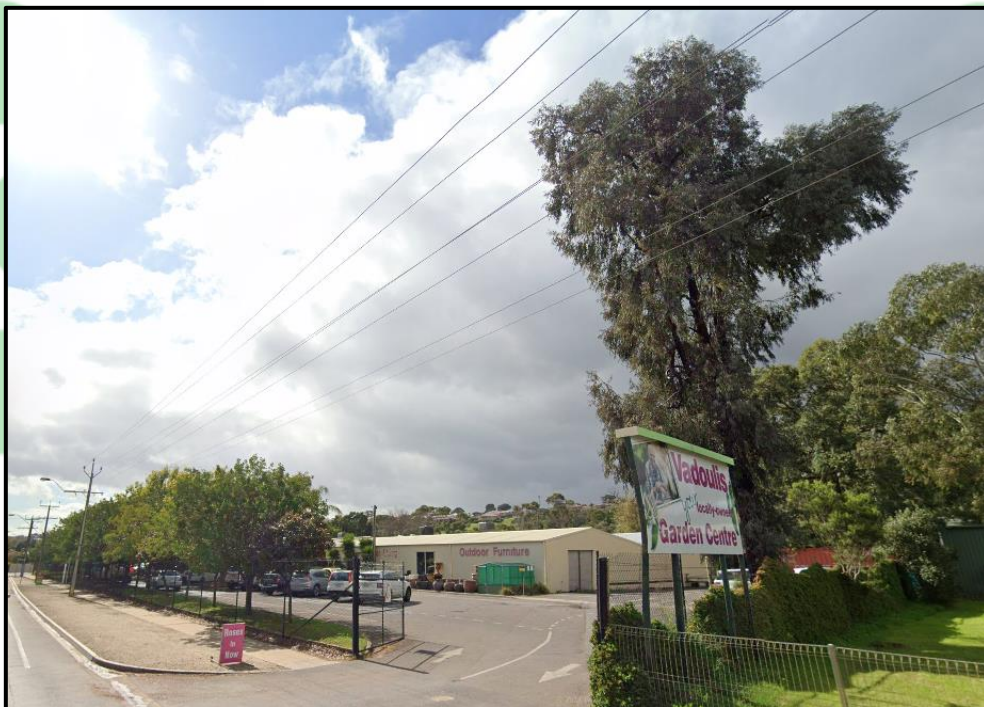


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Prepared for the Town of Gawler
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Date: 6th March 2023

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Tree Risk Assessment Report

550 Main North Road, Evanston Park



Prepared for
Chris Hannaford
Town of Gawler

Compiled by
John Breen
Adelaide Arb Consultants

Executive Summary

- 29 trees of varying species, legislative control and retention value located within the allotment of 550 Main North Road, Evanston Park were assessed in relation to a Code Amendment Application for the site.
- The trees assessed displayed a range of trunk circumference measurements, with 10 trees qualifying as regulated and 3 trees qualifying as significant as per the *Planning, Development & Infrastructure Act 2016*. The remaining trees were either exempt under the provisions of the same Act or did not meet trunk circumference measurements to achieve legislative control.
- 23 trees possess attributes making them worthy of preservation as outlined in the Plan SA *Planning & Design Code*.
- The trees display mixed health ratings, with the majority of trees displaying good health. The majority of trees are also sustainable within their current environment, however this is due to the current land use of the site and low occupancy rates observed within target zones. Should the land use significantly change, risk ratings may be elevated and some trees may no longer be sustainable.
- The ISA – Tree Risk Assessment has demonstrated that the tree population represents a low risk to public and private safety.
- Risk mitigation or crown management options were not explored as part of this assessment.
- The LMA proposed by Council should be revised to correctly identify the *Ficus* trees within the road reserve at the front of the property to ensure protection of the subject trees.
- This review found more trees to be worthy of a high retention value than the Arborman Preliminary Tree Assessment.
- The concept plan submitted by Future Urban delineating the development envelope within the site is likely to conflict with the majority of the assessed tree population.

Thank you for the opportunity to provide you with this advice. Should you require any further assistance or clarification, please do not hesitate to call or email me.

Yours sincerely

A handwritten signature in purple ink, appearing to read "John Breen".

JOHN BREEN
Consulting Arboriculturist
Foundation Degree (Arboriculture and Urban Forestry)

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Introduction

Brief

Adelaide Arb Consultants were commissioned by Chris Hannaford of the Town of Gawler to conduct a peer review of a Preliminary Tree Assessment report provided by Arborman Tree Solutions. The review involved the assessment of 29 trees located at 550 Main North Road, Evanston Park. The reason the assessment was requested was to provide a second opinion to Council as to the retention value of the trees located at the site and to evaluate these values against those in the report provided by Arborman Tree Solutions.

The assessment process is required to include the following attributes:

- A detailed assessment of the trees and their surrounding environment.
- A Tree Risk Assessment using an industry endorsed Tree Risk Assessment Model.
- A detailed tree report outlining each tree's attributes, current risk posed by the trees to public and private safety and management strategies to mitigate elevated risks where required.

Provided Information

The following precursory information was provided to assist in the assessment process.

- Evanston Park Code Amendment Brochure, Future Urban.
- Preliminary Tree Assessment, Arborman Tree Solutions, 04/03/2022.
- Request for Quotation, Town of Gawler, 10/02/2023.
- Appendix 3: Concept Plan and Sections, Future Urban, 11/2022.

Tree Report Scope

The assessment criteria included the following attributes:

- An assessment of the specified trees at 550 Main North Road, Evanston Park. I have not assessed or reported on any other trees within or adjacent to the site in this report.
- The current health, structure, and sustainability of the specified trees within their current environmental conditions.
- The control status of the specified trees under the current provisions of the *Planning, Development & Infrastructure Act 2016* including an assessment against the relevant *Planning and Design Code* Performance Outcomes.
- The retention value of the specified trees at 550 Main North Road, Evanston Park.

Site Access and Assessment

Site Visit Details

An assessment of 29 trees of varying species, genus and family was conducted on the 26th of February 2023.

The weather at the time of the assessment was clear, dry and warm. The weather did not hinder my assessment of the trees.

This involved a Level 2 Visual Tree Assessment¹, carried out from ground level. All measurements are estimates unless otherwise specified within the report and measurements relating to the tree's locations, crown projection or root zone extent are taken from the centre of the trunk at ground level.

Data collection describes observations noted during the assessment from within the property boundaries of 550 Main North Road, Evanston Park. Varying limitations to both observations and measurements existed at multiple trees during my assessments. These limitations are acknowledged throughout the report at the relevant sections.

Site Description

The property is located at 550 Main North Road, Evanston Park. The vegetative character of the local area consists of mixed native and exotic plantings on both public and private land. The trees located within the subject parcel of land are some of the more mature and older specimens within the immediate vicinity. The site is not linked to wildlife corridors, however it would support an array of wildlife within the local area.

The site consists of varying species, with some occurring in clustered populations, some as fragmented populations or others as the only example of that species within the site. The most notable and frequently occurring populations of trees are *Eucalyptus cladocalyx* – Sugar Gum and *Schinus areira* – Peppercorn Tree. Individual exotic species identified within the site include *Phoenix canariensis* – Date Palm and *Quercus suber* – Cork Tree.

The growing environment of the specified trees varies throughout the site, ranging from hostile environments where root zones consist predominantly of impermeable surfacing, to sites highly conducive to tree development and function, where no development has occurred within the root zone of the tree.

Trees 1 – 4 display significant encroachments within their root zones, with a reduction in growing environment quality. The remaining trees all exist within sites that are largely or wholly conducive to healthy tree function and development.



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Tree Risk Assessment (ISA – TRAQ)

The International Society of Arboriculture Tree Risk Assessment Qualification method (TRAQ)² has been used to determine the risk posed by this tree at the site to persons and property over the next 12 months during 'normal' weather conditions³.

I am a qualified user of the ISA Tree Risk Assessment method. More information about this method can be found in the *Best Management Practices – Tree Risk Assessment* (Companion Publication to American Standard ANSI A300 Part 9: - *Tree Shrub and other woody plant management – Standard Practices (Tree risk assessment a. Tree structure assessment)*) published by The International Society of Arboriculture 2011 **AND** *Tree Risk Assessment Manual* International Society of Arboriculture, Champaign, Illinois, USA 2017.

Tree risk is calculated in 2 steps:

Part 1- Likelihood matrix

The likelihood of a failure occurring⁴

x

The likelihood of the failure impacting a target⁵

Factors taken into account include the location of targets relative to the tree condition of concern, surrounding site factors, tree age, health & vigour, species profile, loads on the defect and the likelihood of failure, the target zone use and frequency, fall characteristics, target protection and other relevant factors.

The likelihood matrix below is used to determine the likelihood of branch failure impacting the targets.

Likelihood of failure	Likelihood of impacting target			
	<i>Very low</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>
<i>Imminent</i>	Unlikely	Somewhat likely	Likely	Very likely
<i>Probable</i>	Unlikely	Unlikely	Somewhat likely	Likely
<i>Possible</i>	Unlikely	Unlikely	Unlikely	Somewhat likely
<i>Improbable</i>	Unlikely	Unlikely	Unlikely	Unlikely

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Part 2 – Risk rating matrix

The likelihood of failure and impact (carried over from part 1)

x

The consequences of the failure⁶

Consequences are determined by a complex of all the variable factors at the site. These include the size of the tree part, fall characteristics, factors that may protect the target and the level of property damage or personal harm that could be expected.

The following risk rating matrix is used to assign an overall tree risk rating⁷.

Likelihood of failure & impact	Consequences			
	<i>Negligible</i>	<i>Minor</i>	<i>Significant</i>	<i>Severe</i>
<i>Very Likely</i>	Low	Moderate	High	Extreme
<i>Likely</i>	Low	Moderate	High	High
<i>Somewhat likely</i>	Low	Low	Moderate	Moderate
<i>Unlikely</i>	Low	Low	Low	Low

A variety of risk mitigation options may be considered to reduce risk to acceptable levels. These options may include.

- Pruning
- Target management
- Tree removal
- Cabling & bracing
- Other management options

Tree Retention Value

The retention value of the trees is noted as;

- High
- Medium
- Low

For a tree to qualify as having high retention value, it meets the following criteria. These trees are expected to be retained, and cannot be removed without planning consent.

- It qualifies as a regulated or significant tree under the *Planning, Development and Infrastructure Act 2016*, and
- It is in average to good health, and
- It has average to good structure, and
- It has a useful life expectancy in excess of 10 years, and
- It possesses one or more attributes worthy of preservation under Performance Outcome 1.2 in the PlanSA *Planning and Design Code*.

For a tree to qualify as having medium retention value, it meets the following criteria. These trees are likely to provide long term benefits at the site and should be retained to enhance the development where possible.

- It does not qualify as a regulated or significant tree under the *Planning, Development and Infrastructure Act 2016*.
- It is in average to good health, and
- It has average to good structure, and
- It has a useful life expectancy in excess of 10 years, and
- It possesses one or more attributes worthy of preservation under Performance Outcome 1.2 in the PlanSA *Planning and Design Code*. (Please note that while such trees do not qualify as regulated or significant trees, their attributes are considered in the same framework as outlined in the PlanSA *Planning and Design Code*).

For a tree to qualify as having low retention value, it meets the following criteria. These are trees that are recommended for removal (subject to development approval if they qualify as a regulated or significant tree.)

- The tree may or may not be qualify as a regulated or significant tree, and
- The tree has a poor health rating, or
- The tree has a poor structure rating, or
- The tree represents a moderate, high or extreme risk to public or private safety, or
- The tree has a short useful life expectancy of less than 10 years, or
- It possesses no attributes worthy of preservation under Performance Outcome 1.2 in the PlanSA *Planning and Design Code*.

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The majority of trees with low retention value meet one or more of the criteria for removal under Performance Outcome 1.3 in the PlanSA Planning and Design Code. Some trees with low retention value may be retained depending upon individual circumstances and tree condition/attribute

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Findings

Individual tree observations are outlined in Appendix A, however the summary of the observations is as follows.

Of the 29 trees assessed, 23 displayed good health, 5 displayed fair health and one tree was identified as dead. Structurally, 15 trees displayed good structure, 8 displayed fair structure, 5 displayed poor structure and 1 was identified as failed.

All trees displayed a low risk, despite some instances of elevated likelihood and consequence of failure.

Of the 29 trees assessed, 13 qualified for planning control, with 3 trees identified as significant and 10 identified as regulated, as per the provisions of the *Planning, Development and Infrastructure Act 2016*. 12 trees were identified as exempt from planning controls, due to either the species of the tree, or its proximity to a dwelling. 3 trees were identified as not controlled as they did not meet the circumference measurement requirements.

Not Controlled	Exempt (PDI Act 2016)	Regulated Trees (PDI Act 2016)	Significant Trees (PDI Act, 2016)
3	12	10	3

All trees were provided with a retention value. Of the 29 trees assessed, 9 were identified as having a high retention value, 14 were identified as having a moderate retention value, 5 had a low retention value and one tree was identified as a null retention value due to its imminent likelihood of failure.

Null	Low	Moderate	High
1	5	14	9

Discussion

Whilst all trees displayed a low risk, the risk assessments were conducted for the trees based on the current site usage and occupancy rates observed during the time of inspection. All trees which were identified as having a probable or imminent likelihood of failure and a significant or severe consequence of failure displayed a very low likelihood of impact. If the site usage were to change and the target zone frequency were to increase, thus increasing the likelihood of impact, tree risk ratings may be elevated.

No tree management options were explored as part of this survey, however this is not to say that pruning or removals are not warranted both to ensure tree retention and sustainability and to maintain acceptable levels of risk. Providing tree management recommendations was not included within the scope of this report.

Those trees identified as having a high retention value are expected to be retained and cannot be removed without a planning consent. Those trees identified as having a medium retention value are likely to provide long term benefits to the site and should be retained to enhance the development (if pursued) where possible. Those trees identified as having a low retention value are trees that are unlikely to remain sustainable during development activities (The Trees 7, 11, 12, and 13 qualify as regulated trees and will require Development Approval should removal be desired).

In relation to the Land Management Agreement (LMA) proposed by Council to Future Urban which sought to protect four *Ficus* trees, a number of issues were identified. The LMA proposed to nominate four *Ficus macrophylla* – Moreton Bay Fig for retention, however I identified the trees located within the road reserve fronting Main North Road, within the parcel of 550 Main North Road as *Ficus elastica* – Rubber Tree, consistent with the findings of the Arborman Preliminary Tree Assessment. Both my assessment and Arborman's assessment were only conducted on three *Ficus* within the road reserve fronting Main North Road. This identification has multiple implications. Firstly, if an LMA was to be lodged for the protection of the *Ficus*, identifying them as *Ficus macrophylla*, then the LMA would not apply to the *Ficus elastica* located within the property and these trees could therefore be removed, as they are not subject to development controls as per the provisions of the *Planning, Development and Infrastructure Act 2016*. In relation to this, the second implication, with reference to the Arborman Preliminary Tree Assessment, is that all *Ficus elastica* within the property are exempt from regulation as per Section 3F, subsection (4)(b) of the *Planning, Development and Infrastructure Act 2016*. This is contrary to the findings of the Arborman report, which identified all *Ficus* as *Ficus elastica*, however identified two of the three trees as significant and one tree as exempt, not consistent with the provisions of the Act.

With reference to the Arborman Preliminary Tree Assessment, my assessment found 3 trees to be significant as per the provisions of the *Planning, Development and Infrastructure Act*

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2016, whereas the Arborman report found 5 trees to be significant. Our recordings differ on Trees 3, 4, and 10 (significant in Arborman report) and Tree 8 (significant in this report). My assessment found 10 trees to be regulated, with the Arborman report finding 11 trees to be regulated, with the difference being Tree 8 was identified as significant within this report. My report found 12 trees to be exempt from planning controls in contrast with the findings of the Arborman report of which identified 10 trees as exempt. Both reports identified 3 trees as not controlled.

The reports also differed with the retention values assigned to each tree. My assessment found 9 trees to possess a high retention value, in contrast with 3 trees identified in the Arborman report. My assessment found 14 trees to have moderate retention value compared to 22 within the Arborman report and 5 to have low retention value compared with 4 trees within the Arborman report. A single tree was also identified as a null retention value, which was not a provision within the Arborman report. All trees identified as having a high or moderate retention value are deemed worthy of retention.

The concept plan submitted by Future Urban delineating the development envelope within the site is likely to conflict with the majority of the assessed tree population. Whilst the plan does not identify how much of the land will be subject to development, the building exclusion area does not allow for the retention of many of the assessed trees.

Conclusions

- 29 trees of varying species, legislative control and retention value located within the allotment of 550 Main North Road, Evanston Park were assessed in relation to a Code Amendment Application for the site.
- The trees assessed displayed a range of trunk circumference measurements, with 10 trees qualifying as regulated and 3 trees qualifying as significant as per the *Planning, Development & Infrastructure Act 2016*. The remaining trees were either exempt under the provisions of the same Act or did not meet trunk circumference measurements to achieve legislative control.
- 23 trees possess attributes making them worthy of preservation as outlined in the Plan SA *Planning & Design Code*.
- The trees display mixed health ratings, with the majority of trees displaying good health. The majority of trees are also sustainable within their current environment, however this is due to the current land use of the site and low occupancy rates observed within target zones. Should the land use significantly change, risk ratings may be elevated and some trees may no longer be sustainable.
- The ISA – Tree Risk Assessment has demonstrated that the tree population represents a low risk to public and private safety.
- Risk mitigation or crown management options were not explored as part of this assessment.
- The LMA proposed by Council should be revised to correctly identify the *Ficus* trees within the road reserve at the front of the property to ensure protection of the subject trees.
- This review found more trees to be worthy of a high retention value than the Arborman Preliminary Tree Assessment.
- The concept plan submitted by Future Urban delineating the development envelope within the site is likely to conflict with the majority of the assessed tree population.

Tree Protection Requirements

As identified throughout the assessment, various trees are suitable for retention during development and prospective developers should expect to retain these trees. Other trees should be retained where the development proposal layout can reasonably accommodate them.

Where trees are to be retained on site, they require a range of tree protection measures to ensure their long-term sustainability. A range of these tree protection measures are set out below. These tree protection measures are outlined in AS 4970 *Protection of trees on development sites*.

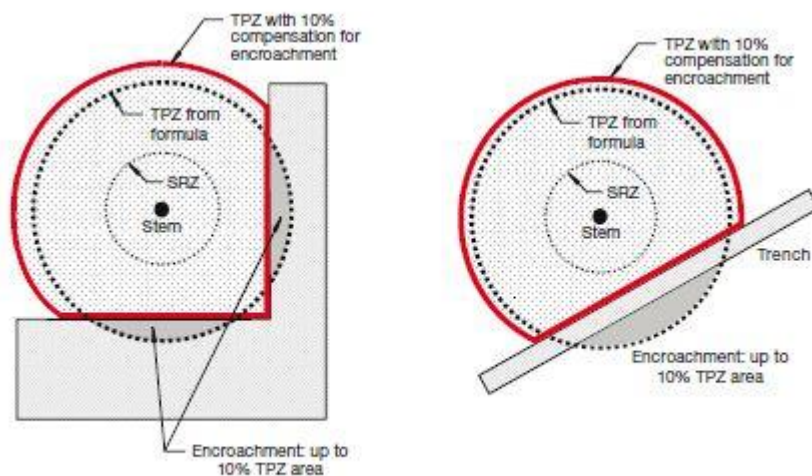
The following tree protection measures must be considered during all of the following stages of the proposed development:

- **Refinement of the land division layout.**
 - Land allotment layout – ensuring sufficient land is available for building construction, ancillary structures, driveways/crossovers, service trenches, earthworks, landscaping, and tree protection zones.
 - Major infrastructure configuration, including drainage.
 - Location of road reserves and associated infrastructure
 - Location of public reserves
 - Anticipated bulk earthworks, retaining walls and batter formation.
- **Subsequent site establishment**
 - Establishment of construction compounds, site huts, access routes, delivery and storage areas, parking areas, waste management areas etc.
 - Bulk earthworks and retaining walls.
 - Construction of roads and associated infrastructure
 - Drainage works.

Land division refinement

They should consider the Tree Protection Zone (TPZ) requirements for each tree. The following design parameters should be considered in an effort to preserve and protect suitable trees.

- Development activities should be kept as far as practicable outside of Tree Protection Zones. It is acknowledged however that this is not always achievable and that some encroachment within Tree Protection Zones will occur for a variety of reasons. Australian Standard AS 4970-2009 *Protection of trees on development sites* provides scope for such encroachments to occur without the need for extensive tree management and protection requirements to be implemented. Encroachment parameters are defined in the following categories.
 - **Minor encroachment** - If the proposed encroachment is less than 10% of the area of the TPZ and is outside the SRZ, detailed root investigations should not be required. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. Variations must be made by the project arborist considering relevant factors listed in Clause 3.3.4. The figures below demonstrate some examples of possible encroachment into the TPZ up to 10% of the area.
 - **Major encroachment** - If the proposed encroachment is greater than 10% of the TPZ or inside the SRZ (see Clause 3.3.5), the project arborist must demonstrate that the tree(s) would remain viable. The area lost to this encroachment should be compensated for elsewhere and contiguous with the TPZ. This may require root investigation by non-destructive methods and consideration of relevant factors listed in Clause 3.3.4.



NOTE: Less than 10% TPZ area and outside SRZ. Any loss of TPZ compensated for elsewhere.

Above: Extract from Australian Standard AS 4970-2009 *Protection of trees on development sites* illustrating minor encroachments and offset root zones.

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- Where any tree (or tree grouping) presents a significant constraint to the development of an allotment, consideration should be given to creating a public reserve to accommodate the tree or tree grouping.
- Trees that are recommended to be removed may allow for sites to be developed with greater ease.
- Where trees or tree groupings cannot be reasonably accommodated, then tree removals may be necessary, subject to approval from the relevant determining authority.

Endnotes

¹ Tree and risk assessments can be conducted at different levels and may employ various methods and tools. The level of assessment applied should be appropriate for the circumstances *Tree Risk Assessment Manual* Second Edition, published by International Society of Arboriculture 2017).

Level 1 - Limited visual assessment.

- A visual assessment from a specified perspective, near specified targets.
- The aim is to identify obvious defects or specified conditions.
- Typically identifies trees with imminent or probable likelihood of failure.
- This is the fastest and least thorough form of assessment intended for larger populations of trees.
- This can be carried out as a walkover, drive-by or fly-over inspection.

Level 2 - Standard assessment.

- A level 2 assessment is a detailed ground based visual tree inspection of a tree and its surroundings.
- The use of simple tools (mallet, binoculars, probes, spades), may be required.
- In some instances only limited information may be gained on specific internal, below ground or upper crown factors.
- For the majority of tree assessments the standard assessment provides adequate information to guide tree management.

Level 3 - Advanced assessment.

- A level 3 assessment is performed to provide detailed information about specific tree parts, defects, targets or site conditions.
- This assessment is usually conducted after a standard assessment has undertaken if additional information is required and with the approval of the client.
- Specialised equipment is often required for advanced assessment.
- The assessments are generally more time intensive and expensive.
- Advanced assessment techniques may include; aerial inspection, detailed target analysis, detailed site evaluation, decay testing, health evaluation, root inspection, tree stability monitoring and load testing.

NOTE: If tree condition cannot be adequately assessed at the specified level a higher level of assessment may be required.

² The International Society of Arboriculture Tree Risk Assessment Qualification (TRAQ) is a tree risk assessment method used by trained and experienced arborists to determine the risk of harm from tree or branch failure. This method assesses three components of tree risk; Likelihood of Failure, Likelihood of Impact and Consequences of Failure. A qualitative descriptor is applied to each of these components of risk. These descriptors are applied to a set of matrices to determine an overall Risk of Harm posed by the tree. I am a qualified user of the TRAQ method. More information about this method can be found in the *Best Management Practices – Tree Risk Assessment* (Companion Publication to American Standard ANSI A300 Part 9: - *Tree Shrub and other woody plant management – Standard Practices (Tree risk assessment a. Tree structure assessment)*) published by The International Society of Arboriculture 2011 **AND** *Tree Risk Assessment Manual* International Society of Arboriculture, Champaign, Illinois, USA 2017.

³ **Normal Weather Conditions.** Most tree failures occur during periods of adverse weather – wind or ice storms, blizzards or heavy rains coupled with strong winds. Tree risk assessment is undertaken considering normal circumstances and typical weather conditions, which may include storms.
(*Tree Risk Assessment Manual – Second Edition* – International Society of Arboriculture 2017, p52).

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⁴ **Likelihood of Failure.** Likelihood of Failure is classified based on an evaluation of defects and structural conditions of the tree or its parts, expected loads, site conditions and weather. The likelihood of failure must have a time frame specified to have meaning.

- **Imminent:** Failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. The imminent category overrides the time frame stated in the scope of work.
- **Probable:** Failure may be expected under normal weather conditions within the specified timeframe.
- **Possible:** Failure may be expected in extreme weather conditions, but it is unlikely during normal weather conditions within the specified timeframe.
- **Improbable:** The tree or tree part is not likely to fail during normal weather conditions and may not fail in extreme weather conditions within the specified timeframe.

(*Tree Risk Assessment Manual – Second Edition* – International Society of Arboriculture 2017, p102).

⁵ **Targets and likelihood of impact.** One of the factors that must be considered in tree risk assessment is the likelihood of a failed tree or tree part impacting a target of concern. To estimate this likelihood, you estimate, research or measure the occupancy rate of any targets that would be impacted by the failure (the target zones) and any factors that would protect the target from impact. The likelihood of impacting a target can be categorised using the following guidelines.

- **High:** The failed tree or part is likely to impact the target. This is the case when there is a constant target with no protection factors, and the direction of fall is toward the target
- **Medium:** The failed tree or part could impact the target, but is not expected to do so. This is the case for people in a frequently used area when the direction of fall may or may not be towards the target. An example of a *medium* likelihood of impacting people could be passengers in a car travelling on an arterial street (frequent occupancy) next to the assessed tree with a large dead branch over the street.
- **Low:** There is a slight chance that the failed tree or part will impact the target. This is the case for people in an occasionally used area with no protection factors and no predictable direction of fall; a frequently used area that is partially protected; or a constant target that is well protected from the assessed tree. Examples are vehicles on an occasionally used service road next to the assessed tree or a frequently used street that has a large tree providing protection between vehicles on the street and the assessed tree
- **Very Low:** The chance of the failed tree or part impacting the target is remote. Likelihood of impact could be *very low* if the target is outside of the anticipated target zone or if occupancy rates are rare. Another example of *very low* likelihood of impact is people in an occasionally used area with protection against being struck by the failure due to the presence of other trees or structures between the tree being assessed and the targets.

(*Tree Risk Assessment Manual – Second Edition* – International Society of Arboriculture 2017, p42).

⁶ **Consequences of Failure.** The consequences of failure can be categorised using the following guidelines.

Severe consequences are those that could involve serious personal injury or death, high value property damage, or major disruption of important activities. Examples of *severe* consequences include:

- Injury to one or more people that may result in hospitalization or death
- Destruction of a vehicle of extremely high value
- Major damage to or destruction of a house
- Serious disruption of high-voltage distribution circuits or transmission power lines

Significant consequences are those that involve substantial personal injury, moderate- to high-value property damage, or considerable disruption of activities. Examples of *significant* consequences include:

- Injury to a person requiring medical care
- Serious damage to a vehicle
- High-monetary damage to a structure
- Disruption of distribution primary voltage power lines
- Disruption of arterial traffic that causes an extended blockage and/or rerouting of traffic.

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Minor consequences are those that involve minor personal injury, low- to moderate-value property damage, or small disruption of activities. Examples of *minor* consequences include:

- Minor injury to a person, typically not requiring professional medical care
- Damage to a landscape deck
- Moderate monetary damage to a structure or vehicle
- Short term disruption of power on secondary lines, streetlights, and individual services
- Temporary disruption of traffic on a secondary road

Negligible consequences are those that do not result in personal injury, involve low-value property damage, or disruptions that can be replaced or repaired. Examples of consequences include:

- Striking a person, causing no more than a bruise or scratch.
- Damage to a lawn or landscape bed
- Minor damage to a structure requiring inexpensive repair
- Disruption of power to landscape lighting
- Disruption of traffic on a neighbourhood street

(*Tree Risk Assessment Manual – Second Edition* – International Society of Arboriculture 2017, pp 129-130)

⁷ **Levels of Risk.** In the tree risk assessment matrix, four terms are used to define levels of risk: *extreme*, *high*, *moderate* and *low*. These risk ratings are used to communicate the level of risk and to assist in making recommendations to the owner or risk manager for mitigation and inspection frequency. The priority for action depends on the risk rating and risk tolerance of the owner or manager.

- **Extreme:** The extreme-risk category applies in situations in which failure is *imminent*, with a *high* likelihood of impacting the target, and the consequences of the failure are *severe*. The tree risk assessor should recommend that mitigation measures be taken as soon as possible. In some cases, this may mean recommending or implementing immediate restriction of access to the target zone area to avoid injury to people.
- **High:** High-risk situations are those for which consequences are *significant* and likelihood of failure and impact is *very likely* or *likely*, or consequences are *severe* and likelihood is *likely*. This combination of likelihood and consequences indicates that the tree risk assessor should recommend mitigation measures be taken. The decision for mitigation and timing of treatment depends on the risk tolerance of the tree owner or risk manager. In populations of trees, the priority of high-risk trees is second only to extreme-risk trees.
- **Moderate:** Moderate-risk situations are those for which consequences are *minor* and likelihood of failure and impact is *very likely* or *likely*, or likelihood is *somewhat likely* and consequences are *significant* or *severe*. The tree risk assessor may recommend mitigation and/or retaining or monitoring. The decision for mitigation and timing for treatment depends on the risk tolerance of the tree owner or manager. In populations of trees, moderate-risk trees represent a lower priority than high- or extreme-risk trees.
- **Low:** The low-risk category applies when consequences are *negligible*, when likelihood of failure and impact is *unlikely*, or consequences are *minor* and likelihood is *somewhat likely*. Mitigation is generally not required. Mitigation or maintenance measures may be desired for some trees, because it is sometimes possible to reduce the risk even further at very low cost, but the priority for action is low. Tree risk assessors may recommend retaining and monitoring these trees, as well as mitigation that does not include removal of the tree. Mitigation treatments may reduce risk or future risk, but the categorised risk rating is already at the lowest level.

(*Tree Risk Assessment Manual – Second Edition* – International Society of Arboriculture 2017, p132).