamic, to allow continual improvements to the program as further field knowledge is acquired or as landscapes change. Feedback from the public regarding inspection zones can be provided to Council via email at any time.

Table 2: Overview of Inspection Zones and Frequency of Inspection

Inspection Zone	Likelihood of occupation	Council managed land, associated with:	Council managed road reserves:	Frequency of inspection
1	High	<ul style="list-style-type: none"> Recreational areas with high use High profile public land (e.g. tourist attractions, community event locations) Administration (e.g. Council Offices) Education (e.g. Childcare Centres / Kindergartens) 	<ul style="list-style-type: none"> CBD's / hubs of townships Major urban arterials Urban link roads Adjoining medical, transport and education facilities 	Annual
2	Moderate	<ul style="list-style-type: none"> Recreational areas with moderate or transient use (e.g. walking trails within Parks and Reserves) Moderate use community facilities (e.g. Town Halls, Senior Citizen centres, Information Centres) Administration (e.g. Council depots) Areas of sites of Local or National significance (e.g. Avenues of Honour) 	<ul style="list-style-type: none"> Not applicable for road reserves - classified as either Zone 1, 3 or 4 	Every 2 years
3	Low	<ul style="list-style-type: none"> Recreational areas with low or transient use (e.g. walking trails within bushland areas) Other low use Council land 	<ul style="list-style-type: none"> Hubs of villages Minor urban arterials Rural arterial and link roads Collector roads Suburban or peri-urban local access roads Local access roads in semi-rural areas 	Every 5 years
4	Very Low	<ul style="list-style-type: none"> Recreational areas with dispersed or transient use (e.g. bushland areas, fire breaks and 4WD tracks) Open and peripheral areas with limited use or access (e.g. vacant land, easements, drainage) 	<ul style="list-style-type: none"> Local access roads in Hamlets and rural areas Road reserves with 80km / hr or greater speed limit 	Reactive ONLY –on request

Multiple Zones

Whilst some areas managed by Council are easily demarcated and zoned, other areas such as Jubilee Lake Reserve will have multiple zones due to variable usage.

Jubilee Lake Reserve is managed in conjunction with DELWP and covers over 37 hectares. Home to the Jubilee Lake Holiday Park, it attracts various community members and groups, and is a camping base for the ChillOut Festival which brings 20,000 visitors to the region annually. In contrast this reserve has bushland areas that are rarely accessed. Figure 8 describes the application of each zones.



Exceptions

In some cases, inspections may fall outside of the Table 1 inspection zone regime:

- Events: Where possible the inspection regime will be aligned with the major events schedule to maximise resource allocation.
 - It is recognised that major or one-off events may impact the usage of areas on a sporadic basis. This will create an increased risk that is not appropriate to be captured within the inspection zone categories. For example, the Jubilee Lake overflow camping area (Zone 3) is sometimes used to capture over-flow campers from the annual ChillOut festival.

- Where tree inspections have not occurred within three months prior to a major scheduled or one-off event, a walkover inspection by a Council Arborist is recommended before the event takes place to ensure an acceptable level of safety is maintained.
- Sites: Some sites, such as Wombat Hill Botanic Gardens, may have unique use and require a different approach.
- Customer requests: Community members may make a tree related request to Council at any time via phone, email or via the Parks and Open Space section of the [customer request system](#).

6.2 Road Clearance

Road reserve vegetation clearances are set out and managed by Council on a programmed inspection scheduled in line with Councils [Road Management Plan June 2017 V5](#) and [General and Local Law No.2 of 2019 \(Community Amenity and Municipal Places\)](#).

In line with this plan and Local Law, Council aims to manage vegetation to provide the following clearances:

- Roadways in urban and rural areas - 4.5 metre vertical clearance
- Footpaths in urban areas – 3 metre vertical clearance

6.3 Pest and diseases

A clear relationship has been established between tree care and plant health, and poor management practices can lead to increased incidence of pests and diseases (Harris et al, 1999).

Establishing a tree inventory through the Proactive Tree Management program will maintain the health and safety of the Hepburn Shire tree population. Healthy trees are more likely to withstand stresses posed by pests and diseases.

Any incidence of pest, disease or native animal (e.g. possum browsing, bird damage) significantly impacting the ongoing health or structure of the tree population will be monitored and managed via the Proactive Tree Management program.

Elm Leaf Beetle

Elm Leaf Beetle (ELB) (*Pyrrhalta luteola*) and is a serious pest of Elm trees. Evident from around October, ELB is a small dark brown and yellow striped beetle that creates a series of small holes in leaves. Beetle larvae then destroy all but the veins of the leaves creating a skeleton effect. The larvae descend the trunk during December and are visible on the ground below the tree.

Trees can become defoliated by the end of summer and this reduces energy reserves for the next year's growth. Repeated defoliation by ELB over successive seasons can weaken Elms, increasing their susceptibility to other stresses and may contribute to tree death.

ELB should be treated where trees are worth preserving due age, landscape contribution, habitat value and / or individual significance. Council has an Elm Leaf

Beetle program which treats over 1,500 Elm trees across the Shire on a three-yearly cycle.

Dutch Elm Disease

Dutch Elm Disease (DED) (*Ophiostoma ulmi*) is a devastating vascular wilt disease that affects most Elm trees (*Ulmus* spp.). The most obvious symptom of DED is the dieback of branches, which starts with the yellowing, curling and death of leaves.

DED is not currently present in Australia, however it is of particular concern given it has been in New Zealand since 1989 and not been eradicated.

- DED has wiped out most of the Elms of Britain and North America and over half the Elms of continental Europe.
- DED is spread by the European Elm Bark Beetle (*Scolytus multistriatus*), an introduced pest currently widespread in Victoria.
- DED can also be spread via roots where trees are growing closely together (e.g. Avenues, hedgerows).
- Council will use the 2001 DED Contingency Plan for Australia as a direct reference and guide in the event of a suspected or confirmed outbreak.

Other Diseases

Management of Myrtle Rust and Cypress Canker are the responsibility of the landowner, and Council is committed to minimising the spread and impact of these diseases.

- Myrtle Rust (*Uredo rangellii*): Is an established fungal disease that can lead to defoliation and dieback in all species of the Myrtaceae family (e.g. Eucalypts, Callistemon, Melaleuca). Early identification is vital for effective management and Council will immediately notify [Agriculture Victoria](#) regarding any suspected myrtle rust infections on Council managed land.
- Cypress Canker: Is a fungal disease that causes dieback of exotic conifers in the Cupressaceae family (e.g. Cypress). There is no treatment for Cypress Canker, and sometimes the only option is the removal and replacement of susceptible trees with tolerant species.

6.4 Data Management

The implementation of the Proactive Tree Management Program requires the adoption of specifically designed tree inventory software to allow for efficient management and reporting of captured tree assets and associated works.

Accurate recording of trees as assets through an electronic inventory will provide management with clear and strategic information on trees as a resource. It also enables themes or repeating issues to be tracked and managed effectively.

A procedure will be required to document the hardware and software required, as well as to detail the data required to be captured (e.g. location, species, height, width, DBH etc). Appendix 9 provides some guidance on this procedure.

Considerations include:

- Integration with existing Council databases and systems (e.g. Exponare and Tech One) is paramount.
- Web-based software allows for live view and data to be maintained on-ground.

Quality Assurance (of risk assessment data)

Assessment of risk can vary widely between individual tree assessors (Norris 2007) and auditing of tree risk assessment data will ensure consistency between assessors.

- In the initial 6 months of the Proactive Tree Management program, at least 5% of risk assessments should be audited by a Council Arborist on a fortnightly basis.
- In subsequent years of the program, at least 5% of risk assessments should be audited every 6 - 12 months.
- Where internal Council Arborists are used, regular auditing of assessments and informal training (e.g. walk and talks) will ensure all tree assessors are competent and consistent.

6.5 Continual Improvements

Ongoing review is essential to ensure that tree risk management remains relevant.

There may be factors that affect inspection regimes, such as land use changes or the frequency or intensity of weather events (e.g. prolonged droughts), that prompt the need to review inspection regime and zones.

In addition, knowledge gained through experience and implementation of the program will provide beneficial insights for ongoing management.

- Program implementation will be reviewed every two years and will include a review of all aspects including, tree inspection zone definitions, inspection zone mapping, assessment methods and data collection / management systems.
- The initial review will be particularly important for refining the inspection zones through undertaking a detailed desktop analysis of tree data against zoning.

6.6 Tree Planting

In line with Principle 3, Council will provide a diverse urban forest that is adaptable to climate change.

Replacement planting will be based on a holistic planting plan that considers landscape context (e.g. nature strip width, existing underground and overhead infrastructure) to minimise future infrastructure conflicts as well as maintenance costs. Existing vegetation types, landscape character and climate suitability will also be key drivers.

Council will manage replacement and infill planting on a five-yearly cycle. This cycle will be based on a ward approach and outlined in the associated Tree Planting Plan 2021 - 2026.



Figure 8: Trentham Avenue of Elms: Future tree planting will consider existing tree and landscape character

7. Reactive Management

The Proactive Tree Management Program aims to reduce reactive works, whilst maintaining levels of safety and alleviating community concerns, however reactive management of trees will still be required.

All pruning of public trees must be undertaken in accordance with Australian Standards (AS4373 – Pruning of Amenity Trees) and by a Council Arborist. Incorrect pruning techniques damage a tree's natural defence system and the tree may become prone to infection, decay and / or failure (Shigo, 1991).

Residents are requested not to prune public trees as this is likely to compromise the health and integrity of the tree.

7.1 Community Requests

Once a tree inventory is established, Council will source useful information (e.g. tree species, height, DBH, previous works) from the inventory to assist in the more efficient management of community requests.

Community members may make a tree related request to Council via phone, email or via the Parks and Open Space section of the [customer request system](#).

Safety

Where a tree safety issue is reported, actions and timeframes are recommended below (Table 2). Works will be undertaken in line with the Principles in Section 4.1 and Tree Retention and Removal policies outlined in Section 4.1. For Emergency Response see Section 7.2.

Table 3: Reactive request response timeframes

Action	Details	Completion Timeframe			
		Zone 1	Zone 2	Zone 3	Zone 4
Initial contact	Initial phone call to determine nature of issue and keep the customer informed.	2 working days	5 working days		
Initial inspection	A site inspection should be undertaken by an appropriate Council staff member to undertake initial hazard identification. A site inspection Council Arborist may be required, subject to the location, size or significance of the tree.	2 working days		10 working days	
Risk-based tree works	Timeframes for undertaking tree works will differ based on the level of risk	Prioritised as per risk assessment / risk thresholds.			

Action	Details	Completion Timeframe			
		Zone 1	Zone 2	Zone 3	Zone 4
	determined by the assessment.	Native vegetation will be subject to planning requirements. 'Emergency Works' are exempt from planning permits and include works required within three months (Section 4.4).			
Other tree works (stump removal, clearance pruning, fallen trees / branches)	Council approved non-risk-based works will be added to the Open Space and Parks Team works schedule.	Within 1 months	Within 3 months	As time and resources allow	

Property Clearance

Pruning of public trees overhanging private property may be undertaken to provide clearance from buildings or structures (e.g. fences). All pruning should be undertaken in accordance with Australian Standards (AS4373 – Pruning of Amenity Trees) and by a qualified arborist.

Trees are living organisms and sometimes their canopies do not stay within property boundaries. It is acceptable for branches to overhang a building or property boundary, provided property damage is prevented through maintaining vertical clearance.

Where clearances cannot be achieved due to the proximity of the tree to the property boundary or due to tree structure, consultation with Council may be required. Decisions regarding tree management will be made in line with Councils Principles and Tree Protection policies outlined in Section 1 and Section 4.1.

Tree Roots

Tree root systems are generally 'spreading and relatively shallow' (Moore, 2008). Much of the damage attributed to trees may be the result of poor workmanship, faulty installation and / or inadequate maintenance.

Underground infrastructure has a limited lifespan and requires maintenance and replacement over time. Where defects exist, roots may find their way in and cause further damage to pipes and / or cause blockages.

Tree roots can cause damage to buildings or structures through lifting or subsidence. However, the movement of soil is also a natural process that is repeated annually (Biddle, 1998), and with variations in weather and climate this can also cause damage to buildings.

Where it is suspected that a public tree is damaging Council or private infrastructure, it is the responsibility of the owner / manager of that infrastructure to provide expert (e.g. arborist, plumber) evidence the damage is being caused by the tree (e.g. written, photographic).

Where evidence implicates a public tree, tree management decisions will be made in line with Councils Principles and Tree Protection measures in Section 1 and Section 4.1. Alternatives to tree removal should be explored (e.g. root barriers, selective root pruning).

Footpaths

Council is taking proactive measures to ensure trees do not damage public or private infrastructure into the future through the development of a Tree Planting Plan (Section 6.6). This includes a species selection matrix to ensure the right tree is planted in the right place. Allow space for proper root development will

The maintenance of footpaths is set out and managed by Council on a programmed inspection scheduled in line with the 'Road Management Plan' (June 2017 V5).

- Lip and trip hazards will be managed where the displacement of two adjacent surfaces exceeds 20mm in inner urban areas (generally Zone 1) and 30mm in other urban areas (generally Zone 2).
- Where a tree is suspected to be damaging public infrastructure (i.e. footpaths, roads, drainage), this will be dealt with by Engineering in consultation with the Parks and Open Spaces Team.

Pest and diseases

Council will investigate requests from the public to manage pests and diseases associated with public trees. For the proactive management of tree related pests and disease refer to Section 6.2.

Pests and diseases as identified by a Council Arborist (or pest management expert) will be managed in line with appropriate plant health principles and Councils Principles in Section 1 and Tree Protection measures in Section 4.1.

Animals

Possums, flying foxes and other native animals are part of the natural environment and are protected under the Wildlife Act 1975.

Where trees within Zones 1 and 2 are showing significant damage caused by a native animal, a Council Arborist and / or Biodiversity Officer may undertake trees inspections to determine if management is required.

Management options may include the installation of trunk bands or selective pruning to isolate or reduce animal access.

Mistletoe

Mistletoes are aerial parasitic plants that use other plants to obtain their water and mineral nutrients. Generally, mistletoe do not affect the long-term tree health or amenity of trees.

Mistletoe can affect the integrity of individual limbs, and where other stresses are at play (i.e. drought) or one tree is host to a large number of mistletoe, they may contribute to a decline in tree health.

As required, a Council Arborist and / or Biodiversity Officer may undertake trees inspections to determine if management is required.

7.2 Emergency Response

Following severe weather events, trees that were once stable, may present an imminent risk of harm. High winds experienced during storms can severely damage trees, causing damage to trunks, branches and causing root plate failures (Escobedo et al., 2013).

Council will undertake broad-scale tree hazard identification following a gale force wind event (8 or more on the Beaufort Wind Scale).

- This will involve a drive-by of impacted areas, prioritised by inspection zone (e.g. Zone 1 first), to identify trees which may pose an imminent risk.
- These unscheduled inspections may be undertaken by an unqualified (in the field of arboriculture) Council staff member.
- Council staff undertaking unscheduled inspections must have experience in the field of parks, natural resource management or similar, and must have undertaken some informal tree hazard identification training e.g. participated in a workshop run by a Council Arborist.
- Areas significantly impacted may be nominated for a subsequent walkover or drive-by inspection by a Council Arborist.

Following strong gales or storms (sustained winds 9 or more, or gusts greater than 10 on the Beaufort Wind Scale), a Council Arborist will undertake a walkover or drive-by inspection of all areas within Zone 1.

As per Section 4.4, where risk assessments determine the risk presented by native trees requires works within three months, these works will fall into the category of 'Emergency Works' and a planning permit will not be required.

Table 4: Beaufort Wind Scale (BOM, 2021)

Beaufort scale number	Descriptive term	Units in km/h	Units in knots	Description on Land
0	Calm	0	0	Smoke rises vertically
1-3	Light winds	19 km/h or less	10 knots or less	Wind felt on face; leaves rustle; ordinary vanes moved by wind.
4	Moderate winds	20 - 29 km/h	11-16 knots	Raises dust and loose paper; small branches are moved.
5	Fresh winds	30 - 39 km/h	17-21 knots	Small trees in leaf begin to sway; crested wavelets form on inland waters
6	Strong winds	40 - 50 km/h	22-27 knots	Large branches in motion; whistling heard in telephone wires; umbrellas used with difficulty.
7	Near gale	51 - 62 km/h	28-33 knots	Whole trees in motion; inconvenience felt when walking against wind.
8	Gale	63 - 75 km/h	34-40 knots	Twigs break off trees; progress generally impeded.
9	Strong gale	76 - 87 km/h	41-47 knots	Slight structural damage occurs -roofing dislodged; larger branches break off.
10	Storm	88 - 102 km/h	48-55 knots	Seldom experienced inland; trees uprooted; considerable structural damage.

Beaufort scale number	Descriptive term	Units in km/h	Units in knots	Description on Land
11	Violent storm	103 -117 km/h	56-63 knots	Very rarely experienced - widespread damage
12+	Hurricane	118 km/h or more	64 knots or more	Very rarely experienced - widespread damage

8. Action Plan

Table 3 outlines some of the key management actions required to implement this plan within the first five years.

Table 5: Key Tree Management Plan Actions

Year	Action
Year 1	<ul style="list-style-type: none"> • Adopt a tree inventory management system. • Develop Inspection Regime for each Ward, determine data collection / tree inventory guidelines / requirements. • Undertake Year 1 inspections and complete tree works, in accordance with risk threshold, priorities and budget. Includes mapping of Significant Trees on public land. • Develop a Tree Protection Factsheet for the community, including FAQs. • Develop a Tree Protection Factsheet for those regularly working near, or authorising works near public trees (Council Engineers, Developers, Service Providers), including FAQs.
Year 2	<ul style="list-style-type: none"> • Run internal tree protection awareness workshops, focusing on those teams who are involved in conversations / works around trees. Training to include threatened species and critical habitat features identification / management. • Ensure Factsheets are finalised, distributed to appropriate parties and easily accessible. • Develop a form (potentially online) for Significant Tree Register nominations and make available on the website. • Review the online service request form for Parks and Open Space. Tailor information collected to increase efficiencies in handling requests. • Undertake Year 2 inspections and complete tree works, in accordance with risk threshold, priorities and budget. • Create a Significant Tree nomination form (preferably online). • Review first year of implementation of the TMP, including documents, zones and expenditure.
Year 3	<ul style="list-style-type: none"> • Public call out for Significant Tree Register nominations. • Undertake assessments of Significant Tree Register nominations. • Nominate trees for inclusion on the Significant Tree Register. • Undertake Year 3 inspections and complete tree works, in accordance with risk threshold, priorities and budget.
Year 4	<ul style="list-style-type: none"> • Undertake Year 4 inspections and complete tree works, in accordance with risk threshold, priorities and budget.
Year 5	<ul style="list-style-type: none"> • Undertake Year 5 inspections and complete tree works, in accordance with risk threshold, priorities and budget. • Review all aspects of TMP and plan for future.

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Appendix 1. Council policies and strategies

The following policies and strategies may be relevant to the implementation of this Plan.

1.1 Local Laws

- General Local Law No. 2 – Community Amenity and Safety

1.2 Policies

- Risk Management Policy
- Vegetation Exemptions Protection Policy – Provides guidance when seeking to remove trees and under a Planning Scheme exemption.
- Community Engagement Policy

1.3 Strategies

- Biodiversity Strategy 2018-2021
- Heritage Strategy 17-06-2020
- Recreation and open Space Strategy 2016 – 2021

Appendix 2. Relevant Legislation

The following legislation may be relevant to tree management activities undertaken by Council:

Table 6: Legislation relevant to tree management

Legislation	Description	
Planning and Environment Act 1987		Hepburn Shire Council is responsible for administering the Victorian Planning Provisions and Planning Scheme, which form part of the implementation of the Planning and Environment Act 1987. The Victoria Planning Provisions (VPP) are a comprehensive set of planning provisions for the whole of Victoria. The Victorian Planning Schemes (VPS) are local planning provisions which relate to particular activities and / or areas of land.
	Particular Provisions (VPP)	Protects vegetation native to Victoria – a permit is required to ‘remove, destroy or lop native vegetation’. Relevant exemptions may include ‘lopping and pruning for maintenance’, ‘utility installations’, ‘regrowth’, ‘vehicle access from public roads’ and ‘emergency works’. Native Vegetation Removal Regulations guide the implementation Clause 52.17.
	Local Planning Policies (VPS)	Clause 22.08 through to 22.19 set out the neighbourhood character precincts in Daylesford and necessary considerations for undertaking works.
	Overlays (VPS)	Detail permit requirements for specific activities within areas of land zoned to protect their unique value. Relevant overlays include: Environmental Significance Overlay (Clause 42.01) Vegetation Protection Overlay (Clause 42.02) Significant Land Overlay (Clause 42.03) Heritage Overlay (Clause 43.01) Relevant exemptions may include ‘road safety, or ‘emergency works’.
Aboriginal Heritage Act 2006	Aboriginal Heritage Regulations 2018 (the Regulations)	The Regulations give effect to the Aboriginal Heritage Act 2006 through protecting areas of cultural heritage sensitivity from ‘high impact activities’. The Regulations prescribe standards, set out the circumstances in which management plans and permits are required.
The Traditional Owner Settlement Act 2010	Land Use Activity Agreement (LUAA)	The <i>Traditional Owner Settlement Act 2010</i> requires that proposed activities on public land (often called ‘Crown’ land) must comply with the Land Use Activity Agreement (LUAA). The LUAA commenced in October 2013 and is part of the broader Settlement Package with the Dja Dja Wurrung. Part 4 of the <i>TOS Act</i> , as well as the LUAA, sets out the processes that managers of public land must follow when wishing to deal with, or carry out works on that land. The LUAA applies only to “public land”. The LUAA does not apply to freehold land, or to some

		<p>recreation reserves vested in a local council. In these areas, the <i>Aboriginal Heritage Act 2006</i> still protects sites, but the DDWCAC does not have procedural rights under the LUA.</p> <p>All Hepburn recreational reserves that existed before 25 October 2013 and were designed "for organised sporting activities" are excluded from the LUA.</p>
Electricity Safety Act 1998	Electricity Safety (Electric Line Clearance) Regulations	<p>The Electricity Safety (Electric Line Clearance) Regulations sit under the Electricity Safety Act 1998 act to outline the minimum clearances required between vegetation and electrical lines.</p> <p>The management of vegetation (including trees) within the Hepburn municipality to ensure the minimum electrical line clearances are adhered to is the responsibility of PowerCor.</p>
Other Relevant Legislation		
Flora and Fauna Guarantee Act 1988	Victorian	<p>Victoria's framework for conserving and managing threatened species administered by Department of Environment, Land, Water and Planning.</p>
Environment Protection and Biodiversity Conservation Act 1999	Commonwealth	<p>The Australian Government's central piece of environmental legislation which provides a framework for protecting and managing nationally and internationally important flora, fauna, ecological communities and heritage places.</p>

Appendix 3. Threatened Species

Table 7: Threatened species potentially affected by Council tree management activities

Species	Common name	Conservation status	Critical habitat feature	Response
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	Near threatened (Advisory List)	Dense forest mid-storey continuity, small hollows	Species are found widely across Shire. Training to raise awareness of these habitat features.
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	Vulnerable (FFG)	Forest continuity in dry and wet forests, medium hollows and logs on ground	
<i>Climacteris picumnus</i>	Brown Treecreeper	Near threatened (Advisory List)	Forest continuity in dry forest area, small hollows	
<i>Ninox connivens</i>	Barking Owl	Endangered (FFG)	Large Hollows- drier forests	High priority for arborists to apply processes that retain large trees with hollows. Training to raise awareness of this value
<i>Tyto novaehollandiae</i>	Masked Owl	Endangered (FFG)	Large Hollows- wetter forest area- i.e. SE of shire	
<i>Tyto tenebricosa</i>	Sooty Owl	Vulnerable (FFG)	Large Hollows- wetter forest area	
<i>Ninox strenua</i>	Powerful Owl	Vulnerable (FFG)	Large Hollows- wetter forest area	
<i>Petauroides volans</i>	Southern Greater Glider	Vulnerable (EPBC)	Large hollows, canopy continuity- Trentham area	
<i>Grantiella picta</i>	Painted Honeyeater	Vulnerable (EPBC, FFG)	Mistletoe infested trees around Clunes	Mistletoe value recognised across Shire - retention on all trees unless historical value is threatened. Training to raise awareness of this value
<i>Nycticorax caledonicus</i>	Nankeen Night-Heron	Near threatened (Advisory List)	Possible roost trees- dense trees near waterways	Stage removals to retain refuge while replacement habitat establishes, Training to raise awareness.
<i>Eucalyptus gonicalyx subsp. laxa</i>	Gum-barked Bundy	Vulnerable (Advisory List)	Rare tree- Maryborough Rd Clunes area	Develop map of records for inclusion on Significant Tree or ESO 2

<i>Eucalyptus brookeriana</i>	Brooker's Gum	Rare (Advisory List)	Rare tree- parks and roadsides from Trentham to Bullarto	
<i>Eucalyptus yarraensis</i>	Yarra Gum	Rare (Advisory List)	Rare tree- possible in poorly drained areas	
<i>Allocasuarina luehmannii</i>	Buloke	Endangered (FFG)	Rare tree- possible on Yandoit roadsides	
<i>Eucalyptus conferta</i>	Fryers Range Scentbark	Endangered (Advisory List)	Rare tree- roadsides on Vaughan Springs road	
<i>Lathamus discolor</i>	Swift Parrot	Endangered (EPBC, FFG)	Yellow Gums in the Clunes area	Arborists to consider these trees as higher priority the processes that may help retain large specimens of Yellow Gum. Training to raise awareness.

Appendix 4. Location Categories

Table 7 below describes the hierarchy of settlements, with Table 7 allocating a category for each settlement within Hepburn Shire.

Table 8: Types of settlements by population

Type of settlement	Description	No. of residents
Township	A medium sized town	1,000 - 10,000
Village	Small settlement	100 - 1,000
Hamlet	Very small population and a few buildings	<100

Table 9: Hepburn Shire settlements categorised by population

Location	Category	State Suburb Population (ABS, 2016)
CLUNES	Township	1,728
CRESWICK	Township	3,170
DAYLESFORD	Township	2,548
TRENTHAM	Township	1,180
ALLENDALDE	Village	166
BROOMFIELD	Village	228
GLENLYON	Village	389
HEPBURN	Village	599
HEPBURN SPRINGS	Village	329
LYONVILLE	Village	175
NEWLYN	Village	128
SMEATON	Village	231
YANDOIT	Village	154
COMOORA	Village	252
BULLARTO	Hamlet	73
BULLARTO SOUTH	Hamlet	33
CAMPBELLTOWN	Hamlet	55
DRY DIGGINGS	Hamlet	25
FRANKLINFORD	Hamlet	66
GLENGOWER	Hamlet	13
HOLLINWOOD	Hamlet	No statistics
LAWRENCE	Hamlet	17
LEONARDS HILL	Hamlet	45
NEWBURY	Hamlet	71

Appendix 5. Significant Tree Criteria

Guidance for the development of the Hepburn Significant Tree Register has been taken from the National Trust which have been compiling a list of significant trees across Australia for over 30 years.

In 2011 the Hepburn Shire Significant Tree Register was instigated. Council requested nominations from the community, with an independent review and assessment of the trees undertaken by PlanIt and TreeEcology identifying 47 Significant Trees (or groups of trees) (Hepburn Significant Tree Register Nominations 2011 - Statements of Significance Report (May 2015)) for inclusion on the register.

Trees nominated for inclusion on the Hepburn Significant Tree Register will be assessed against the following criteria. Generally, most trees included on the register meet at least one of the selection criteria:

1. Any tree which is of horticultural or genetic value and could be an important source of propagating stock, including specimens that are particularly resistant to disease or exposure.
2. Any tree which occurs in a unique location or context and so provides a contribution to the landscape, including remnant native vegetation, important landmarks, and trees which form part of an historic garden, park or town.
3. Any tree of a species or variety that is rare or has a highly localised distribution.
4. Any tree that is particularly old or venerable.
5. Any tree outstanding for its large height, trunk circumference or canopy spread.
6. Any tree of outstanding aesthetic significance.
7. Any tree which exhibits a curious growth form or physical feature such as abnormal outgrowths, natural fusion of branches, severe lightning damage or unusually pruned forms.
8. Any tree commemorating a particular occasion (including plantings by Royalty) or having associated with an important historical event.
9. Any tree associated with Aboriginal activities.
10. Any tree that is an outstanding example of the species.
11. The assessment criteria also consider local, state and national significance.

The 2015 Statement of Significance Report outlines tree assessments into categories and sub-categories.

- Category 1 – Horticultural Value
- Category 2 – Location or Context (e.g. Historic Garden, Park or Cemetery, Important Landmark, Remnant Native Vegetation, End of Natural Range, Contribution to Landscape, Historic Town or Planting Style)

- Category 3 – Rare or Localised (e.g. Only known specimen, 1-10 known specimens)
- Category 4 – Particularly Old
- Category 5 – Outstanding Size (e.g. Height, Circumference, Canopy spread)
- Category 6 – Aesthetic Value
- Category 7 – Curious Growth Form (e.g. Abnormal growths, Branch fusions, Unusually pruned or damaged)
- Category 8 – Historical Value (e.g. Cultural group, Public feature, World War, Royalty, Public Figure)
- Category 9 – Aboriginal Culture (e.g. Scarred Tree, Corroboree Tree)
- Category 10 – Outstanding Example of Species

Assessments also consider:

- Local, State or National Significance.
- the Australian Heritage Commissions eight broad criteria. These are contained in the [Victorian Planning Provision Practice Note](#).

Appendix 6. Significant Trees on Council managed land

Table 10: Hepburn Shire Council Significant Tree Register (2020)

Locality	Location	Context	Species	No. trees	Protection
Allendale	24 Parkin Street	Roadside	<i>Ulmus spp.</i>	1	VPO2
Allendale	Creswick-Newstead Road	Roadside	<i>Quercus robur</i>	2	HO
Allendale	Elizabeth Street	Roadside	<i>Ulmus spp.</i>	12	HO984
Allendale	Loughlin Street	Roadside	<i>Ulmus spp.</i>	2	VPO2
Bullarto	Pearces Road	Roadside	<i>Unknown, likely Eucalyptus</i>	Stand	VPO1
Glenlyon	Barkly Street	Roadside	<i>Quercus robur</i>	18	HO985
Glenlyon	Barkly Street	Roadside	<i>Ulmus spp.</i>	21	HO985
Glenlyon	Barkly Street	Roadside	<i>Quercus canaeiensis</i>	1	VPO2
Glenlyon	Torpys Road	Roadside	<i>Eucalyptus melliodora</i>	1	VPO1
Glenlyon	Green Gully Road	Roadside	<i>Unknown, likely Eucalyptus</i>	Stand	VPO1
Clunes	Crewick Creek	Riparian	<i>Schinus x aerira</i>	1	VPO1
Clunes	Hill Street	Roadside	<i>Crategus monogyna</i>	1	HO776
Creswick	Cambridge Street	Roadside	<i>Ulmus x hollandica</i>	10	HO823
Creswick	Park Lake Reserve	Park	<i>Pinus muricata</i>	1	HO846
Creswick	Park Lake Reserve	Park	<i>Dlius Cupressus</i>	Numerous	HO846
Creswick	Park Lake Reserve	Park	<i>Magnolia grandiflora</i>	1	HO846
Creswick	Albert Street	Roadside	<i>Platanus x acerifolius, Q. canariensis, Q. robur, Ulmus spp.</i>	20-30	VPO2
Creswick	Cnr Napier and Hall Street	Roadside	<i>Abies pinsapo</i>	1	HO386
Daylesford	Victoria Caravan Park	Park	<i>Sequoiadendron giganteum</i>	1	VPO2
Kingston	Creswick-Newstead Road	Roadside	<i>Ulmus x hollandica</i>	Avenue	HO385

Locality	Location	Context	Species	No. trees	Protection
Little Hampton	Roths Road	Roadside	<i>Eucalyptus viminalis</i>	1	VPO1
Little Hampton	Near cnr Bridge Road & Reed Track	Roadside	<i>Eucalyptus viminalis</i>	1	VPO1
Lyonville South	Kearneys and Roaches Road	Roadside	<i>Eucalyptus brookeriana</i>	Stand	VPO1
Trentham	Square cnr Cosmo & High Street	Roadside	<i>Abies picea</i> 'Glauca'	1	HO362
Trentham	Falls Road	Roadside	<i>Eucalyptus pauciflora</i>	1	VPO1
Trentham	Daylesford Trentham Road	Roadside	<i>Eucalyptus obliqua</i>	1	VPO1
Trentham	Cnr Gleeson & Racecourse Road	Roadside	<i>Pinus radiata</i>	1	VPO2
Trentham	Trentham-Tylden Road, btwn Newtons Lane and Forest Street	Roadside	<i>Eucalyptus pauciflora</i>	Stand	VPO1
Trentham	Trentham-Tylden Road, btwn Newtons Lane and Forest Street	Roadside	<i>Eucalyptus viminalis</i>	Stand	VPO1
Trentham	Trentham-Tylden Road, btwn Newtons Lane and Forest Street	Roadside	<i>Eucalyptus radiata</i>	Stand	VPO1
Trentham	Trentham-Blackwood Road, opp transfer station	Roadside	<i>Eucalyptus dalrympleana</i>	Stand	VPO1
Trentham	Apex Park	Park	<i>Acer saccharum</i>	1	VPO2
Trentham	Bridge Street, btwn Forest & High Street, Cosmo Road, btwn High & West Street	Roadside	<i>Ulmus x hollandica</i>	127	HO835
Trentham	Ameila Road	Roadside	<i>Sequoia sempervirens</i>	1	VPO2
Trentham	Ameila Road	Roadside	<i>Abies menziesii</i>	50+	VPO2
Trentham	Falls Road	Roadside	<i>Eucalyptus radiata</i>	Stand	VPO1
Trentham	Falls Road	Roadside	<i>Eucalyptus viminalis</i>	Stand	VPO1

Appendix 7. Mapping Methodology

A GIS program was used to create a base map of inspection zones for all Council managed land and road reserves. The methods used to create the base map are described below (Table 3).

Mapping of Zones

In some cases, Council manage road reserve vegetation on roads that are not maintained by Council. For example, main thoroughfares where road infrastructure is managed by VicRoads.

Table 11: Methods used to create inspection zones base map

Feature Type	Method	Details
Roads	<ul style="list-style-type: none">• Use cadastral information to create a road layer.• Manually create polygons where necessary to ensure all Hepburn managed roads are included.• Identify road types using Hepburn Shire Council road data.	<ul style="list-style-type: none">• Use aerial images to create polygons for zone demarcation based on inspection zone descriptors.
Parks, Reserves and Public Space	<ul style="list-style-type: none">• Use cadastral information to create Council managed land layer.• Identify playgrounds, buildings, carparks and footpaths with use of aerial photography, previously mapped paths and Hepburn Shire Council GIS data.	<ul style="list-style-type: none">• Use aerial images to create polygons for zone demarcation based on inspection zone descriptors.• Buffer 3m around mapped paths.• Buffer at least 10m around recreational facilities, buildings, playgrounds, roads etc.

Consultation

To ensure inspection zone mapping for each reserve is consistent with existing on-ground usage internal consultation was undertaken with Council staff, with zone descriptions refined through field testing. Draft inspection zones for each reserve were updated based on Council staff knowledge.

In addition, where applicable the committee of management for each reserve was consulted prior to the finalisation of the inspection zones.

Appendix 8. Tree Risk Assessments

Quantified Tree Risk Assessment (QTRA)

Council uses Quantified Tree Risk Assessment (QTRA), a target-based method, which has associated training and licensed user accreditation.

The QTRA method calculates risk of harm based on three primary inputs:

1. The target is the subject most likely to be injured or damaged in the event of tree or branch failure. Six ranges for target occupancy represent the likelihood of a target being present at the time of branch or tree failure, and include vehicles, pedestrians, and property.
2. The size of part relates to the part of the tree most likely to fail and is provided through four ranges. Other factors to consider include distance / orientation of fall and target protection factors.
3. The probability of failure of the tree or branch part considers structure, as well as any environmental conditions the tree may be exposed to. If a tree has sound structure it is generally assessed as having a low probability of failure. In general, probability of failure is assessed for a one-year period.

Tree health is important to consider when assessing the probability of failure. Healthy trees are likely to have sufficient resources to allocate to reactive wood growth, strengthen structural defects and reduce the probability of failure (Mattheck & Breloer 1994, Waring 1998). In comparison, trees in poor health are less likely to have resources available to invest in reactive wood growth, which may increase the likelihood of failure. Understanding the failure modes of individual tree species is also important as different species vary in their ability to sustain structural defects (Lonsdale 1999, Smiley et al. 2006).

Any arborist undertaking a tree risk assessment for Council must have suitable knowledge and experience as outlined in Section 3.

Risk Thresholds

QTRA have developed risk thresholds which can be used to guide decisions and balance safety against the cost of risk management (Ellison, 2005). Defining acceptable levels of risk is useful to direct priorities and resources to manage large tree populations.

In general, an accepted risk of harm threshold of **1/10,000** is determined. Actions to mitigate the risk of trees assessed with a risk of harm greater than **1/10,000** should be taken.

Risk thresholds may vary dependant on the inspection zone with a reduced tolerance to risk within Zone 1.

Assessment Types

There are a range of tree assessment types which can be applied to the management of trees (Dunster et al. 2013). These are defined using levels (1-3) and vary in the amount of data captured per tree. Increasing the quantity of data capture increases the costs associated but has the benefit of improving the detection rate of structural defects as well as capture of other useful data.

- **Drive-by Assessments (Level 1):** This is the least detailed tree inspection method where trees are inspected visually from a vehicle. As only one side of the tree is viewed, only trees with major and / or obvious faults or advanced decline are identified. This method is useful for screening large tree populations in lower use areas for more detailed inspections (Rooney et al 2015).
- **Walkover Assessments (Level 1):** This entails visually inspecting all trees within a designated area but only capturing and recording data (Level 2) for those trees posing a risk or requiring works. Walkover assessments are effective in lower use areas with large tree populations where it is not considered useful to have individual data for each tree. They can also be useful as part of a broader risk management regime (e.g. in combination with other methods).
- **Individual Tree Assessments (Level 2):** Every tree is visually assessed with specific data captured for each tree, including a photograph. This method is effective for managing tree populations and creating tree inventories in high use areas. In addition to undertaking a risk assessment, collecting tree data (e.g. species, size, condition) allows for long term monitoring and strategic management.
- **Diagnostic Tests (Level 3):** Diagnostic tests are generally reserved for significant trees which have a cultural, heritage, aesthetic or ecological significance or for trees in high use areas where additional information is required to aid decision making. These usually result from individual tree assessments and include works such as climbing inspections, non-destructive decay testing and root crown investigations.

Tree assessment types vary in the amount of data captured per tree. The less information captured the lower the cost per tree assessed. Increasing the quantity of data capture has the benefit of improving the detection rate of structural defects.

For a broad scale tree risk management plan to be effective in both mitigating tree risk and optimising resource allocation it is necessary to apply tree assessment methods which are appropriate to the inspection zone.

QTRA provides useful categories to guide the zoning of land, and indicative usage for each zone is provided in Table 10 below.

Table 12: Indicative and average usage per zone

Inspection Zone	Likelihood of occupation	Average / indicative usage
1	High	8 or more people per hour, or More than 48 cars per day @ 50km/hr (QTRA Target range 1, 2, 3)
2	Moderate	1 person per hour, to 3 people per day, or 6 – 47 cars per day @ 50km/hr (QTRA Target range 4)
3	Low	2 people per day to 2 people per week, or 1 – 5 cars per day @ 50km/hr (QTRA target range 5)
4	Very Low	1 pedestrian per week, or less (QTRA Target range 6)

Inspection frequencies and assessments types are outlined in Table 11 below.

Table 13: Example of the inspection regime per zone

	Zones			
	1	2	3	4
Year	Annual	Every 2 years	Every 5 years	Reactive
1	I			NA
2	W	I	W	
3	W			
4	W	W		
5	I			
6	W	I		
7	W		W	
8	W	W		
9	I			
10	W	I		
11	W			
12	W	W	W	

I = Individual Tree Assessment (Level 2)

W = Walkover or Drive-by (Level 1)

Important Implementation Notes:

- The QTRA categories have been applied as a guide only. To ensure efficiencies across the program, resources are focused on parks and reserves, with road reserves being classified either Zone 1 or Zone 3 due to the transient nature of their use.
- To allow for the efficient allocation of resources each Ward may have a different inspection regime. For example, Zone 3 operates on a five year cycle which may mean each Ward has their Zone 3 inspections undertaken on a different year of the program.

Appendix 9. Data Collection and Management

When developing the Individual Tree Assessment dataset, Council should consider the following:

- **Cost vs Benefit:** Works should produce extended benefits (e.g. decrease the risk of harm to an acceptable level or significantly increase useful life expectancy).
- **Types of works:** Undertaking canopy maintenance (e.g. canopy lifts, property clearance) and risk management works simultaneously can reduce the expense associated with tree management, through reducing reactive or 'one-off' works.
- **Level of detail:** In addition to basic fields (e.g. height, width, species, health, structure), additional data can be collected for each tree to achieve a specific aim. For example, fields may be collected to allow for the use of tools such as *i-Tree Eco* which can model urban forest structure, pollution reduction, carbon and public health impacts.

9.1 Individual Tree Assessments

The table below provides an example of a basic data set for the capture of data for Individual Tree Assessments. Depending on the overall purpose, this can be modified to provide more or less data.

Table 14: Individual Tree Assessment

Data Collection Field	Data Descriptions	Entry Type
Asset ID	Unique Number Auto generate on creation	Auto
GIS Ref	Automatic capture using DGPS Easting/Northing, Lat/Long	Auto
Street Planted	Street or park that the tree is planted in	Auto
Property Address	Address of the closest adjacent property	Auto
Nature Strip Width	<1, 1-2, 2-4, 4+, centre median, parkland etc	Field entry
Botanical Name	Genus and species of the surveyed tree	Field entry
Common Name	Common Name of the surveyed tree	Post process
Digital Photography	Image of tree	Field entry
Inspection Zone	1, 2, 3, 4	Auto
Tree Condition		
Tree Age	Young Semi mature Mature Over mature	Field entry
DBH	Trunk diameter (estimated)	Field entry
Height	Tree height (estimated)	Field entry
Width	Tree width (estimated)	Field entry
Health	Good Fair	Field entry

Data Collection Field	Data Descriptions	Entry Type
	Poor Very Poor Dead	
Structure	Good Fair Poor Very poor Failed	Field entry
Powerlines	High Voltage Low Voltage Aerial Bundled Cable (HV) Aerial Bundled Cable (LV) Service Wire Other None	Field entry
ULE	0 years 1 to 5 years 5 to 10 years 10 to 20 years 20+ years	Field entry
Tree Risk Rating		
Failure Potential	Risk assessment model QTRA	Field entry
Failure Size	Risk assessment model QTRA	Field entry
Target Rating	Risk assessment model QTRA	Field entry
Risk Score	Automatically calculated in the field	Auto entry
Works Required	Canopy lift Formative prune Deadwood removal Risk reduction - Category 1, 2, 3 Clearance pruning Co-dominant management Remove tree Exclude targets No works required	Field entry
Works Priority	Urgent Very High High Moderate Low None	Field entry
Defects	Identification of health or structural defects	Field entry
Comments	Additional comments are recorded if required.	Field entry

9.2 Drive-by and Walkover Assessments

It is important to capture where drive-by and walkover assessments have been conducted. The following information must be collected for each drive-by or walkover assessment.

- Date of assessment;
- Name of assessor;
- Name of road or park being assessed; and
- Area or segment assessed (e.g. road or park polygon).

For example, a walkover assessment conducted within a park would need to record what area the inspector had assessed. If during this inspection an individual tree of concern was identified, then an Individual Tree Assessment would be conducted. It may also be useful to record the route walked / driven using GPS tracking. Figure 10 shows this information spatially.

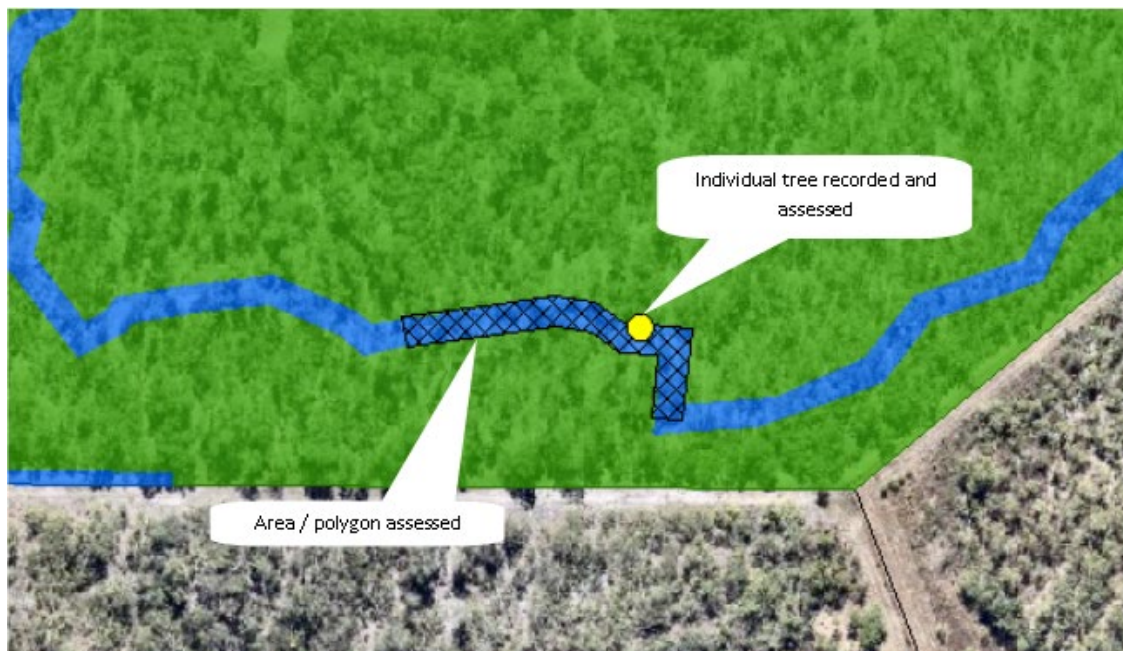


Figure 9: Example of spatial data for a Zone 3 (blue) walkover assessment in a reserve, where an individual tree has also been recorded as part of the assessment