

# Tree Inspection and Recommendations Prepared for:

Shire of Wickepin – Yealering Town Site

Written by:

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# **Summary**

# Scope of report

The scope of this report is to carry out a **basic visual inspection** of the all trees within the pre-determined survey areas throughout the township of Yealering that could potentially impact people or infrastructure in the event of a tree failure.

### **Assessment Synopsis**

The aim of this assessment is to provide The Shire of Wickepin with accurate information regarding the health and structural condition of the trees in question and make recommendations on suitable management options for risk mitigation and tree health management.

This is done by visual inspection of the **crown**, root zone impact at ground level and visual inspection of the trunk to estimate the extent of wood decay. Root zone impact is assessed and estimated in reference to AS4970 – 2009 Protection of trees on development sites.

The use of the terms "Safe" or "Unsafe" when assessing trees is both imprecise and ambiguous as a tree cannot be free from defects or potential hazards, such a state is simply unattainable.

This assessment was carried out using the International Society of Arboriculture Tree Risk Assessment Method (TRAQ) which is a method of quantifying risk through estimating likelihood of tree failure, likelihood of impact and consequences of impact to potential targets within the tree impact zone.

#### Introduction

Consultation has been sought by the Shire of Wickepin – Works and Services Department regarding the health and structural condition of publicly owned trees in various locations throughout the township of Yealering. On the 29<sup>th</sup> of May 2019 a brief site meeting was held between myself and Gary Rasmussen from the Shire of Wickepin to discuss the basic parameters and desired outcomes of this report. It was discussed that the trees to be inspected would be in the areas of highest public use with the highest likelihood of impacting people or infrastructure in the event of a tree failure.

# Methodology

The inspection process employed for this report was a "Limited Visual Assessment", this form of inspection is most commonly used where large numbers of trees are to be assessed and is designed typically to focus on identifying trees with an imminent or probable likelihood of failure. The township was divided into 13 inspection areas where every tree in each of the areas was subject to a visual examination, however only trees that require specific methods of management have been recorded individually. The individually recorded trees had their GPS coordinates mapped, an identifying photo taken

and an aluminium number tag fixed to the Southern side of the trunk at approximately 1.5m above ground. The tag numbering system correlates with the site map aerial image numbering. The remaining trees within the inspection areas were assessed as requiring generic methods of management for risk mitigation outcomes.

### **Tree Inspection Explanatory Notes**

**Health** - summarises observations of tree health made in the field: Good - No significant pest or disease problems, expected growth rates, dense canopy, and good leaf colour.

Fair - Minor pest or disease problems, average growth rates, canopy perhaps sparse in places, or some chlorosis.

Poor - Serious pest or disease problems, poor growth rates, sparse canopy, or major leaf discolouration. Dead — The tree is dead.

Structure - summarises observations of tree structure made in the field:

Good - All forks sound, no major decay in limbs or trunk.

Fair - Some poor forks developing, or decay developing in limbs or trunk. Major failure unlikely.

Poor - Serious defects present, either poor forks, or decayed limbs or trunk; failure likely.

**Individual tree inspections** – The trees in this group have been identified as requiring specific methods of management and elevated risk levels.

**Broad area inspections** – The trees in the broad area groups have been identified as requiring generic methods of management.

### **Priority levels**

All areas have been rated with a priority level:

Enarity level 1 Commence works as soon as possible

Priority level 2 - Commence works within 6 months

Priority Level 3 - Commence works within 12 months

All individually reported trees have a priority level 1.

#### **Overall Site Observations**

#### Crown structures

Predominantly the tree population throughout the Yealering township was *Eucalyptus cladocalyx* – common name Sugar Gum, through conversations with local residents it is estimated that the majority of these trees were planted 70-80 years ago. It was observed that a high percentage of the Sugar gum population had been "Lopped" or incorrectly pruned at some point during their developmental growth stage. Indiscriminate pruning or "Lopping" most often leads to the occurrence of epicormic growth – this is accelerated growth from adventitious buds that become activated due to trauma through excessive/indiscriminate pruning or damage, this growth is often poorly attached and unstable and can have a tendency to fail.

Fortunately, the vast majority of trees that were inspected had transitioned crown structures from epicormic to endocormic which means that they have produced adequate amounts of adaptive growth or "Reaction wood" to create supportive attachments that are less likely to fail.

There were no branch or stem failures observed at endocormic attachment locations.

#### **Traffic volumes**

During the site inspection it was noted that very few people visit the inspection areas on a daily basis and through conversations with residents that seems fairly consistent year-round with the exception of 2-3 events per year where much larger volumes are experienced.

#### **Rootzones**

During the site inspection it was observed that the rootzones of several of the inspection areas have been recently cleared of tree litter, the organic material that is dropped from trees onto their rootzones is critical to the long-term health and survival of the tree or stand of trees as this material breaks down into the soil and provides a vast range of functions that support tree growth/health.

Suggestions will be made in the recommendations section of this report on maintaining healthy rootzones.

#### **Sudden Branch Drop Phenomenon**

Sugar Gums are regarded as being susceptible to Sudden Branch Drop, this is a poorly understood phenomenon that causes branches to suddenly drop without warning or any apparent defect or reason, this usually occurs during hot weather with little to no wind and most often in late afternoon/evening. It mainly occurs on horizontally growing branches. At the present time, it is not possible to predict failure or mitigate risk due to sudden branch drop through canopy management operations.

### **Broad Area Recommendation Explanatory Notes**

Carry out deadwood removal >50mm diameter: Remove all dead branches that are greater than 50mm in diameter

Carry out remedial pruning to damaged branches back to appropriate reduction points: Where branch failures have occurred, prune the branch back to the most appropriate reduction point in accordance with AS4373-2007 Pruning of Amenity Trees

Carry out minor load reduction pruning to extended lateral branches where required: In the case of extended and potentially overweighted lateral branches with a more horizontal growth habit, selective pruning cuts are to be made to reduce the extension and/or load where possible in accordance with AS4373-2007 Pruning of Amenity Trees

Carry out pruning to increase power line clearance where possible: Selectively remove or reduce branches to increase the distance between the tree crown on power lines in accordance with AS4373-2007 Pruning of Amenity Trees

Remove newly formed epicormic growth from stems: In the case of epicormic shoots occurring at internodal locations on main trunks or leaders, remove the growth as close as possible to the stem without damaging stem tissue.

Selective branch removal to eliminate conflicting limbs: Where limbs are rubbing or resting on each other and are causing tissue damage, selective pruning should be carried out to retain the most viable branch – depending on the level of structural damage caused.

# **Site Investigation**

# Individual Tree Inspections - Priority Level 1

Tree ID: Tag # 237

Species: Eucalyptus longicornis (Red Morrel)

Location: S/W corner of Caravan Park

Tree health: Fair Structure: Poor

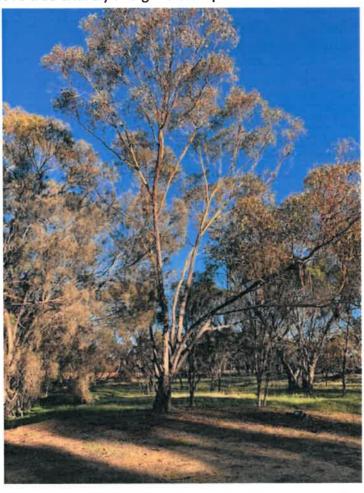
Comments: Tree has extended, overweighted leaders overhanging camping area with excessive decay in

main stem

Risk assessment - Tree Part/Target: Extended leaders overhanging camping area

Likelihood of failure – Probable Likelihood of impact – Low Consequences of failure - Significant

## Overall tree risk rating - Low



Species: Eucalyptus cladocalyx (Sugar Gum)

Location: Western side of entrance to caravan park

Tree health: Poor Structure: Poor

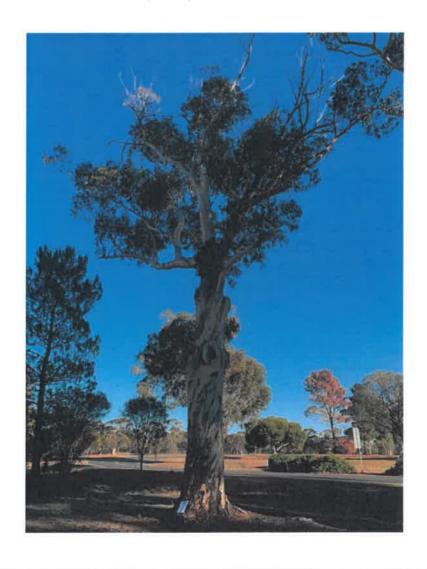
Comments: Tree is in an advanced state of decline, major decay column in main stem, large diameter

deadwood throughout

Risk assessment - Tree Part/Target: Entire crown from major decay column overhanging road

Likelihood of failure – Imminent Likelihood of impact – Medium Consequences of failure – Severe

Overall tree risk rating - High



**Species**: *Eucalyptus cladocalyx* (Sugar Gum) **Location**: Eastern side of caravan park entrance

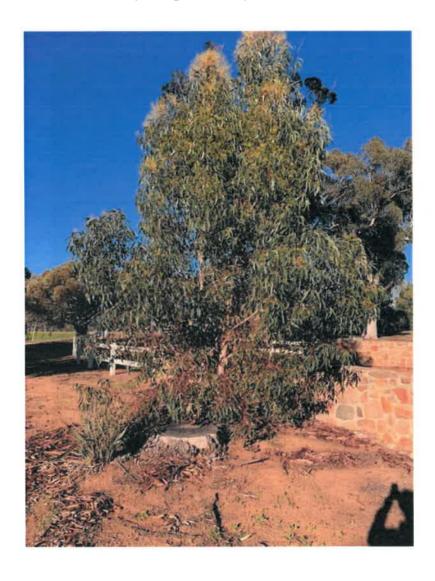
Tree health: N/A Structure: Poor

**Comments:** Tree is coppice regrowth from and old stump – defective attachment

Risk assessment - Tree Part/Target: Entire tree overhanging entrance to caravan park

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low



Species: Eucalyptus cladocalyx (Sugar Gum)

Location: Northern side of Sewell St, opposite caravan park entrance

Tree health: Fair Structure: Poor

Comments: Tree has large area of tissue dysfunction and a decay column in main stem, extensive history of

branch failure

Risk assessment - Tree Part/Target: Main stem/decaying branch failure, overhanging foot path and

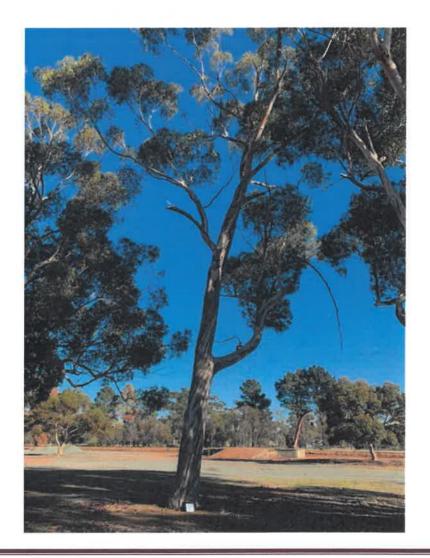
storage area

Likelihood of failure - Possible

Likelihood of impact - Low

Consequences of impact - Severe

Overall tree risk rating - Low



Species: Eucalyptus cladocalyx (Sugar Gum)

Location: Near access to Blue metal storage area

**Tree health:** Poor **Structure:** Poor

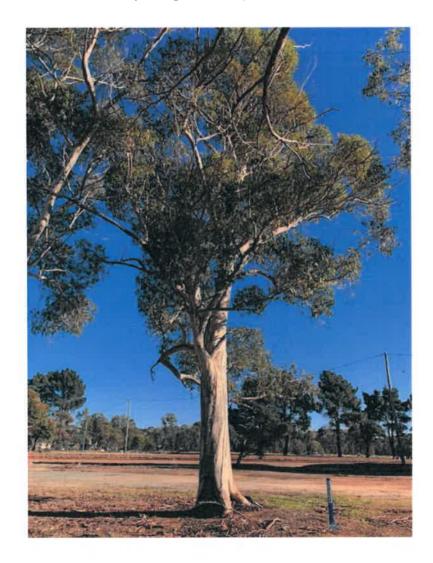
Comments: Tree has excess buttress decay, decay column in main stem and an extensive history of branch

failure

Risk assessment - Tree Part/Target: Entire tree

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Severe

Overall tree risk rating - Low



Species: Eucalyptus longicornis (Red Morrel)

Location: Foot path Sewell St – Western end of town

Tree health: Fair Structure: Poor

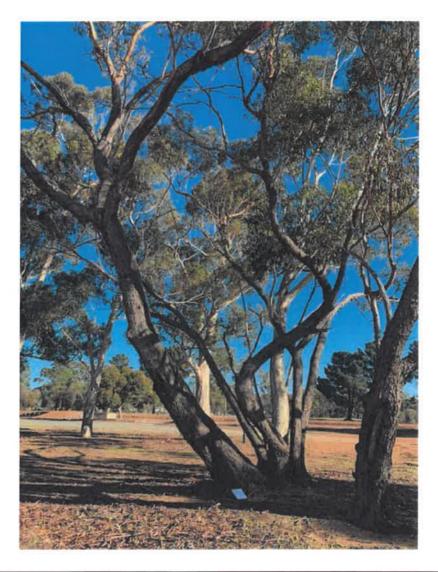
Comments: Tree structure is coppice from an old stump, excessive decay present within base, excessive

trunk lean with overweighted leaders

Risk assessment - Tree Part/Target: Entire tree overhanging foot path

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Severe

Overall tree risk rating - Low



Species: Eucalyptus cladocalyx (Sugar Gum)

Location: Information bay - western side of town hall

Tree health: Good Structure: Fair

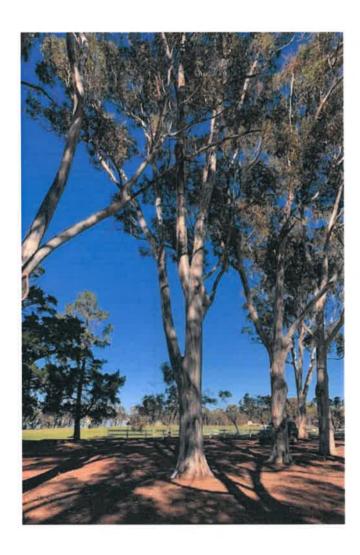
Comments: Tree has sustained damage to leader on Eastern side due to branch failure

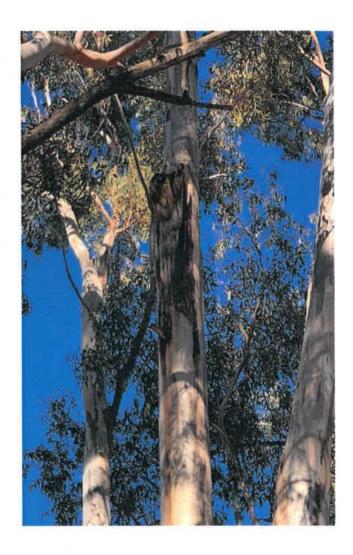
Risk assessment - Tree Part/Target: Damaged leader overhanging car parking area

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Severe

#### Overall tree risk rating - Low

**Recommendations:** To allow the formation of adequate wound-wood around the area of tissue damage Install dynamic bracing sling system to main leaders in basket configuration – 4 tonne load capacity.





**Species**: 2 x *Pinus radiata* (Radiata Pine) **Location**: N/E corner of cricket oval

Tree health: Fair Structure: Fair

**Comments:** Dead branches throughout crowns

Risk assessment - Tree Part/Target: Dead branches overhanging public access area

Likelihood of failure – Probable Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low

Recommendations: Carry out deadwood removal



**Species**: 2 x *Pinus radiata* (Radiata Pine) **Location:** Carpark Eastern side of town hall

Tree health: Fair Structure: Fair

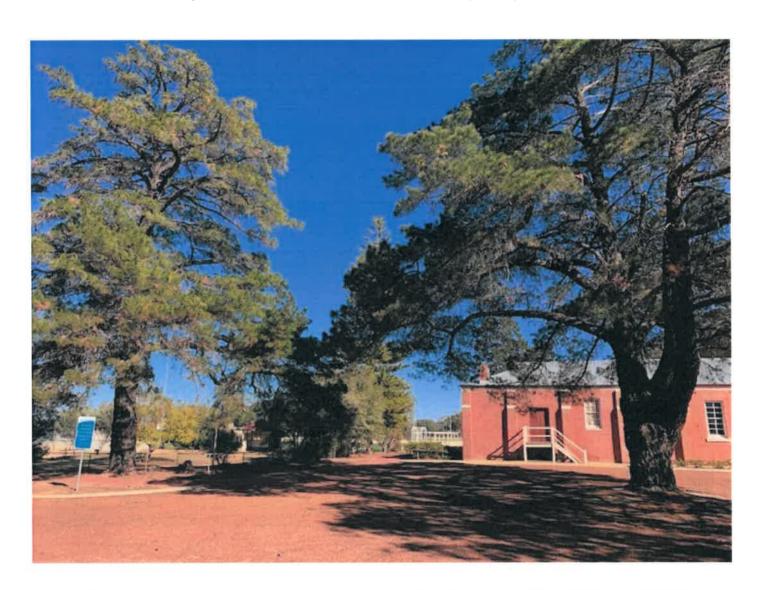
Comments: Trees have deadwood throughout and some branch crowding

Risk assessment – Tree Part/Target: Deadwood overhanging carpark

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low

Recommendations: Carry out deadwood removal and crown clean pruning



**Species**: *Eucalyptus leucoxylon* (Red Flowering Gum) **Location**: Carpark/BBQ area at Lake day-use area

Tree health: Good Structure: Poor

Comments: Tree has codominant stem formation with included bark defects at main unions

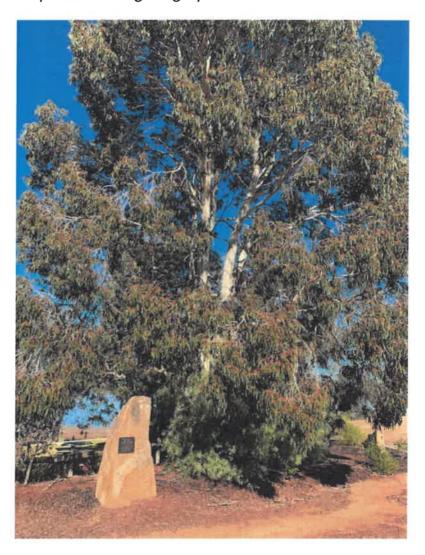
Risk assessment - Tree Part/Target: Leaders with defective branch unions overhanging car park and BBQ

area

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Significant

### Overall tree risk rating - Low

Recommendations: Install dynamic bracing sling system between main leaders in basket formation



**Species**: *Eucalyptus cladocalyx* (Sugar Gum) **Location**: Playground – Lake day-use area

Tree health: Poor Structure: Poor

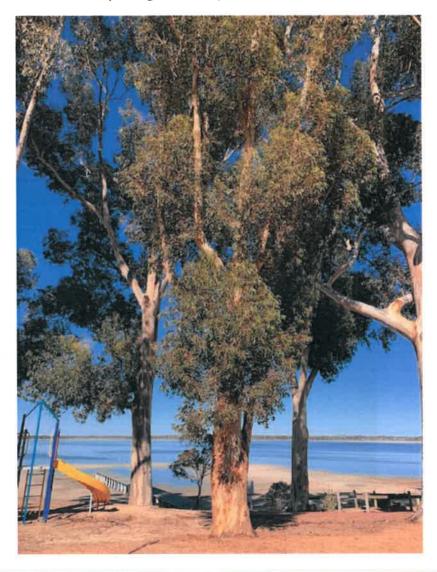
Comments: Tree has lost apical dominance – possibly a result of excessive pruning, entirely defective

structure

Risk assessment - Tree Part/Target: Epicormic growth overhanging play ground

Likelihood of failure – Probable Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low



**Species**: *Eucalyptus leucoxylon* (Sugar Gum) **Location**: Playground – Lake day-use area

Tree health: Fair Structure: Poor

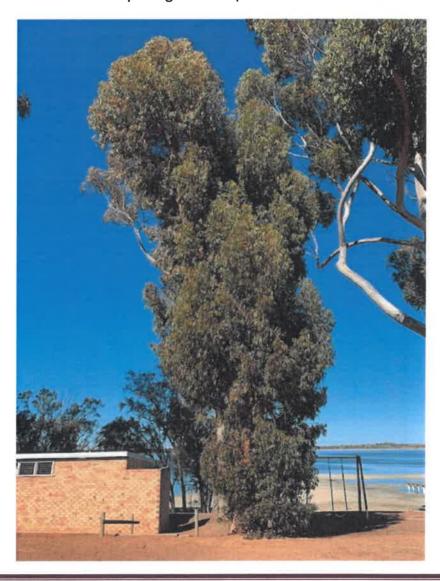
Comments: Tree has lost apical dominance and now has entirely defective structure - Possibly a result of

excessive and incorrect pruning methods

Risk assessment - Tree Part/Target: Epicormic growth overhanging playground

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low



Species: Eucalyptus longicornis (Red Morrel)

Location: Eastern end of beach area

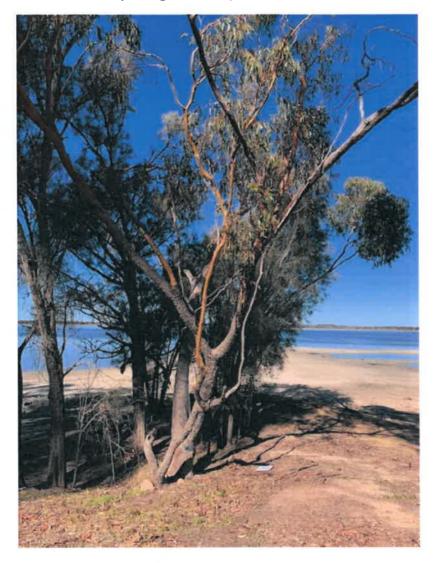
Tree health: Poor Structure: Poor

Comments: Tree is in advanced state of decline with dead branches overhanging beach area and foot path

Risk assessment - Tree Part/Target: Dead branches overhanging beach area and foot path

Likelihood of failure – Probable Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low



Species: Eucalyptus cladocalyx (Sugar Gum)

Location: Southern side of Sewell St, N/E of the tennis courts

Tree health: Fair Structure: Poor

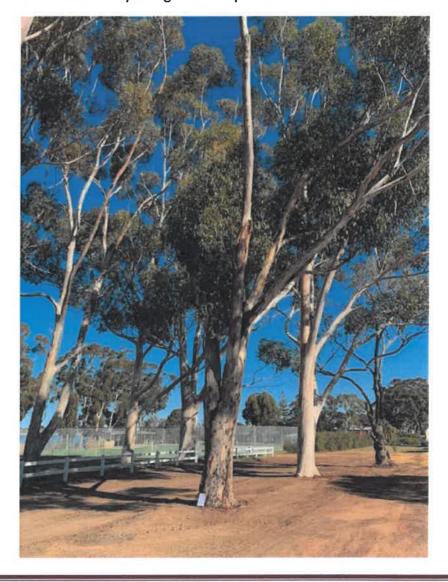
Comments: Tree has large areas of tissue dysfunction on main leaders, included bark defect in main unions

and an extensive history of failure

Risk assessment - Tree Part/Target: Defective crown structure overhanging Road

Likelihood of failure – Possible Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low



Species: Eucalyptus cladocalyx (Sugar Gum)

Location: Southern side of Sewell St adjacent to golf course fairway

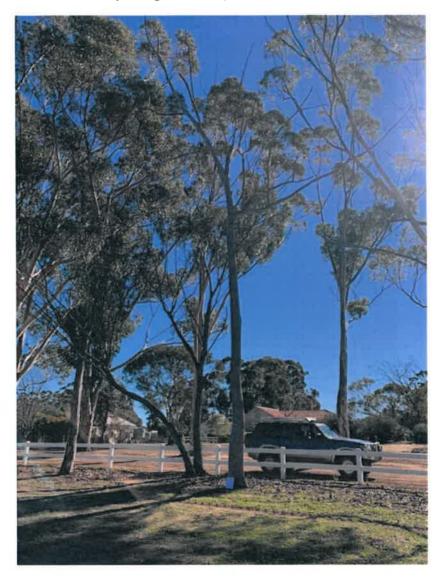
Tree health: Dead Structure: Poor Comments: N/A

Risk assessment - Tree Part/Target: Dead tree overhanging fairway

Likelihood of failure – Imminent Likelihood of impact - Low

Consequences of impact - Significant

Overall tree risk rating - Low



Species: Eucalyptus gomphocephala (Tuart)
Location: Corner of Sewell St and Congreve St

Tree health: Fair Structure: Poor

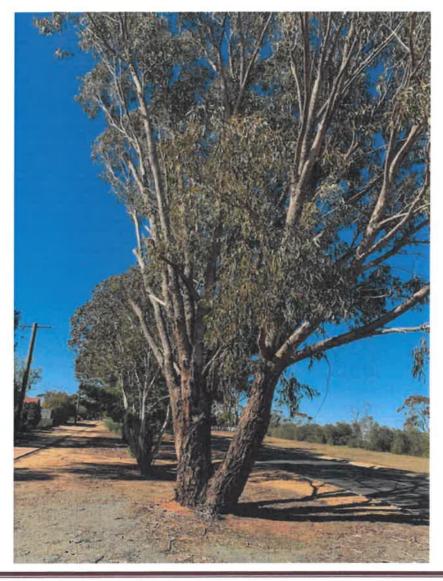
Comments: Entirely defective crown structure, decay column in main stem, branch attachment defects

throughout crown

Risk assessment - Tree Part/Target: Defective crown overhanging foot path, power lines and road

Likelihood of failure – Possible Likelihood of impact – High Consequences of impact - Significant

Overall tree risk rating - Moderate



**Species**: *Eucalyptus gomphocephala* (Tuart) **Location**: Corner of Roberts St and Struth St

Tree health: Good Structure: Fair

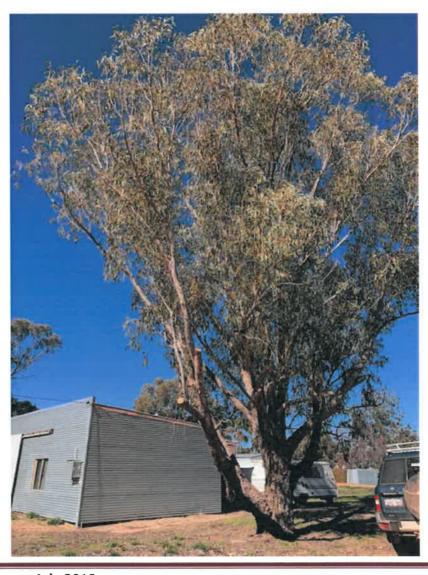
Comments: Incorrect pruning has been recently carried out

Risk assessment - Tree Part/Target: Future epicormic regrowth from incorrect pruning

Likelihood of failure – Probable Likelihood of impact – Low Consequences of impact - Significant

Overall tree risk rating - Low

Recommendations: Carry out remedial pruning to correct recent indiscriminate pruning



**Species**: *Eucalyptus cladocalyx* (Sugar Gum) **Location**: Recreation park – central town site

Tree health: Good Structure: Poor

Comments: Tree has codominant stem formation with defective branch union, large cracks with separation

in man unions

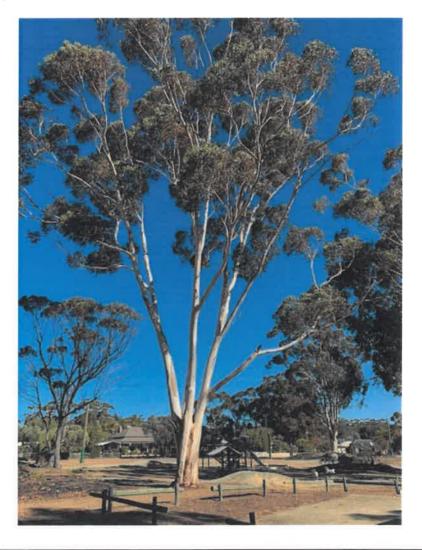
Risk assessment - Tree Part/Target: Leader with large crack in union overhanging BMX track and

basketball court

Likelihood of failure – Imminent Likelihood of impact – Medium Consequences of impact - Severe

Overall tree risk rating - High

Recommendations: High Priority – Remove tree entirely and grind stump



**Species**: *Eucalyptus cladocalyx* (Sugar Gum) **Location**: Recreation park – central town site

Tree health: Good Structure: Poor

Comments: Tree has codominant stem formation with included bark defect in all main unions

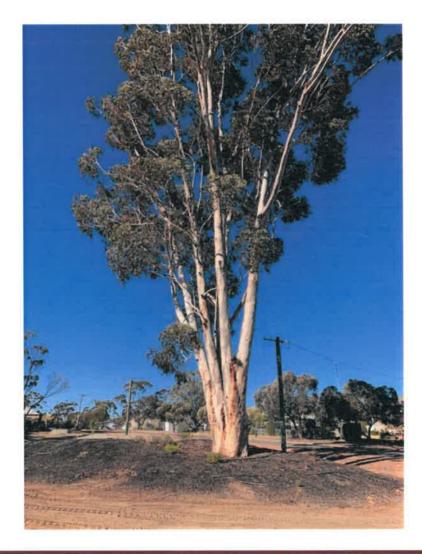
Risk assessment - Tree Part/Target: Leaders with defective unions overhanging road, powerlines, BMX

track

Likelihood of failure – Improbable Likelihood of impact – Medium Consequences of impact - Severe

### Overall tree risk rating - Low

**Recommendations:** Install dynamic bracing sling system between all main leaders — basket formation 4 tonne load capacity



Species: Eucalyptus cladocalyx (Sugar Gum)

Location: Public use area opposite Yealering hotel

Tree health: Poor Structure: Poor

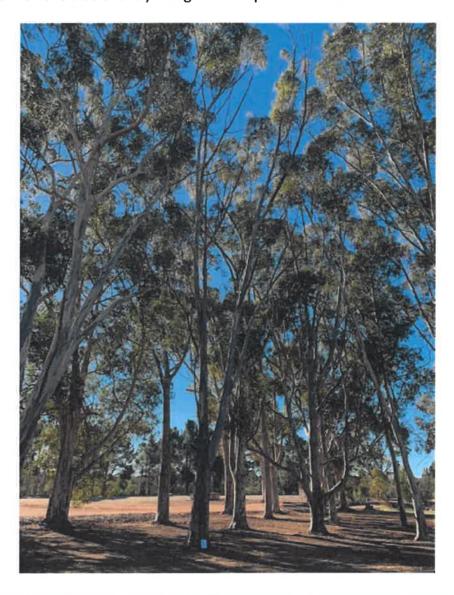
Comments: Tree is in an advanced stage of decline, large diameter dead branches

Risk assessment - Tree Part/Target: Dead branches overhanging public use area

Likelihood of failure – Probable Likelihood of impact – Low

Consequences of impact - Severe

Overall tree risk rating - Low



# **Broad area inspections**

# Area 1. - Priority Level 3

- Carry out deadwood removal >50mm diameter
- Remove any dead trees and grind stumps
- Carry out remedial pruning to damaged branches back to appropriate reduction points
- Carry out minor load reduction pruning to extended lateral branches where required



# Area 2. - Priority Level 3

- Carry out deadwood removal >50mm diameter
- Carry out remedial pruning to damaged branches back to appropriate reduction points
- Carry out minor load reduction pruning to extended lateral branches where required
- Carry out pruning to increase power line clearance where possible
- Remove newly formed epicormic growth from stems



# Area 3. - Priority Level 3

- Carry out deadwood removal >50mm diameter
- Carry out minor load reduction pruning to extended lateral branches where required
- Carry out remedial pruning to damaged branches



# Area 4. - Priority level 2

- Carry out deadwood removal >50mm diameter
- Carry out minor load reduction pruning to extended lateral branches where required
- Carry out remedial pruning to damaged branches
- Selective branch removal to eliminate conflicting limbs



# Area 5. – Priority Level 2

- Carryout deadwood removal >50mm diameter
- Carry out minor load reduction pruning to extended lateral branches where required
- Carry out remedial pruning to damaged branches
- Remove newly formed epicormic growth from stems



# Area 6. - Priority level 3

- Carryout deadwood removal >50mm diameter
- Carry out pruning to reduce road overhang where possible



# Area 7. - Priority Level 3

- Carry out remedial pruning to correct indiscriminate pruning recently completed
- Carry out pruning to extend power line clearance where possible



# Area 8. - Priority Level 3

- Carry out deadwood removal >50mm diameter
- Carry out pruning to reduce road overhang where possible



# Area 9. – Priority Level 2

- Carry out deadwood removal >50mm diameter
- Carry out minor load reduction pruning to extended lateral branches where required



# Area 10. - Priority Level 3

- Carry out deadwood removal >50mm diameter
- Carry out minor load reduction pruning to extended lateral branches where required
- Carry out remedial pruning to damaged branches



# Area 11. – Priority Level 2

- Carry out deadwood removal >50mm diameter
- Carry out pruning to extend power line clearance where possible



# Area 12. - Priority Level 3

- Carry out deadwood removal >50mm diameter
- Selective branch removal to eliminate conflicting limbs
- Carry out minor load reduction pruning to extended lateral branches where required



# Are 13. - Priority Level 3

- Carry out deadwood removal >50mm diameter
- Carry out minor load reduction pruning to extended lateral branches where required
- Carry out remedial pruning to damaged branches
- Carry out pruning to reduce building overhang where possible
- Remove coppice at North Eastern end of tree stand and grind stump



# Site Map



## **Management Recommendations**

#### **Contractor selection**

It is imperative that all tree management operations are carried out or supervised by a qualified arborist holding a minimum AQF certificate 4 in arboriculture or ISA arborist certification.

Contractors are strongly advised to make a site visit to fully inform themselves of the scope and volume of work recommended in this report prior to submitting quotations.

All tree management operations are to be carried out in accordance with AS4373-2007 Pruning of Amenity Trees and it is also suggested that contractors familiarise themselves with AS4970-2009 Protection of trees on development sites as a strategy to minimise root zone impact whilst working around trees.

Dynamic Bracing Systems should only be installed by competent and experienced tree surgeons in accordance with industry accepted bracing principles — Yale Dynamic Bracing System is the preferred product.

#### **Root Zone Management**

It is recommended that in future rather than removing the tree litter that accumulates on the root zones of these tree stands, process the material in situ by use of a forestry mulcher, this process will reduce and uniform the size of the material which will give a better aesthetic appearance and increase the rate of decomposition.

#### **Healthy Trees**

Healthy trees are an invaluable asset to any streetscape or public open space, as a general rule healthy trees are safer trees and any resources put in to maintaining the health of a tree population will have a realised benefit in the form of a reduction in tree hazard management into the future.

#### **Fertilisation**

It is recommended that the Shire of Wickepin develop and annual fertiliser treatment plan for the Yealering public tree population.

#### **Future Planning**

The most effective time to mitigate risk from tree hazards is at the planning stage of any development, the best way to reduce the risk of trees impacting people is to reduce the time that people spend underneath trees. It is strongly encouraged that arborist consultation is sought at the in the earliest phases of any planned developments that involve trees either as proposed juvenile plantings or existing trees.

#### Inspection Interval

The recommended re-inspection interval for this site is 2 years or as soon as possible following a severe weather event that causes catastrophic tree failures.

specialists who use their education. knowledge. training. **Arborists** are tree individual and research to examine trees tree stands. **Arborists** experience and recommend measures to enhance the structure, health, stability and appearance of trees, reduce the risk of living them. Clients near may choose to attempting to recommendations the arborist. accept disregard the of seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi and other forces of nature. There are some inherent risks with trees degree certainty, predicted with anv of skilled cannot be even by and arborist. **Arborists** cannot predict acts of nature including, without experienced limitation, storms of sufficient strength, which can cause even healthy tree а fail. Any entity who develops land and builds structures with a tree in the vicinity should be aware of the risks involved with the development of areas within a trees target zone. Arborists will be healthy cannot guarantee that а tree safe under all specified period of time. Likewise. remedial circumstances, or for treatments, like medical care, cannot be guaranteed 100%.

Neither this author nor has King's Tree Care assumed any responsibility for liability associated with this tree stand, the future demise and/or any damage, which may result there from. To live near trees is to accept some degree of risk.

Should any further information be required contact Ben Jorgensen.



# Appendix 1

# Individual Tree Inspections - Yealering: Priority Level 1

Tree Tag #	Species	Works recommendations
237	Red Morrel	Remove tree and grind stump
238	Sugar Gum	Remove tree and grind stump
239	Sugar Gum	Remove tree and grind stump
240	Sugar Gum	Remove tree and grind stump
241	Sugar Gum	Remove tree and grind stump
242	Red Morrel	Remove tree and grind stump
243	Sugar Gum	Bracing installation
244	2 x Pine	Deadwood removal
245	2 x Pine	Deadwood removal & Crown clean
246	Red Flowering Gum	Bracing installation
247	Sugar Gum	Remove tree and grind stump
248	Sugar Gum	Remove tree and grind stump
249	Red Morrel	Remove tree and grind stump
250	Sugar Gum	Remove tree and grind stump
251	Sugar Gum	Remove tree and grind stump
252	Tuart	Remove tree and grind stump
253	Tuart	Remedial Pruning
254	Sugar Gum	Remove tree and grind stump
255	Sugar Gum	Bracing installation
256	Sugar Gum	Remove tree and grind stump
257	Pine	Remove tree and grind stump

# Appendix 2

# **Individual Tree Locations**

lat		lon	Tree Tag #	
	-32.595493	117.62214		237
	-32.59467602	117.62306		238
	-32.59424703	117.62356		239
	-32.59396004	117.62345		240
	-32.59377404	117.62362		241
	-32.593838	117.62372		242
	-32.59392802	117.62528		243
	-32.59407998	117.62643		245
	-32.59444803	117.62673		246
	-32.594386	117.62712		247
	-32.59433999	117.62741		248
	-32.59454501	117.62745		249
1	-32.593494	117.62809		250
	-32.59357899	117.62828		251
	-32.59348503	117.62674		252
	-32.59229698	117.62906		253
11.11	-32.59171503	117.62869		254
	-32.59202197	117.62812		255
	-32.59205801	117.62561		256
	-32.59433798	117.62192		257

	* #
	371