



Strathbogie
Shire Council

Tree Management Plan: Urban and Rural Strategies

www.strathbogie.vic.gov.au

www.share.strathbogie.vic.gov.au

www.strathbogiestory.com

Acknowledgement of Country

We acknowledge the traditional custodians of the lands on which we strive, the peoples of the rivers and the hills of the Strathbogie Shire region who walked these lands for generations.

We pay our respects to the elders of the past, and the speakers of the first words, who lived in harmony with this country.

We acknowledge the elders of the present, who seek to regain their culture, and to teach the elders of the future their law, their history and their language.

We pay our respects to them and extend that respect to all Aboriginal and Torres Strait Islander peoples today.

We honour their spirit – and the memory, culture, art and science of the world's oldest living culture through 60,000 years.

Table of contents

Acknowledgement of Country	2
Table of contents	3
Executive summary	5
Definitions	6
Relevant acts, standards and documents.....	9
5.1 Acts	9
5.2 Australian Standards	9
5.3 Council Documents	9
5.4 Other Documents	9
Purpose	9
Scope	10
Plan review	10
Extent of Council responsibility	10
9.1 Urban Trees	10
9.2 Rural Trees (gazetted public roads).....	11
Partial Council responsibility and out of scope areas	11
10.2 Rail (Out of Scope)	12
10.3 Utility Services and Electrical Line Clearance (Out of Scope/ Partial responsibility) ...	12
10.4 Private or Body Corporate Land (Out of Scope).....	12
10.5 Arterial Roadside Tree Maintenance (Out of Scope).....	12
Council's tree register	12
Tree protection.....	13
Tree maintenance by Council and assessment of proposed works	13
13.1 Urban areas.....	13
13.2 Rural areas.....	15
Maintenance scope.....	15
14.1 Proactive maintenance scope urban areas	15
14.2 Proactive maintenance scope – rural areas	16
14.3 Maintenance restrictions	16
Tree inspection regime to identify and mitigate risks	16

15.1 Risk framework	16
15.2 Quantified tree risk assessment (QTRA)	17
15.3 Inspections and risk assessment regime for urban.....	24
15.4 Inspection and risk assessment regime for rural areas	24
15.5 Modes of inspection	25
15.6 Proactive inspections by risk rating areas	25
15.6.1 Urban.....	25
15.6.2 Rural Roads.....	26
15.7 Mitigating immediate risks	26
Environmental considerations	26
16.1 Fauna	26
16.2 Habitat trees	27
16.3 Termites and other pests	27
Tree valuation	27
Damage caused by trees	28
Community engagement	28
Force majeure.....	29
APPENDIX 1 - Urban Street Trees List (Approved).....	30
APPENDIX 2 – Road Management Envelope	31
APPENDIX 3 – High and Medium Risk Land Use Areas	32

Executive summary

The Strathbogie Shire Tree Management Plan: Urban and Rural Strategies (**the Plan**) provides the framework for the maintenance, renewal and risk management of all tree assets growing on Council owned and managed land. This includes trees within designated roads and other reserves in Strathbogie Shire (the Shire).

Council's green infrastructure including its trees, is highly valued by the community and contributes greatly to the amenity of the built environment within the Shire, enhancing liveability, landscape character and biodiversity. Trees are also widely recognised for their contribution to reducing the impacts of climate change, improving water conservation and for their shade which can significantly reduce daytime temperatures.

It is acknowledged that despite their benefits, the presence of trees in public areas can create a degree of risk to people, property and services through loss of limbs or from total tree failure. Tree management comes at a considerable cost in terms of plantings and maintenance, and can have significant impacts on infrastructure including drainage, construction projects, roads and footpaths.

This Plan documents the management strategies that Strathbogie Shire Council has in place to ensure the longevity and quality of trees within the Shire's urban environments, as well as the risk management framework that will be applied to mitigate risk to the community as much as is reasonable and practicable.

Inspection intervals and response times are identified as part of our risk management framework, which includes:

- A robust risk rating framework and methodology for tree assessment and hazards which then link into maintenance and inspection programs
- Maintenance scheduling
- Inspection timeframes and requirements, including a rolling five-year program of regular condition and hazards inspections.

Definitions

ARBORIST	Means an Employee - Certificate 3 in Arboriculture plus 10 years' experience. Means a consultant arborist - minimum diploma level qualification and all relevant industry accreditations.
TREE MANAGEMENT RESPONSIBILITIES	Means the tree management responsibilities defined within this document are applicable only to those areas directly under the delegated responsibility of Strathbogie Shire Council.
TREE	Means a woody plant more than 5 m tall (at maturity), usually with a single stem.
NATIVE VEGETATION	Means plants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses.
STREET TREE	Means a tree located within an urban area that has at least a half of its base located within a road verge/road reserve and less than a half in private property and/or that is located on a road reserve within the 60 kms or less speed limit zones.
ROADSIDE	Means any land that is within the boundaries of a road (other than the shoulders of the road) which is not a roadway or a pathway; includes the land on which any vehicle crossing or pathway which connects from a roadway or pathway on a road to other land has been constructed. (Example : Any nature strip ,forest , grassland or landscaped area within the road reserve would be roadside).
RURAL AREA	Means a Rural Area is defined as an area outside of an urban area by the Road Management Act 2004.
URBAN TREES	Means trees listed within Strathbogie Shire's townships, typically within less than 60km speed zones.
RURAL TREES	Means trees that are located within a designated local road area for which Council is the responsible coordinating authority.
SIGNIFICANT TREE	Means Strathbogie Shire Council does not currently have a significant tree register. A definition will be updated at such time as a register becomes available.

DANGEROUS/HAZARDOUS TREE (URBAN AREAS)	<p>Means a tree as identified by a qualified Council appointed arborist that has a defect that may cause injury or property damage if not removed such as:</p> <ul style="list-style-type: none"> • <i>Structurally Unsound</i>: Bifurcation with high chance of failure within the next five (5) years, excessive borer activity, dying or dead. • <i>Exposed Roots</i>: Having a high potential as a trip hazard. • <i>Trees Causing Major Damage</i>. Where tree branches/ roots are causing significant damage to Council, utility, or private infrastructure and where this has the potential to increase significantly. <ul style="list-style-type: none"> ○ Inappropriately located tree species with structural defects that can impact power lines. ○ A tree leaning over road/paths/property whose form cannot be corrected.
HIGH RISK AREAS (URBAN AREAS)	<p>Means an area in which Strathbogie Shire Council is the responsible authority or the designated committee of management and is of high use by the public on a regular basis. These areas include but are not limited to:</p> <ul style="list-style-type: none"> • caravan parks • shopping precincts • hospitals and aged care precincts • schools and kindergarten precincts • public parks and playgrounds • swimming pools reserves • recreation and sports facilities • lookouts • reserves • other land parcels that are high use and are the responsibility of the Strathbogie Shire Council • footpaths. • Maps of high-risk areas can be found in the following link. Business Classification Scheme/Parks and Reserves/Trees
MEDIUM RISK AREAS (URBAN AREAS)	<p>Means an area in which Strathbogie Shire Council is the responsible authority or the designated committee of management and is outside of the high use areas but within a township zone.</p> <p>Maps of medium-risk areas can be found in the following link. Business Classification Scheme/Parks and Reserves/Trees</p>
LOW RISK AREAS	<p>Means an area in which Strathbogie Shire Council is the responsible authority or the designated committee of management and in the rural zone not including any rural parcels nominated in high or medium risk zones.</p> <p>Maps of low-risk areas can be found in the following link. Business Classification Scheme/Parks and Reserves/Trees</p>
OPEN SPACE	<p>Refers to land that is publicly accessible and provided for community benefit.</p>

RESERVE	Includes bushland, parks, gardens, reserves, playgrounds, ovals, and other areas such as water retention locations.
ROAD	Means a public or private street, road or thoroughfare to which public access is available on a continuous or substantially continuous basis to vehicles or pedestrians or both and includes a bridge, viaduct or subway, or an alley, laneway or walkway.
PUBLIC HIGHWAY	means a road which is open to the public for traffic as a right, irrespective of whether the road is in fact open to traffic, and includes a road: <ul style="list-style-type: none"> a) declared to be a public highway under section 204(1) or under any other Act; b) which becomes a public highway under section 24(2)(c) of the Subdivision Act 1988; and c) which is a public road under the Road Management Act 2004.
PUBLIC ROAD	Means a road if it is: <ul style="list-style-type: none"> a) a freeway; or b) an arterial road; or c) declared under section 204(1) of the Local Government Act 1989.

Relevant acts, standards and documents

To meet all the legislative requirements and standards and to conform with other Council policies and local laws, the following Acts, Standards and Documents have been taken into consideration. They are each electronically linked to this Tree Management Plan.

5.1 Acts

Local Government Act 2020

Road Management Act 2004 (VIC)

Occupational Health and Safety Act 2004 (VIC)

Flora and Fauna Act 1988

Planning and Environment Act 1987

Agricultural and Veterinary Chemicals (Control of Use) Act 1992

Heritage Act 1995

Electricity Safety Act 1998 and the Electric Safety (Electric Line Clearance) Regulations 2015 (and 2020 update)

Rail Safety Act 2006

Fences Act 1968

5.2 Australian Standards

AS 4373 - 2007 Pruning of Amenity Trees

AS4970 – 2009 Protection of Trees on Development Sites

AS 2303- 2015 Tree Stock for Landscape Use

Austroroads Guide to Road Design Part 3 – Geometric Design, Part 4 – Signalised & Unsignalized Intersections and Part 6 – Roadside Design, Safety & Barriers.

5.3 Council Documents

Strathbogie Shire Council Road Management Plan 2021-2025

Strathbogie Shire Council Plan 2021-2025

Electric Line Clearance Management Plan 2021-22

Strathbogie Shire Municipal Fire Management Plan

Strathbogie Shire Nature Strip Policy

5.4 Other Documents

Infrastructure Design Manual

Operational Responsibility for Public Roads Code of Practice (Vic Roads)

Road Safety Exemption (Department of Environment, Land, Water and Planning)

Purpose

Council will serve in the best interests of the municipal community of Strathbogie Shire, delivering quality services and representing the community in wider situations. The purpose of this document is to detail the management systems utilised by Council to inspect, assess, and manage all trees in urban and rural settings for which Council has a responsibility and:

- To establish a management system for the tree management functions of the Council which is based on policy, operational objectives, and available resources

- To specify the relevant standards in relation to the discharge of duties in the performance of those tree management functions
- To establish comprehensive tree asset management risk assessment and mitigation practices focused on delivering optimal outcomes while having regard to affordability, available resources, and the policies, priorities, and strategies of Strathbogie Shire Council.

Scope

The Council is responsible for over 15,000 trees, principally those positioned on Council managed roads, streets, parks and open spaces. This includes local roads designated under the Road Management Act 2004.

It is also Council's responsibility under Section 43 of the Country Fire Authority Act 1958 to 'take all practicable steps to prevent the occurrence of fires on, and minimise the danger of the spread of fires, on any road under its care and management'.

This Plan is applicable to all developers, builders, service providers, Council facility tenants, residents, civil contractors, event organisers and Council officers undertaking activities in proximity to Council trees.

This Plan does not cover trees within Environmental Significance, Vegetation Protection and Heritage Overlays – these are administered by the Council's Planning Department.

Trees excluded from this plan are those on:

- Private property
- Australian Rail Track Corporation (ARTC)/Vic Track Land
- VicRoads managed land
- DELWP and Parks Victoria managed land
- Other land for which Council does not have responsibility.

Plan review

This Plan will be reviewed every four years. Any revisions will be subject to community consultation and Council approval processes. The Plan may also be reviewed sooner based on emerging industry advice, audit or investigation outcomes.

Council may at any time undertake an internal or third-party review to ensure that all management systems are in place for the delivery of the levels of service adopted by Council.

Extent of Council responsibility

Council's Plan extends to the following areas where Council has a maintenance responsibility:

9.1 Urban Trees

In accordance with this document and with reference to its purpose, Strathbogie Shire will undertake proactive inspection, assessment, and action with respect to the trees within its

urban areas including recreational and public spaces to mitigate the risk to the community through loss of limbs or from total failure which can result in property damage, injury or loss of life. The main townships of Strathbogie Shire are:

- Euroa
- Nagambie
- Longwood
- Avenel
- Strathbogie
- Violet Town
- Ruffy
- Mangalore
- Tabilk
- Graytown

This proactive approach to urban areas will be independent of programmed and ongoing rural tree management in canopy clearing as well as the reactive actions associated with tree failure during storms or other emergency response. The Council is responsible for implementing processes and systems to achieve a proactive urban approach and inspection of trees as set out in this plan. (Refer to Inspections by Risk Area.)

9.2 Rural Trees (gazetted public roads)

Section 107 of the Road Management Act 2004 provides that a road authority (in this case Council) does not have a statutory duty or a common law duty to perform road management functions in respect of a public highway which is not a public road or to maintain, inspect or repair the roadside of any public highway (whether or not a public road).

Rural trees are inspected on a reactive basis to address road safety issues in accordance with Council's Road Management Plan, where identified hazardous trees are removed or pruned to maintain the traffic zone (height and width), which also includes canopy clearing.

Rural trees are also inspected in response to customer requests identifying potential hazards.

For trees which have propagated themselves from seed there is no statutory obligation nor common law duty to inspect and/or maintain unless Council receives requests or evidence to suggest that they present an active risk to the public.

Partial Council responsibility and out of scope areas

Within the Shire there are trees which are located on Crown Land which is managed by other authorities including DELWP and Parks Victoria. Where these areas are open to the public and Council has responsibility, they will be recorded on the Council Tree Register and the trees will be inspected for the safety of the community.

Required works will be undertaken as per this plan. Any work not on land under Council's responsibility will be forwarded to the responsible authority. Any existing management agreements will also be considered.

10.2 Rail (Out of Scope)

The relevant rail authority is responsible for the maintenance in the immediate vicinity of a rail crossing and some bridge structures. The Rail Safety Act 2006 requires Safety Interface Agreements that define areas of responsibility.

10.3 Utility Services and Electrical Line Clearance (Out of Scope/ Partial responsibility)

The relevant service providers of water, gas, sewer, telecommunications, and power are responsible for the maintenance of its infrastructure regarding trees.

This excludes one exception being the maintenance and or clearing of electrical lines by Council under its Electrical Line Clearance requirements for the declared areas of Avenel and Euroa. These townships will continue to be addressed regarding Electrical Line Clearing by Council until such time as the agreement ends.

10.4 Private or Body Corporate Land (Out of Scope)

A private street or private land parcel is the responsibility of the private landowner or body corporate. This includes responsibility for:

- Footpaths and overhanging vegetation
- Vegetation that obstructs footpaths and roads.

10.5 Arterial Roadside Tree Maintenance (Out of Scope)

VicRoads is the responsible coordinating authority for arterial roads. These include Freeways as well as Declared Arterial and Non-Declared Arterial State Roads. Hard copy sketches of demarcations between Council and VicRoads have been developed based on the *Operations Responsibility for Public Roads Code of Practice*.

Council's tree register

Council maintains a register of all trees that are managed by Council in accordance with this Tree Management Plan. Information on each tree included in the Tree Register includes:

- Central Asset ID
- Site Code
- Asset Number
- Feature Type
- Location Details
- Classification (Responsibility)
- Area Name
- Tree Common Name
- Tree Genus
- Tree Species
- Tree Age
- Tree Diameter at Breast Height
- Tree Height
- Tree Health

- Tree Structure
- Tree Useful Life Expectancy
- Tree Electrical Line Clearing (yes/no)
- Unique Photo
- Site Risk Category (to be further developed)
- Inspection interval (to be further developed).

Tree protection

Trees are key considerations in our environmental standards, and guidance is given for any planned works around trees. When civil works are proposed in the vicinity of trees an assessment and works plan is necessary to ensure tree damage is avoided or minimised. Although at times it is not possible to avoid all potential conflicts regarding works and trees, every effort must be made to avoid or minimise the impact on them.

All works and activities including events that are planned within proximity to trees must be conducted in accordance with the following Australian Standards:

- AS4373 Pruning of amenity trees
- AS4970 Protection of trees on development sites.

Tree maintenance by Council and assessment of proposed works

Strathbogie Shire trees, like all living things grow, age and eventually die. Council will monitor trees under its management throughout the tree lifecycle including the removal of, pruning and tree replacement as appropriate.

13.1 Urban areas

Whilst both tree pruning and removal may be a last resort, the safety of the public takes priority and risk must be reduced to a level that is reasonable and consistent. Trees may not be removed unless approved by a Council arborist or relevant manager with reference to the relevant legislation and exemptions.

All tree works (including pruning, removal and replacement at end of life) carried out by Council will be prioritised based on several factors such as risk, benefit to the community and procurement efficiency. Works in any one year will be determined by the funding available for either capital works or ongoing maintenance. All trees that are replaced via the above process will be replaced as close as practically possible to the tree being removed to ensure that there is no net loss of trees and will undergo the public consultation referenced later in this document.

Tree pruning/removal **will not be considered** in the following instances:

- If the tree is considered healthy and structurally sound
- If there is a safe and practical means for tree/limb retention
- For solar access
- For unjustified property or infrastructure damage claims
- To reduce leaf, fruit and litter debris
- For causing minor allergenic and irritant responses
- To minimise obstructions of advertising signage and desired views

- For awnings, verandas and other projections over public open space
- To reduce the impact from any bird/bat/other animal waste or noise
- For superficial bush fire risk
- If the trees/s provides an important biodiversity function such as recognised high conservation road reserves
- For personal aesthetic preference
- Trees listed as a 'significant tree' on a relevant register (exemptions must follow legislation as well as being approved by Council resolution).

Tree pruning/removal **will be considered** in the following instances:

- If hazardous (deemed that way by a qualified arborist), the tree will be pruned /removed as soon as practicable
- If the tree is dead, dying or in severe decline (proactively inspected by Council arborist within the relevant risk area) it will be programmed for pruning/replacement relevant to nominated urban sites
- In the case of design/development – only once all practical solutions/options to retain the tree have been exhausted
- If a defect that exists on the tree requires action that cannot be rectified without pruning/removal of the tree
- For pest, disease and biosecurity reasons that cannot be managed with the tree *in situ*.
- The tree is a recognised weed species for a particular location (programmed removal)
- Trees proven to be causing damage to private infrastructure or services where all interventions to retain the tree have been exhausted
- Trees that are recognised as inducing severe allergenic or toxic responses
- As part of a project, whole street upgrade or capital works program which will result in a net increase or improvement to green space that could not be achieved with the tree/s in situ
- Trees that do not meet the objectives of the Strathbogie Shire's Urban Greening strategy (or equivalent), a masterplan or a management plan for a location in which they are located – with reference to the provisions of the planning scheme
- If the tree is non-indigenous within natural or bushland reserves that are considered weedy or incompatible with the conservation values of that reserve (programmed removal where Council have an obligation).

Due to the specialised nature of tree works, only trained Council staff and or approved contractors are to undertake any physical works on Council trees.

All proposals concerning trees under Councils management must be submitted in writing and must be approved prior to any works being carried out. Proposed tree works may include maintenance, removal, replacement, or new planting. Any proposed tree works (including those resulting from development, construction or works) to Council managed existing trees or on Council land, must be done so in writing to seek approval. The applicant will be required to submit the proposal along with the assessment of all costs as per the section titled 'Tree Valuations referenced later in this document including reimbursement of amenity, removal and reinstatement costs.

Where the proposal is sufficiently detailed and the provision of costs is satisfactory with respect to the above-mentioned section, Council will submit an invoice for the

(removal/replacement/new) and on receipt of payment assign the work to a Council appointed contractor.

Where new tree planting works are proposed to be completed by the applicant a 'consent to works within the road reserve' permit will be required and a maintenance bond submitted for the ongoing maintenance (including watering) of the tree. The maintenance period will be as stated in the current Infrastructure Design Manual as adopted by Council (24 months at the time of writing this document).

Where removal works are proposed to be completed by the applicant, amenity cost reimbursement will be required prior to approval and the issuing of a 'consent to works in the road reserve' permit.

An approved tree list may be viewed within Appendix 1 of this Plan.

13.2 Rural areas

Council is responsible for clearing or pushing trees into the road reserve for biodiversity and habitat, when trees fall outside the road maintenance envelope, but within the road reserve onto the road pavement (refer to Appendix 2).

If a tree from the road reserve outside of the tree maintenance envelope, or from a private property falls onto a public road, Council may act in the interests of public safety to clear part of the fallen tree. However, Council has no responsibility or liability for any tree outside of the road maintenance envelope as defined in Strathbogie Shire Road Management Plan.

Should infrastructure damage be attributed to the roots of a Council tree within the road maintenance envelope, an appropriate remedial solution will be sought.

If such trees fall onto private fences or across private driveways, it is the owner's responsibility to remove them.

Maintenance scope

14.1 Proactive maintenance scope urban areas

Activities that are covered in the Shire's scope of works for the Proactive Tree Management program in urban areas include:

- Removal of dead, dangerous and declining trees
- Removal of deadwood
- Removal of hanging, broken or diseased branches
- Formative pruning
- Canopy lifting
- Canopy reduction
- Stump removal
- Removal of redundant tree guards, stakes and surrounds
- Maintaining clearance from roads, footpaths, traffic signals and streetlights as per The Strathbogie Road Management Plan
- Maintaining required clearances from properties. Overhanging branches to be pruned to 3m vertically from ground level and 2m radially from buildings

- All tree pruning is to be completed in accordance with AS 4373-2007 Pruning of Amenity Trees as well as per the requirement of Electrical Line Clearing via Energy Safe Victoria.

14.2 Proactive maintenance scope – rural areas

Council's obligations to inspect and maintain roadside vegetation are set out in section 107 of the Road Management Act 2004. Council's Road Management Plan states it must inspect and maintain, and has a liability for, trees and roadside vegetation within a 'road maintenance envelope'. This is defined as the area from drain to drain and to a height of five metres (refer to Appendix 2).

As such, Council is not responsible, nor does it have a liability, for any tree outside of the road maintenance envelope as defined in Strathbogie Shire Road Management Plan.

In line with Council's responsibilities, where trees and vegetation present an immediate danger, they will be made safe and removed as soon as possible.

Where residents report an unsafe (dangerous) tree (whether live, dead or diseased), it will be assessed, and appropriate remediation and or monitoring undertaken.

Weeding and bushfire fuel reduction are excluded from this activity.

The following distresses and defects are the triggers to maintenance activities by the Council:

- Sight distance to sign and road alignment obscured by vegetation.
- Insufficient clearance to overhanging branches over roads and footpaths.
- Tree debris within road formation measured toe of fill batter and top of cut batter.
- Hazards in the clear zone arising from the treatment of fallen material.

In accordance with the Road Management Plan, windfall within the road maintenance envelope will be removed for limbs and heads measuring less than 300mm diameter.

The remaining trunk may be pushed outside of the road clear zone or outside of the tree line (whichever is the lesser). If these provisions are not achievable the tree will be removed.

14.3 Maintenance restrictions

Any works undertaken by Council outside of exempted works will require a Council planning permit. A Planning Permit will be required for community requests which fall outside of the Tree Management Plan and/or outside of the exemptions. The applicant should seek a Planning Permit at their cost via a submission to Council.

Tree inspection regime to identify and mitigate risks

15.1 Risk framework

Trees have an inherent risk which must be managed effectively. The risk associated with the trees is a combination of the condition of the tree and the use around and in the vicinity of the tree. Council has a duty of care to reduce the level of risk to the public and potential financial burden on ratepayers.

A formal risk assessment of all situations where trees exist needs to be undertaken to accurately identify the risks, determine appropriate actions and assign priorities. Risk assessments/potential should be the overriding factor in determining priority for works and allocating resources.

Risks include hazardous trees, deadwood and falling fruit, sight distance issues and power lines clearance. Works by Council, external contractors and landowners can have a significant impact on the risk potential of Council trees.

Control over or awareness of works in the vicinity of Council trees is vital to ensure risk minimisation. Council will undertake a risk assessment, when a potential risk is reported to the Council by community or other external parties.

To effectively identify and manage risks Council will:

- Implement a formal risk assessment program in general conformity with the process set out in AS/NZS 31000:2009 be undertaken on the tree asset group
- Adopt tree management practices and procedures as laid out in AS/NZS 31000:2009
- Undertake tree inspections every 5 years with annual programs of tree maintenance works to be developed and documented based on the priorities identified in Council's tree risk assessment
- Document all Council tree incidents, actions and works and incorporate within Council's information systems (Confirm Asset Management data base)
- Develop a standard "Tree Incident Report" with tree incidents documented and referred to Council's Manager Assets as soon as is practical
- Ensure Council's Manager Assets reviews all tree incidents and document proposed actions
- Incorporate tree risk management issues and information into a tree asset database and management system
- Refer all works and events likely to impact on, or be affected by, Council trees, to Council's Manager Assets.
- Ensure the degree of use and nature of the use is a major consideration in determining the location and species of trees to be planted.

15.2 Quantified tree risk assessment (QTRA)

The Quantified Tree Risk Assessment system (QTRA) quantifies three components of the tree failure risk:

1. Target
2. Impact potential
3. Probability of failure.

The product of these component probabilities is referred to as the 'Risk of Significant Harm'.

A risk of significant harm or death of 1/10,000 is considered by some authorities to be the limit of acceptable risk to the public at large. Using the 1/10,000 limit, a risk of death exceeding 1/10,000 requires remedial action to reduce the risk (unless the risk is limited to a selective individual or group - such as a tree owner, who may choose to accept a greater or lesser risk). Additionally, the tree might offer benefits that could be set against the risk of harm. The

1/10,000 threshold is not intended to be applied with absolute rigidity but necessarily includes a degree of flexibility and an informed judgement call to be made in each situation.

TARGET EVALUATION

A target is anything of value that could be harmed in the event of tree failure. Frequent assessment of trees and of associated risks may be essential in areas of high public access or where trees are within striking range of people or valuable property. Conversely, in locations without property and having very low public access, the survey and assessment of tree hazards may be unnecessary. Therefore, the nature of the target beneath or adjacent to a tree should dictate the level of risk assessment that is required.

IMPACT POTENTIAL

A small dead branch of less than 10mm diameter is unlikely to cause significant harm even in the case of direct contact with a target, whilst on average a falling branch with a diameter greater than 150mm is likely to cause harm in the event of contact with all but the most robust target.

The increased potential for injury in relation to the size of tree or branch is proportional to a degree, yet the tree or branch will reach a size where the increased severity of injury is no longer proportional to the increase in size. Similarly, most property likely to be affected by tree failure can incur only a limited level of damage before further damage is likely to be inconsequential, i.e. when it is beyond economic repair.

PROBABILITY OF FAILURE

The Probability of Failure component of the system provides five ranges. Each range represents a range of probability of failure occurring within a year, expressed as a ratio calculated from the upper value of that range. Probability of failure will ordinarily be recorded in the tree survey schedules as a range 1 to 5 (see Table 1 below), but may be more accurately evaluated and recorded as a ratio where circumstances dictate.

Risk of Harm = Target x Impact Potential x Probability of Failure
= a risk of death exceeding 1/10,000 requires remedial action to reduce the risk

Table 1 Target Ranges for Property, Pedestrians and Vehicles

Target Range	Property (repair or replacement costs)	Human (not in vehicles)	Vehicle Traffic (number per day)	Ranges of Value (probability of occupation or fraction of \$3,000,000)
1	Very high value \$3,000,000 – >\$300,000	Occupation: Constant – 2.5 hours/day Pedestrians & cyclists: 720/hour – 73/hour	26,000 – 2,700 @ 110kph 28,000 – 2,900 @ 100kph 31,000 – 3,200 @ 90kph 32,000 – 3,300 @ 80kph 36,000 – 3,700 @ 70kph 42,000 – 4,300 @ 60kph 47,000 – 4,800 @ 50kph	1/1 – >1/10
2	High value \$300,000 – >\$30,000	Occupation: 2.4 hours/day – 15 min/day Pedestrians & cyclists: 72/hour – 8/hour	2,600 – 270 @ 110kph 2,800 – 290 @ 100kph 3,100 – 320 @ 90kph 3,200 – 330 @ 80kph 3,600 – 370 @ 70kph 4,200 – 430 @ 60kph 4,700 – 480 @ 50kph	1/10 – >1/100
3	Moderate - high value \$30,000 – >\$3,000	Occupation: 14 min/day – 2 min/day Pedestrians & cyclists: 7/hour – 2/hour	260 – 27 @ 110kph 280 – 29 @ 100kph 310 – 32 @ 90kph 320 – 33 @ 80kph 360 – 37 @ 70kph 420 – 43 @ 60kph 470 – 48 @ 50kph	1/100 – >1/1,000
4	Moderate value \$3,000 – >\$300	Occupation: 1 min/day – 2 min/week Pedestrians & cyclists: 1/hour – 3/day	26 – 4 @ 110kph 28 – 4 @ 100kph 31 – 4 @ 90kph 32 – 4 @ 80kph 36 – 5 @ 70kph 42 – 5 @ 60kph 47 – 6 @ 50kph	1/1,000 – >1/10,000

Target Range	Property (repair or replacement costs)	Human (not in vehicles)	Vehicle Traffic (number per day)	Ranges of Value (probability of occupation or fraction of \$3,000,000)
5	Low value \$300 – >\$30	Occupation: 1 min/week – 1 min/month Pedestrians & cyclists: 2/day – 2/week	3 – 1 @ 110kph 3 – 1 @ 100kph 3 – 1 @ 90kph 3 – 1 @ 80kph 4 – 1 @ 70kph 4 – 1 @ 60kph 5 – 1 @ 50kph	1/10,000 – >1/100,000
6	Very low value \$30 – \$2	Occupation: <1 min/month – 0.5 min/year Pedestrians & cyclists: 1/week – 6/year	None	1/100,000 – 1/1,000,000

Table 2 Size of Tree Part Likely to Impact Target

Impact potential range	Size of tree part likely to impact target	Impact Potential
1	> 450mm dia.	1/1 – > 1/2
2	450mm dia. – 260mm dia.	1/2 – > 1/8.6
3	250mm dia. – 110mm dia.	1/8.6 – >1/82
4	100mm dia. – 25mm dia.	1/82 – > 1/2,500

* Range 1 is based on a diameter of 600mm.

Table 3 Probability of Failure

Probability of failure range	Probability of failure percentage	Probability ratio
1	>10% - 100%	1/1 – > 1/10
2	> 1% - 10%	1/10 – > 1/100
3	> 0.1% - 1%	1/100 – > 1/1,000
4	> 0.01% - 0.1%	1/1,000 – > 1/10,000
5	> 0.001% - 0.01%	1/10,000 – > 1/100,000
6	> 0.0001% - 0.001%	1/100,000 – > 1/1,000,000
7	> 0.00001% - 0.0001%	1/1,000,000 – > 1/10,000,000

Table 4 Risk Likelihood

Frequency	Description
Certain	The tree has significant supporting root damage, removal of significant adjacent supporting tree, signs of recent tree movement, unsupported split trunk, unsupported fractured branch, hanging branch
Likely	The tree shows signs of over weighted limbs, significant disease, root damage, removal of adjacent supporting tree, supported split trunk, supported fractured branch
Probable	Mature to aged tree in declining condition, and/or structure and/or disease apparent, showing potential branch drop
Improbable	The tree appears healthy, but is of a type or condition to potentially develop minor branch drop of live or dead wood
No Detectable Threat	The tree appears healthy, no apparent sign of disease or damage, or is of a size, species or condition likely to pose a threat

Table 5 Risk Consequences

Severity	Description
Extreme	The tree is in an area high in people or vehicular traffic or near major assets and is of a size, species, or condition, or showing signs of significant movement, root or structural damage, or disease and where its failure is likely to cause significant injury or damage
Serious	The tree is in an area high in people or vehicular traffic or near significant assets where it does pose a threat
Moderate	The tree is in a grassed area with minimal people or vehicular traffic or near significant assets where it may pose a threat
Minor	The tree is out of the way and unlikely to be near people, or vehicular traffic or significant assets where it may pose a threat

Table 6 Risk Rating

	Certain	Likely	Probable	Improbable	No Detectable Threat
Extreme	Critical	Urgent	High	Medium	Medium
Serious	Urgent	High	Medium	Medium	Low
Moderate	High	Medium	Medium	Low	Very Low
Minor	Medium	Medium	Low	Very Low	Negligible

Table 7 Treatment Approach

Probability of failure range	Risk	Suggested treatment approach
1 – Unacceptable Risks will not ordinarily be tolerated	Critical	Control the risk Remedial tree works required as soon as possible
2 – Unacceptable Risks will not ordinarily be tolerated	Urgent	Control the risk Remedial tree works required as soon as possible
3 – Unacceptable Risks will not ordinarily be tolerated	High	Control the risk Remedial tree works required as soon as possible
4 – Unacceptable (where imposed on others) Risks will not ordinarily be tolerated	Medium	Control the risk Review the risk Remedial tree works required at a time frame to be scheduled by Council
5 – Tolerable (by agreement) Risks may be tolerated if those exposed to the risk accept it, or the tree has exceptional value	Low	Control the risk unless there is broad stakeholder agreement to tolerate it, or the tree has exceptional value Review the risk Remedial tree works required at a time frame to be scheduled by Council
6 – Tolerable (where imposed on others) Risks are tolerable if as low as reasonably practicable	Very Low	Assess costs and benefits of risk control Control the risk only where a significant benefit might be achieved at reasonable cost Review the risk Remedial tree works required at a time frame to be scheduled by Council
7 – Broadly Acceptable Risk is already as low as reasonably practicable	Negligible	No action currently required Review the risk Remedial tree works required at a time frame to be scheduled by Council

15.3 Inspections and risk assessment regime for urban

Council's urban trees are inspected and assessed on a regular basis.

The frequency of inspections is determined by the location of the trees and their potential for public risk. Inspections and risk assessments are conducted according to the standardised and documented procedure. Tree inspection intervals are detailed below:

Table 8: Inspection Targets

Inspection Type	High Risk Areas	Medium Risk Areas	Low Risk Areas
Tree defect inspection	12 months	4 years	Reactive inspection
Tree condition inspection	24 months	4 years	As required

The main reasons for the inspection of tree assets is to identify defects and act to minimise the risk of injury and to prevent or minimise failure and thereby minimise the physical and financial impact on the community.

All trees located on Council managed land in urban areas will be inspected by a suitably qualified arborist to determine the useful life expectancy and ongoing management of the tree based on the assessment of the following:

- Tree characteristics and health
- Genus, species and common name
- Site conditions
- Condition/Hazard rating recorded as either:
 - Defect with high priority
 - Defect with medium priority
 - Defect with low priority
 - No defect
 - Description of tree defects (if any) and action required.

15.4 Inspection and risk assessment regime for rural areas

Service inspections are conducted on the road maintenance envelope refer (Appendix 2) as follows:

Table 9 Inspection Regime – rural roads

Classification of Roads	Inspection Regime
Class one (1) roads	Inspected every twelve (12) months
Class two (2) roads	Inspected every six (6) months
Class three (3) and four (4) roads	Inspected every three (3) months

15.5 Modes of inspection

15.5.1 Urban Areas

The Council (as the primary identifier) or the community (as the secondary identifier) may identify the defects with respect to trees in the public realm. Inspections are performed in three modes as follows:

- Mode 1 Inspection by service inspector (Council) for proactive maintenance (defect inspection)
- Mode 2 Inspection by service inspector (Council) based on customer complaints or reports (reactive/safety inspection)
- Mode 3 Inspection by service inspector (Council) or by independent team/Arborist (condition inspection)

15.5.2 Rural Roads

Inspections of trees on rural roads are performed in two modes as follows:

- Mode 1 Inspection by service inspector (Council) for proactive maintenance (defect inspection)
- Mode 2 Inspection by service inspector (Council) based on customer complaints or reports (reactive/safety inspection)

The following table details response times and targets for both urban and rural trees .

Table 10: Maintenance Targets and Response Times

	High Risk Area	Medium Risk Area	Low Risk Area
Dangerous Tree Assessment Inspection:	Site Inspection within 24 hours where practicable	Site Inspection within 5 working days	Site Inspection within 5 working days
Dangerous Tree Rectification Action (make safe):	Within 24 hrs where practicable	Within 24 hrs where practicable	Within 24 hrs where practicable
Dangerous Tree Rectification Action (clean up):	5 working days	5 working days	5 working days

15.6 Proactive inspections by risk rating areas

15.6.1 Urban

High Risk Areas Trees located in high-risk areas will be proactively inspected as per inspection targets

Medium Risk Areas Trees located in medium-risk areas will be proactively inspected as per inspection targets,

Low Risk Areas will be reactively inspected on request, within the timeframes set out in the maintenance targets and response times. It should be noted that rural inspections for canopy clearing will be carried out under the requirements of the Strathbogie Shire Road Management Plan.

Area Risk Levels will be re-assessed every 4 years along with this Plan and will reflect any changes to volume of use/public events or other changes.

15.6.2 Rural Roads

Trees on rural roads are inspected on a reactive basis to address road safety issues in accordance with Council's Road Management Plan, where identified hazardous trees are removed or pruned to maintain the traffic zone (height and width), which also includes canopy clearing.

Council will respond to reports from the community of dangerous trees in rural areas.

15.7 Mitigating immediate risks

Where immediate risks are identified, Council has an exemption to conduct remediation works under the following circumstances:

- Exemptions from requiring a planning permit to remove, destroy or lop native vegetation can be found at:
https://www.environment.vic.gov.au/data/assets/pdf_file/0018/91251/Exemptions-from-requiring-a-planning-permit-to-remove,-destroy-or-lop-native-vegetation-Guidance.pdf
[url not working](#)
- Road Safety Exemption:
https://www.environment.vic.gov.au/data/assets/pdf_file/0024/408480/RoadSafetyProcedure.pdf
- Road Safety Exemption - DELWP written agreement for public authorities and municipal councils:
https://www.environment.vic.gov.au/data/assets/pdf_file/0035/519389/RoadWrittenAgreementList_April2021.pdf

Environmental considerations

16.1 Fauna

All trees within the Strathbogie Shire create important habitat for a diverse range of native and exotic fauna and can therefore be impacted by maintenance or construction works.

To support our environment and biodiversity Strathbogie Shire will:

- Relocate native fauna that is displaced by routine maintenance where it is possible and reasonable to do so.
- Consider breeding and nesting times when allocating various tasks.

- Only consider affecting the tree when it is necessary to do so as per the Tree Management Plan.

16.2 Habitat trees

Tree hollows are a naturally evolved state and part of the lifecycle of a tree. Eucalyptus trees for example do not typically develop hollows until they are over 100 years old.

Whilst safety is paramount in the community, the provisions of the Tree Management Plan will be referenced, Council will endeavour to seek practical design and removal alternatives to maximise the health and longevity of existing large, hollow bearing trees.

16.3 Termites and other pests

Termites are a native species and form a part of the natural environment where they carry out important ecosystem functions. Out of the hundreds of species of termites in Australia, only a dozen or so are known to cause damage to property. Strathbogie Shire Council is in a Declared Termite Area.

For trees that are believed to contain termites, Council will allow with approval:

- The drilling or boring of Council trees to ascertain the presence of termites and a written report of findings.
- The chemical treatment of Council trees against termites from a licensed service provider (Council requires a written report of treatment for its records).
- The removal of Council trees that are deemed structurally compromised as a preventative measure against termites in accordance with the relevant legislation including the provisions of the planning scheme.

Elm leaf beetle is another common pest which is known to target local Elm Trees. The beetle in both its larvae and adult form damages both the foliage and trees' ability to achieve photosynthesis. Council has programmed maintenance in place to respond to Elm Leaf Beetle.

Tree valuation

The costs associated with removal/replacement of the public tree in the Shire of Strathbogie must include;

- Amenity Costs and Amenity Value – Calculated in accordance with Council's adopted Amenity Formula (industry standard). The amenity value of a tree will be hereby based on the formula developed by (Dr. Peter Yau, 1990). Examples of this formula and method can be found at the City of Melbourne '*Tree Valuation in the City of Melbourne*' and the City of Greater Bendigo, '*Tree Valuation in the City of Bendigo*'. Calculation on amenity value for Strathbogie Shire Council trees will be based on the latter until such time as a specific Strathbogie Shire Council tree valuation document is developed. That document will supersede the City of Greater Bendigo document.
- Removal Costs – The sum of the fees incurred by the Council for physically removing the tree.
- Reinstatement Costs – The cost of all works required to replace the loss of vegetation from the landscape including purchase, planting, formative pruning and watering.

A valuation may be undertaken by a qualified arborist to assess the value of the trees as a part of development plans and planning applications, and to set a value for compensation, where it is agreed the best overall outcome is the removal of the trees.

Damage caused by trees

If a tree from a private property falls onto a public road, Council may act in the interests of public safety to clear part of the fallen tree. A similar process is used to address trees which fall from within the road reserve.

On rural roads, Council has no responsibility or liability for any tree outside of the road maintenance envelope as defined in Strathbogie Shire Road Management Plan.

Should infrastructure damage be attributed to the roots of a Council tree, an appropriate remedial solution will be sought. Such remedial solutions may include:

- Realignment of path
- Selective root pruning
- Casting concrete kerbs in situ
- Ramping and bridging over existing tree roots
- The installation of tree root barriers
- Replacing current infrastructure with material more tolerant to tree roots i.e.: asphalt rather than concrete

Claims for indirect damage to dwellings or other property should be substantiated by a report from a geotechnical or structural engineer that implicates tree root damage and referred to Council.

Community engagement

Open engagement with residents creates a much better understanding and shared appreciation of tree issues and it enables wider understanding of the roles and works undertaken by Council, as well as the aspirations of community members. It also enables the community to understand their responsibilities and rights. Most importantly, it provides community with access to advice about trees in the Shire and to have their interests heard.

Consultation will occur for any tree project proposals (removal/replacement/new) as per the following.

Consultation will occur in all circumstances with the exception of trees which are an immediate risk and require immediate action for the safety of the public and tree renewals for trees which have reached their end of life. Consultation as detailed in this section will be in addition to any statutory requirements when addressing native vegetation.

- For street tree/s - Strathbogie Shire Council will seek to consult with adjacent residents. Responses will be considered within 14 days of the date of the letter drops or communication with adjacent residents. Information regarding the proposal will be shared openly in search of an amicable outcome. Some proposals may be driven by private residents which will be at their cost in-line with 'Tree Valuations' referenced elsewhere in this document. Where an outcome cannot be agreed on, no action will be undertaken, and the tree will not be actioned until its risk deems it necessary.

- For park or open space tree/s (including the road frontage) – Strathbogie Shire Council will carry out a process of consultation. This process will include, notifying any committee of management (where applicable) of proposed actions or proposed projects. Park or open space proposals will be specific to new trees and changes to trees species (major projects), consultation will include staking a public notice at the site and advertising the proposed action in an appropriate way. An objection period will be allocated of a minimum of 20 business days from the date of the public display of notice. Where an outcome cannot be agreed on, the matter may be presented to Council for a resolution. Information regarding the proposal will be shared openly in search of an amicable outcome.

Note that for the renewal of our trees that have reached end of life, a Council officer will carry out renewal without consultation on the basis of works efficiency. Trees that are planted to renew our register of trees will be done so as close a possible to the site of the existing tree and will be selected from the approved tree list (see Appendix 1).

Force majeure

Council will make every endeavour to meet all aspects of its Tree Management Plan.

In the event of a natural disaster or other events such as fires, floods, or droughts or due to lack of available Council staff or suitably qualified contractors, Council reserves the right to suspend compliance with its Tree Management Plan.

APPENDIX 1 - Urban Street Trees List (Approved)

Smaller **deciduous** trees suitable for planting under powerlines and narrow road reserves:

- Prunus varieties – Flowering plums ·
- Malus varieties – Crab Apples ·
- Lagerstroemia varieties – Crepe Myrtles
- Acer buergerianum – Trident Maple
- Robinia pseudoacacia ‘Mop Top’
- Fraxinus ornus ‘Meczek’ – Designer Ash
- Nyssa sylvatica – Tupelo Tree

Smaller **evergreen** trees suitable for planting under powerlines and narrow nature strips

- Callistemon varieties – Bottlebrush ·
- Smaller Eucalypt varieties – ficifolia (Red flowering Gum), scoparia
- Acacias – wattles – smaller varieties eg Acacia floribunda – Gossamer Wattle, Acacia longifolia – Sydney Golden Wattle ·
- Hakeas – laurina – Pin Cushion Hakea, petiolata – Sea Urchin Hakea,
- Leptospermum – Tea Trees
- Melaleuca – Paperbarks – smaller varieties
- Grevilleas

Larger **deciduous** trees – no powerlines / larger nature strips ·

- Acer negundo – Box Hedge Maple
- Acer saccharinum – Silver Maple
- Acer saccharum – Sugar Maple
- Quercus varieties – Oaks, Pin Oak, Scarlet Oak, Red Oak
- Tilia varieties
- Zelkova serrata ‘Green Vase’ Japanese Elm
- Ulmus parviflora – Chinese Elm

Larger **evergreen** varieties

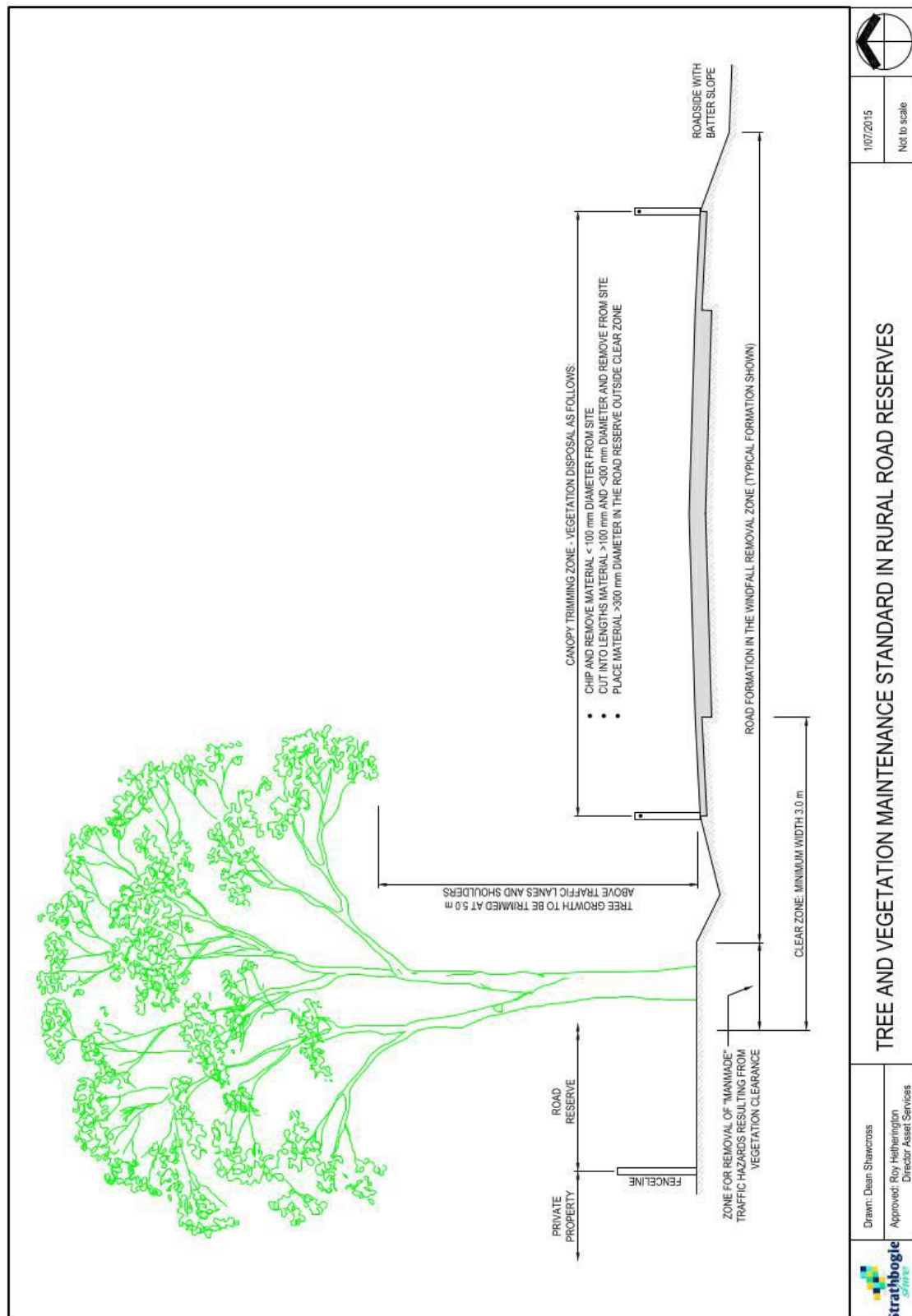
- Casuarinas – River sheoak etc.
- Eucalypts – maculata (Spotted Gum), citiodora (Lemon Scented Gum), leucoxylon ‘rosea’ (Yellow Gum), sideroxylon ‘rosea’ (Ironbark)
- Angophora costata – Smooth Barked Apple
- Kurrajong
- Grevillea robusta – Silky Oak
- Pinus patula – Mexican Pine, Pinus pinea – Stone Pine
- Cedrus deodara – Indian Cedar

Noted unsuitable trees –

- Elm Varieties (Elm Leaf Beetle),
- Liquid amber (Invasive roots), Ash – Claret & Desert Ash (Root Damage, Dieback),
- Fig (Root Damage, Fruit Drop),
- Plane Trees (Avoid Planting near Infrastructure),
- Red Gum and Yellow Box (Large Tree and Shed Limbs).
- Pyrus varieties – ornamental pears-Manchurian, Aristocrat, Chanticleer etc

APPENDIX 2 – Road Management Envelope

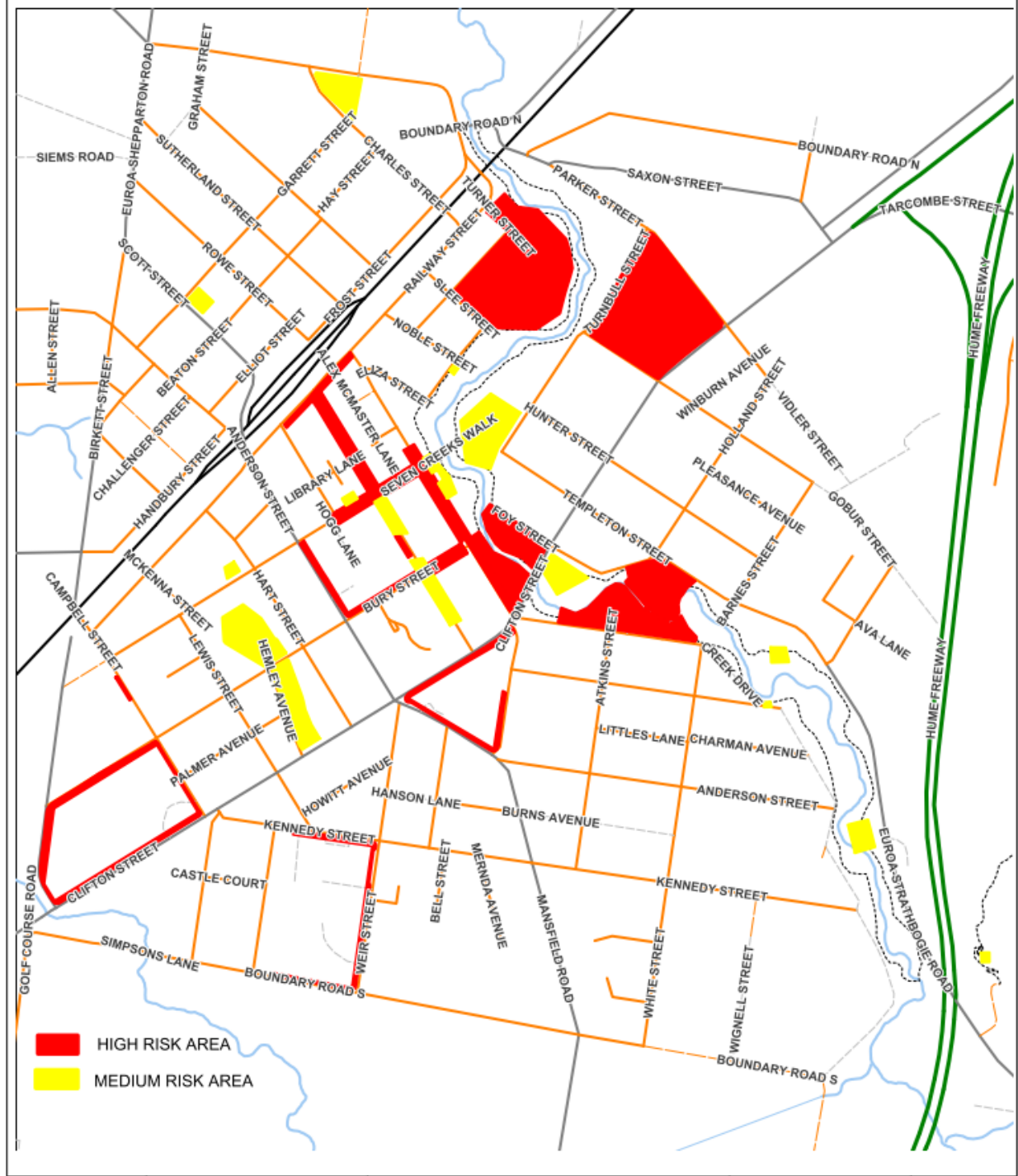
The diagram below shows the 'road management envelope' in which Council is responsible to inspect and maintain trees and roadside vegetation.



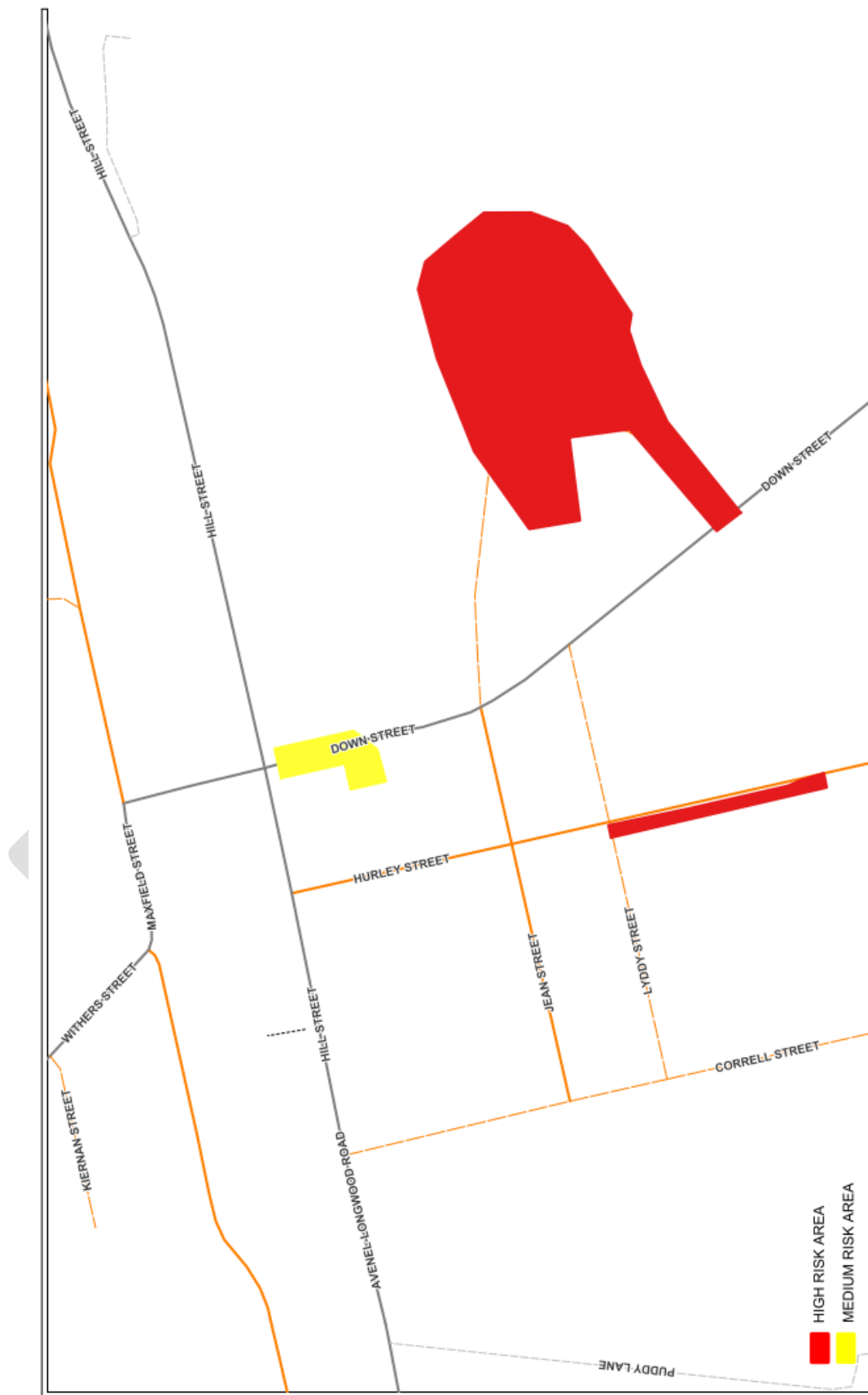
APPENDIX 3 – High and Medium Risk Land Use Areas



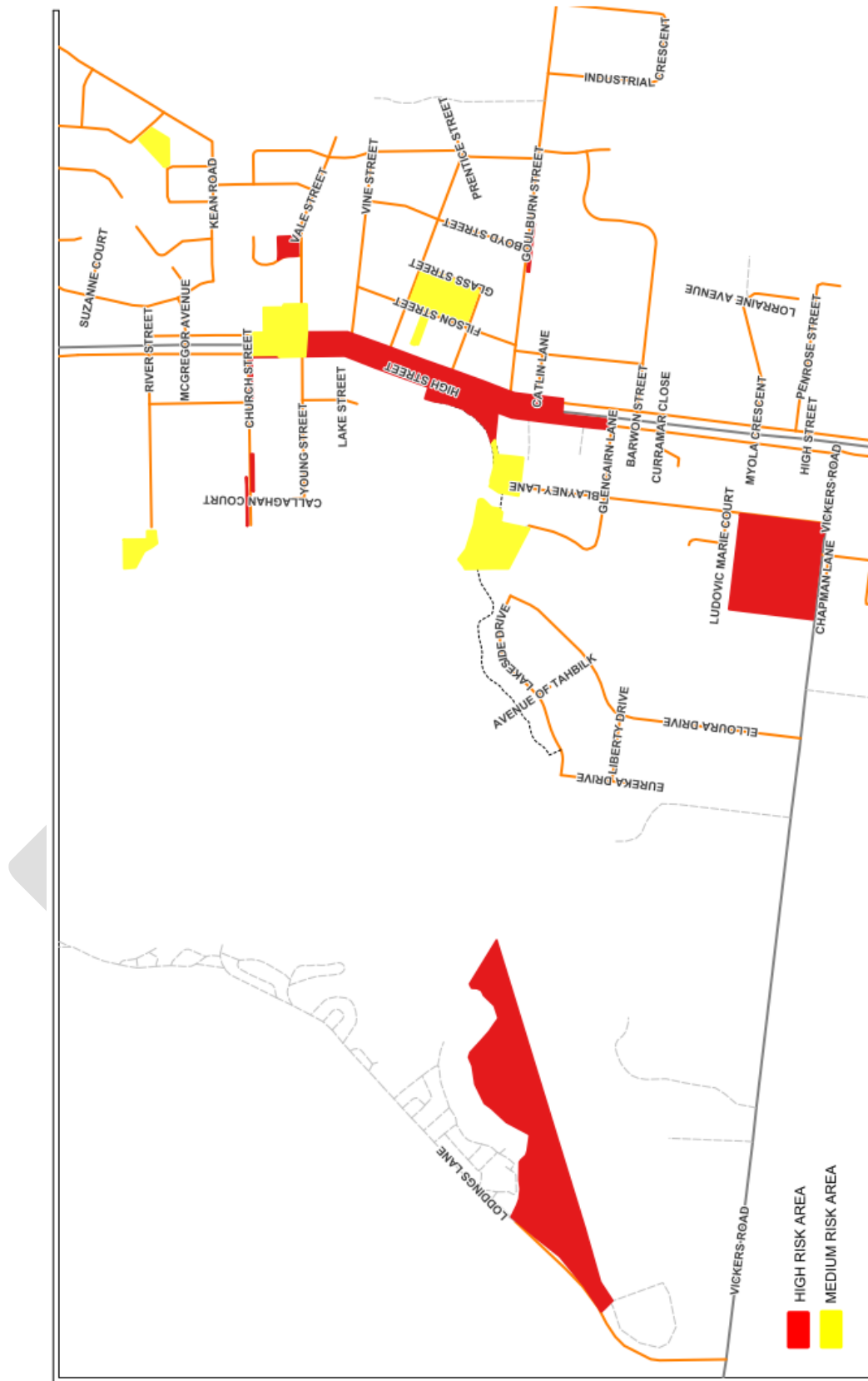
DRAFT Tree Management Plan - Euroa



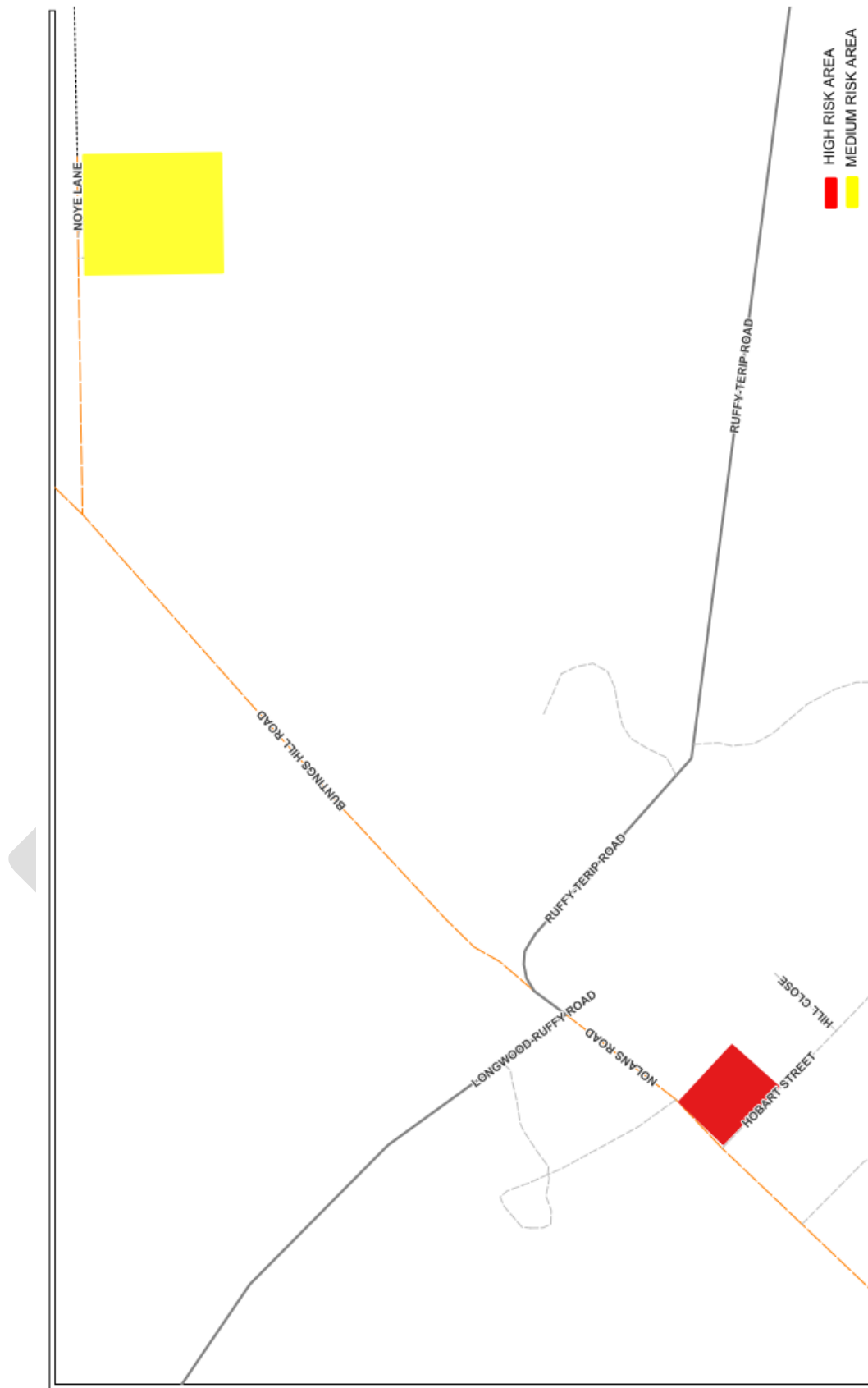
DRAFT Tree Management Plan - Longwood



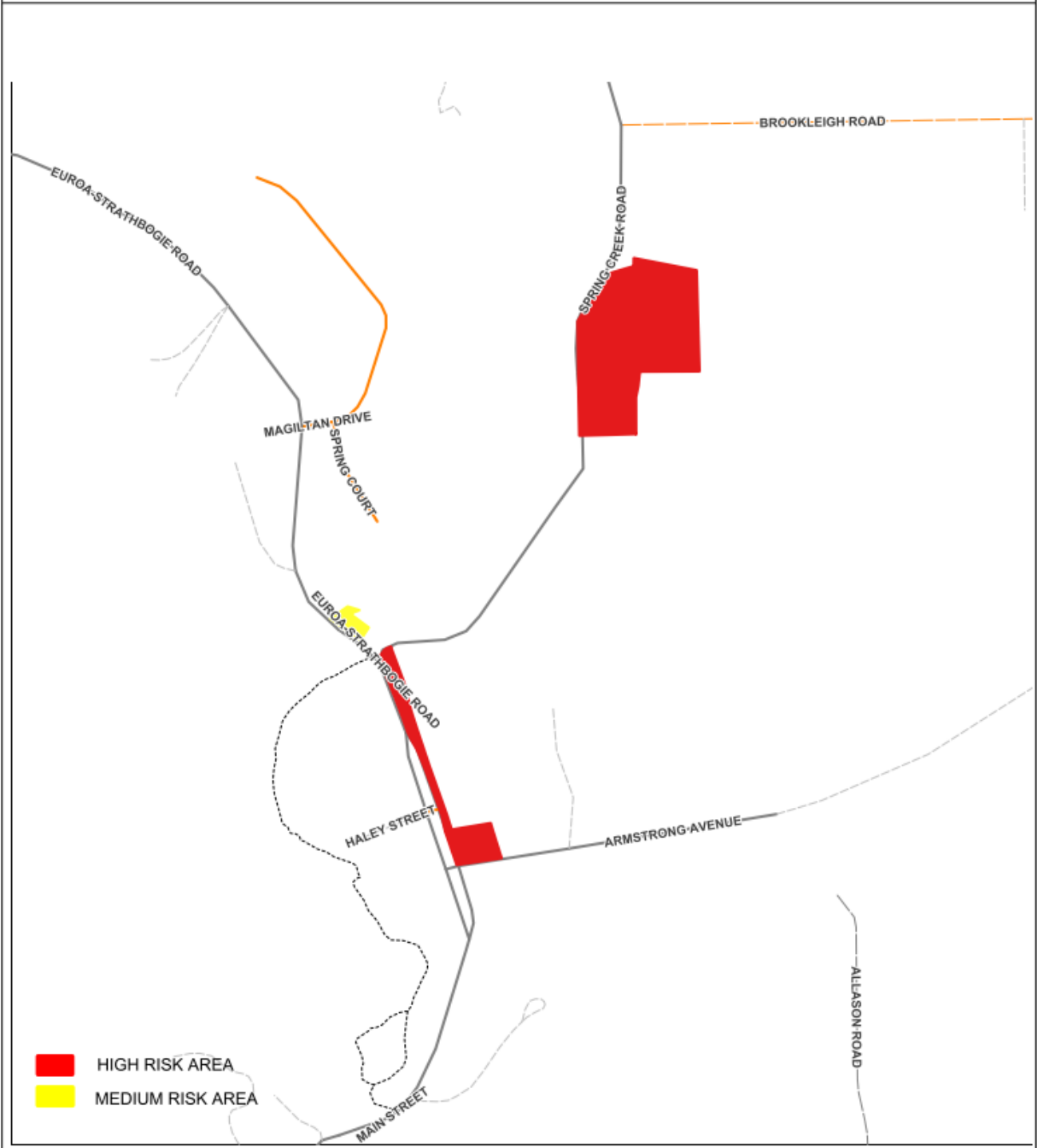
DRAFT Tree Management Plan – Nagambie



DRAFT Tree Management Plan – Ruffy



DRAFT Tree Management Plan - Strathbogie



DRAFT Tree Management Plan – Violet Town

