Tree Inspection Guidelines

Adopted August 2021

Tree Inspection Guideline

The Tree Inspection Guideline (TIG) provides a systematic process for the allocation of resources for tree inspection and assessment works relating to trees on Council land or land under Council's control. Due to the vast tree resource located within Baw Baw Shire, it is cost prohibitive to inspect, assess and perform maintenance works on all trees. Rather, a system is presented that prioritises tree assessment and maintenance works for proactive management of trees.

Council recognises that the management of trees differs between its rural and urban areas due to a range of factors, including but not limited to the resources that will be necessary should the two areas be treated the same and their differing levels of risk. For roads located in the rural maintenance zone, the approach to tree inspection and management is reactive in nature.

In urban areas, a broader, systematic approach to tree inspections is required that prioritises inspections on trees, based on the establishment of zones relating to the assets within the immediate area. The tree assessment framework approach contained within these guidelines provides a process for scheduling the inspection of trees and assessing any hazards they pose, to enable the prioritisation of works and responsible resource management.

Tree inspections with follow-up maintenance, if required, enables the management of protecting the tree resource, with the intent to reduce the need for tree removal.

It is not possible to eliminate all potential hazards associated with trees, as to do so would require the removal of the majority of trees in the urban and rural areas.

Tree assessment and hazard management encompasses a broad range of tree related issues. The TIG addresses the overall notion of tree asset inspection, assessment and management through utilising a program of systematic tree assessment, through proactive and reactive inspections, which aim to implement best practice tree management to enhance public safety for residents and visitors to Baw Baw Shire.

Levels of Tree Inspection

Council undertake three levels of assessment for trees:

Level 1: Limited Visual Assessment.

- Level 1 inspections are undertaken internally by suitably qualified Council Officers when a large number of trees have to be inspected, and are usually done from a car, via walking or through a passive inspection. Information is not recorded about each tree, only tree(s) which require remedial works or further inspections will be recorded.

  Level 1 assessments are undertaken in the first instance, in both rural and urban areas. The basis for the level 1 inspection is to identify any:

  - dead, diseased or dying vegetation;
  - cracks or cavities in unions;
  - immediate hazards; and
  - tree support mechanisms (i.e. cables, straps etc.)

  If a fault is noticed, Council's nominated representative is notified to either undertake remedial works, or where required, arrange for a level 2 inspection to be completed.

Level 2: Basic Visual Assessment

- A tree or group of trees is inspected from the ground, by Council's suitably qualified Arborist, qualified representative or external consultant arborist.

  Proactive level 2 assessments are undertaken within the urban area only. The basis for the level 2 assessment is a more detailed inspection on a single tree, to identify any:

  - dead, diseased or dying vegetation;
  - cracks or cavities in unions;
  - immediate hazards;
  - tree support mechanisms (i.e. cables, straps etc.)
  - future proactive maintenance requirements (i.e. tree canopy weight reduction, formative pruning, tree support mechanism maintenance etc.); and
  - identification of further assessment requirements (i.e. aerial or tomograph inspections)

  Alternatively, in the rural area, a works report is prepared that outlines the works undertaken and what risks have been mitigated by said works. This method recognises that the costs of continuing to undertake further inspections on trees that have been raised reactively would not be sustainable in the longer term.

Level 3: Advanced Assessment

- If required, based on the outcome of a level 2 assessment, more detailed assessments are undertaken. Level 3 assessments will be undertaken by Council's suitably qualified Arborist, qualified representative or external consultant arborist and methods may include using a climbing arborist, drone or an elevated work platform to access the crown of a tree, or tomography to assess extent of wood decay. Testing for tree diseases is also included under level 3. Information from a level 3 assessment will be documented either in the form of a written Arborist report or through Council's internal works management system.

Council's tree inspection programs are broken down into two parts, reactive and proactive inspections.

Reactive Tree Inspections

Reactive tree inspections occur in response to formal customer requests received through Council's Customer Request Management (CRM) system advising Council of a specific tree(s) that may pose a potential hazard. That may include forwarding on received request(s) to appropriate landowners and managers.

Council's suitably qualified representative will visit the site for an initial level 1 assessment to assess the tree(s) identified in the CRM. The initial inspection for a reactive request will take into consideration assets and/or structures which may be impacted if the tree, or part of the tree, was to fail. After completing the initial level 1 assessment, Council's suitably qualified representative (i.e. Council Officer) will determine if any remedial works or further assessments are required.

Further assessments may include a level 2 assessment, and in some instances, a level 3 assessment will be undertaken if required.

Proactive Tree Inspections

Proactive tree inspections occur in urban areas only, however Council's road maintenance contract requires the undertaking of cyclic inspections of its road network within rural areas. All roads listed as maintained on Council's public road register have cyclic inspections undertaken. As part of these inspections, carriageway clearance (i.e. 'five and one') is checked. These cyclic inspections do not include proactive tree risk evaluations.

Council undertakes proactive inspections in the following urban areas:

Street Tree Maintenance in Urban Areas:

- Council conducts proactive tree inspections on planted street trees within urban areas
- Level 1 assessments are primarily undertaken in this program

Electric Line Clearance in Declared Areas:

- As required by the Electricity Safety Regulations 2020 (Electric Line Clearance), powerline clearance is conducted by Council within the declared areas of Warragul and Drouin only. Under *Section 81 of the Electricity Safety Act 1988*, land can be made a "declared

area". In a declared area, the local Council is responsible for tree clearing around power lines on public land

- Level 1 assessments are primarily undertaken in this program
  Council owned Open Space Area's (OSA's) and Buildings:

- Proactive tree inspections on Council owned OSA's and areas surrounding buildings are conducted by determining the level of risk posed by a tree within a location, or by the assets or infrastructure in which the tree is surrounded. The program allocates a risk rating to each park and facility, based on the type of tree stock and density, which determines the inspection frequency. Initially a level 1 assessment is undertaken, followed by a level 2 where required.

Trees on unused road reserves, in both urban and rural areas, are only inspected upon request via Council's CRM system. Unused road reserves which are licensed or leased by adjacent property owners are the responsibility of the licensee.

Tree Risk Classification

In line with normal risk management principles the level of risk for all tree assessments is determined by probability level of the risk and its consequences. Table 1 below sets out the various level of risk.

Table 1 – Risk Analysis Matrix

		Consequence				
Likelihood		Insignificant	Minor	Moderate	Major	Catastrophic
	Almost certain	Medium	Significant	High	Extreme	Extreme
	Likely	Medium	Medium	Significant	High	Extreme
	Possible	Low	Medium	Significant	High	High
	Unlikely	Low	Low	Medium	Significant	High
	Rare	Low	Low	Medium	Significant	Significant

Risk Rating	Action
Extreme	Immediate action required, including urgent interim actions e.g. cessation of activity is necessary to ensure safety.
High	Prompt action required, including interim actions.
Significant	Risk will be reduced as low as reasonably practicable.
Medium	Risk is likely to be acceptable, if not risk will be reduced as low as reasonably practicable.
Low	Risk is almost acceptable. Implement treatment plan.

Table 2: Measure of Likelihood

Level	Descriptor	Likelihood
A	Almost Certain	• 99% probability; or • Risk is occurring now; or • Could occur within "days to weeks".
B	Likely	• >50% probability; or • Balance of probability will occur; or • Could occur within "weeks to months".
C	Possible	• >20% probability; or • May occur but against short term probabilities; or • Could occur within "months to years".
D	Unlikely	• >1% probability; or • May occur but not anticipated; or • Could occur in "years to decades".
E	Rare	• <1% probability; or • Occurrence requires exceptional circumstances.

Table 3: Measure of Consequence

Level	Consequence Rating	Critical Success Factors			
		Revenue, Cost or Liability (3rd Party or Business Loss)	People (Health & Safety)	Environment	Corporate Image (Probity/Political/Economic)
5	Catastrophic	• Liability Cost or Business loss to the organisation >$2M • Officer or Councillor gaoled	• Multiple loss of life • Shire wide epidemic	• Serious damage of national significance • Prosecution (cost as per revenue impact) • Impact not fully reversible	• Official Public Investigation; • Public/media outrage • International media coverage • Public pressure to curtail operations of the organisation • Management changes demanded
4	Major	• Liability cost or business loss to BBSC between $250K to $2M • BBSC officer and/or Councillor with significant fine	• Loss of life; • Serious health impact on multiple members of public or staff	• Serious damage of State significance • Prosecution likely (cost as per revenue impact) • Impact reversible within 10 years	• Loss of community confidence in BBSC • Public/media concern • National media coverage • Damage to BBSC's reputation • Formal inquiry/sanctioned
3	Moderate	• Liability cost or business loss to BBSC of $50K to $250K • Personnel fined	• Serious health impact on a member of the public • Hospitalisation	• Serious damage of local significance; • Prosecution probable (cost as per revenue impact) • Impact reversible within 1 year	• Community discussion and concern • Broad adverse media coverage
2	Minor	• Liability cost or business loss to BBSC of $20K to $50K	• Moderate injury/health impact on staff or public • Medical attention required	• Material damage of local significance; • Prosecution possible (cost as per revenue impact) • Impact reversible within 3 months	• Minor/isolated concerns raised by members of public, customers, suppliers • Local media adverse report
1	Insignificant	• Minimal liability cost or business loss to BBSC <$20K	• Minor First Aid required • Temporary, minor health impact on staff or public	• Minor release of pollutants which does not require notification to third parties • Brief, non-hazardous temporary pollution, reversible within a week	• Event only of interest to individuals • No impact on community; • Marginal impact on BBSC's operations • Resolved in day to day management

Tree Risk Management Process

Council owned buildings and OSA's in urban areas within Baw Baw Shire that contain trees and are proactively inspected, are allocated into risk zones:

- Low;
- Moderate;
- High; and
- Very High.

The zones designate how these areas are to be treated with regards to the type and timing of scheduled tree inspections. The zones are based on the tree resource and the occupancy of the area surrounding the trees (refer Identifying Tree Risk Zones).

The timing of scheduled tree inspections is determined by the zone and is detailed in table 4.

The method of scheduled inspection undertaken will also vary depending on the zone and asset type.

There are three steps in the inspection of trees in Baw Baw Shire. Evaluation at the end of the step determines whether a decision can be made or if it is necessary to proceed to the next step.

Identifying Tree Risk Zones

The format of dividing municipal assets into zones is based on a system developed by the U.S. Department of Agriculture (USDA) Forest Service (Pokorny, 2003) and is only utilised in urban areas of BBSC which contain Council OSA's or Council buildings.

Determining the level of risk for each asset and therefore the corresponding zone is based on three factors:

- Roadway characteristics within urban areas, including the road type, traffic volume and congestion patterns;
- Public use and occupancy patterns within OSA's, which could be considered to be low, moderate or high; and
- Tree resource characteristics, including tree condition, such as species characteristics or age, and location factors, for example, the position of trees in relation to areas used by the public.

Table 4 presents the indicative classification of assets relating to trees within Baw Baw Shire. These categories may change dependent on the nature and condition of the tree resource in conjunction with occupancy levels. The treatment of trees in the different risk zones is presented in the Tree Assessment Framework, Tree Risk Zone Assessment Methods and Inspection Schedules.

The allocation of an asset into a specific zone will be dependent on the nature and condition of the trees in combination with occupancy rates. A specific example would be Waterloo Park in Yarragon, where there is high use, but the site generally has a semi-mature tree population with low hazards. Therefore, this may reduce the risk zone category for this reserve.

Individual assets may be classed into different categories from similar asset types based on further considerations, including:

- declining tree populations, or
- different occupancy levels to similar assets.

Table 2 - Risk Allocation of Assets (Adapted from Pokorny 2003)

Risk Zone Category	OSA's	Council Road Listing	Municipal Properties
Low Risk	Low use public areas with dispersed recreation including: • Flora Reserves • Walkways • Easements • Vacant Land • Open areas	All roads in urban areas are inspected annually*	Waste transfer stations
Moderate Risk	Moderate use OSA's, playgrounds and picnic areas. Neighbourhood OSA's and reserves. Memorials (with adjacent trees)	All roads in urban areas are inspected annually*	Car parks servicing moderate use public areas. Community houses Libraries Public toilet facilities Swimming pools Tennis clubs Bowling clubs Pony clubs
High Risk	High use OSA's, playgrounds and picnic areas. Sports grounds and recreation reserves with pavilions etc. BBQ's with shelters	All roads in urban areas are inspected annually*	Car park servicing high use public areas. Senior Citizens Aged accommodation and Day care Centres Council depots Community halls
Very High Risk	High public use areas such as Civic Park Warragul and Civic Park Drouin	All roads in urban areas are inspected annually*	Childcare centres Pre-schools Maternal child and health centres Caravan parks

** Trees on unused road reserves, in both urban and rural areas, are only inspected upon request via Council's CRM system. Unused road reserves which are licensed or leased by adjacent property owners are the responsibility of the licensee.*

Risk Zones within Open Space Areas and Council buildings

In most instances, OSA's will not have multiple risk zones within a site. The classification of risk associated with an OSA is a general indication, primarily pertaining to perceived use and occupancy rates and to a lesser degree the types and condition of the tree resource.

There will be areas within particular open space (parks/reserves/sports grounds) that will present a higher risk due to tree population, condition and location. For example, trees around the playground, toilet block or car park may present higher risk than trees on the periphery of the space or adjacent to semi-natural areas where occupancy rates are lower.

Generally, the risk rating for the entire reserve will represent the highest rating in the reserve, and the inspections will be scheduled accordingly, however this may differ for large scale OSA's with minimal assets (i.e. Brooker Park). In such instances as Brooker Park, areas surrounding assets will be inspected at the higher risk category per the Pokorny Method inspection timeframe, whilst other areas within the OSA will be inspected at the lesser risk rating inspection timeframe.

All areas within a site will be inspected at the same time. Assessment of the trees and the level of work required will be based on the targets near the tree and the level of risk.

A complete listing of Council's risk zone ratings for proactive inspection within urban areas are included in the Open Space Areas Register.

Tree Risk Zone Assessment Methods & Inspection Schedules

Scheduling of asset tree inspections in the risk zones is based on the classification of each zone. Therefore, trees in municipal assets in Very High-Risk zones are inspected more frequently than those classified in lower risk zones.

The type of inspection for municipal properties, parks and bushland will preliminarily be ground based level 1 tree inspections with follow-up level 2 inspections including tree inspection reports if required (refer to Levels of Tree Inspection). Table 5 details the inspection schedules and methods for each zone.

Table 3 - Pokorny Inspection Method Table (Adapted from Pokorny, 2003)

Risk Zone Category	Timing of Inspection	Suggested Inspection Method
Low Risk	Once every 7 years	General tree inspections Individual tree inspections (if required)
Moderate Risk	Once every 5 years	General tree inspections Ground - municipal properties and OSA's Individual tree inspections (if required)
High Risk	Once every 2 years	General tree inspections Ground - municipal properties and OSA's Individual tree inspections (if required)
Very High Risk	Annually	General tree inspections Ground - municipal properties and OSA's Individual tree inspections (if required)

After storm events Council will act on reactive requests via internal notifications, reports from emergency services and/or customer requests (CRM's) for tree inspections.

Method of Review

In line with AS ISO 31000:2018 - Risk management – Guidelines, ongoing reviews are essential to ensure that tree risk management remains relevant.

Decision review process

If a member of the community seeks a review of a decision made by Council's nominated representative(s) to retain or remove a tree, a further independent inspection may be required. The decision for an independent inspection will be escalated to the Coordinator Tree Maintenance, Coordinator Open Space Maintenance or Coordinator Road Maintenance. If the matter is not resolved the Manager Infrastructure Maintenance or Manager Assets and Recreation will intervene.

The process does not cover incidents where members of the community want a tree recommended for removal to be retained. In this instance, the Coordinator Tree Maintenance, Coordinator Open Space Maintenance or Manager Infrastructure Maintenance will communicate with the member of the community.