

VicRoads Tree Policy

Revision 2.0 – May 2016

VicRoads aims to support active transport and healthier environments while facilitating a safe and efficient road network by promoting trees in the road reserve under certain conditions.

This principle-based policy encourages VicRoads' officers to promote new and existing trees as part of managing the declared road network to deliver outcomes for the community.



Scope

This policy describes VicRoads' approach to managing trees within all road reserves for which VicRoads is the Coordinating Road Authority (CRA) under the Road Management Act 2004 (RMA).

This policy is to be used both proactively and reactively by VicRoads' officers:

Proactive

VicRoads' officers are encouraged to look for opportunities to enable tree planting and retain existing trees in line with this policy and with VicRoads' Movement and Place framework as part of project planning and design.

Reactive

VicRoads' officers are to consider enabling tree planting proposals in line with this policy.

This policy is to be used for all decisions regarding trees in the road reserve, taking precedence over VicRoads Supplements and the Austroads Guide to Road Design with regard to trees. Refer to VicRoads Hierarchy of Documents Policy for further information regarding the relationship between these documents.

Objectives

Policy Objectives

The policy objectives include:

- Improve community wellbeing by supporting trees within the road reserve;
- Increase the mode share of walking and cycling through roadside environments that encourage active transport; and
- Support the safety of all road users while promoting trees

Transport System Objectives

The RMA establishes a road management framework and the CRA plays a key role in determining appropriate uses within road reserves.

The CRA seeks to:

- Ensure the safety of road users and the community;
- Minimise disruption and inconvenience to road users;
- Protect the environment;
- Protect the physical integrity of the road and infrastructure in the road reserve; and
- Ensure the most efficient use of the resources available for road management.

Policy Application

1. Policy Guidance

For most decisions, the policy guidance can be used directly. If the policy guidance can be applied, then the policy principles are considered met. Refer to *Policy Guidance* section of this policy.

2. Policy Principles

Where the policy guidance may not be appropriate and it is necessary to deviate from the policy guidance, then a principle-based decision needs to be made. All the policy principles need to be addressed.

The decision must be documented, (refer to Appendix A) and approved as outlined in the *Responsibilities* section of this policy.

3. Policy Exception

Any deviation from policy principles is discouraged and should only be made in line with broader Government Policy, Strategies and Legislation. Where it is absolutely necessary to deviate from any of the policy principles, a principle-based decision should be made demonstrating why deviation from the policy principles is considered necessary and acceptable.

The decision must be documented, (refer to Appendix A) and approved as outlined in the *Responsibilities* section of this policy.

Policy Principles

Policy principles have been developed to define VicRoads' position and support decision-making regarding trees in road reserves. To comply with this policy, all the policy principles are to be addressed to achieve the Policy Objectives and appropriately consider the Transport System Objectives. Further guidance is provided in the *Policy Guidance* section of this policy.

1. Safe System Principle

The risk of death and serious injury is directly related to the likelihood of a crash and the impact forces on the vehicle occupants when a vehicle impacts an object.

- Where the planting or retention of trees would clearly result in a high risk¹ of death or serious injury for vehicles leaving the carriageway, then measures are to be used to mitigate the risk.
- Where the planting or retention of trees is in a location with a higher likelihood of vehicles leaving

the carriageway (i.e. curves, intersections) AND there is potential for a high risk of death or serious injury, then measures are to be used to mitigate the risk.

- The planting or retention of trees should not impact on sight lines to hazards and other road users for the safe operation of the road for the whole life of the trees.

2. Road Network Efficiency Principle

In line with VicRoads Movement and Place framework, where roads are designated as significant freight or traffic routes, then the planting or retention of trees is to be managed to ensure there are no adverse impacts on the efficiency of vehicle movement on those roads.

3. Sustainable Transport Principle

In line with VicRoads Movement and Place framework, where the planting or retention of trees will significantly enhance opportunity for walking and cycling participation, and the road is a priority area for walking or cycling, then trees are strongly supported.

4. Maintenance Responsibility and Cost Principle

Where tree planting increases the long term cost to maintain the road, then the planting of trees and the tree management arrangements should be implemented in a way that minimises any cost increase to VicRoads.

If the planting of trees will significantly increase the cost to maintain or provide utility services in the road reserve, then planting should be done in a way that minimises the impact.

5. Environmental Sustainability Principle

When planting trees in the road reserve, consideration is to be given to environmentally sensitive species selection and adopting landscape designs that protect and enhance the environment.

6. Community Wellbeing Principle

When managing the presence of trees in the road reserve, consideration is to be given to community views, supporting local planting strategies, improving amenity and reducing visual clutter.

¹ The risk profile examples provided in Appendix B can be used to assist with determining the risk of a road environment.

Policy Guidance

VicRoads recognises the significant benefits trees provide to the community. VicRoads aims to support active transport, healthier environments and facilitate a safe and efficient road network, by promoting trees in the road reserve under certain conditions.

VicRoads Tree Policy encourages VicRoads' officers to promote new and existing trees to deliver outcomes for the community, as part of managing the declared road network in line with our legislative responsibilities.

The following policy principles have been developed.

1. Safe System Principle
2. Road Network Efficiency Principle
3. Sustainable Transport Principle
4. Maintenance Responsibility and Cost Principle
5. Environmental Sustainability Principle
6. Community Wellbeing Principle

When assessing a new or existing tree proposal, all policy principles outlined above must be addressed.

To align with the policy principles, the following guidance should be used.

1. Safe System Principle

This principle requires consideration of the road safety risk associated with trees in the road reserve by considering the speed environment and the risk of a crash based on the road environment. This section outlines suggested mitigation measures by adopting a risk-based approach for different speed and road environments.

An assessment is to be undertaken to determine whether there is any evidence of existing road safety issues which relate to trees, such as previous lane departure crashes or compliance issues such as speeding. If so, then these road safety issues are to be addressed prior to considering tree planting or retention.

Where the following guidance is not considered appropriate for a specific location, then a principle-based assessment should be undertaken, documented and approval of the proposed approach obtained. Refer to Appendix A for the *Principle-based decision making assessment* form.

≤ 50 km/h road environments

Posted speeds equal to or less than 50 km/h are usually located in residential areas or high pedestrian activity locations where considerable benefits to the community are delivered by the presence of trees.

In such locations, VicRoads supports the planting and retention of trees in line with community expectations to promote active transport and healthier environments. At this speed, the risk to road users posed by trees in the road reserve is generally considered to be low.

Consideration is to be given to traffic calming measures to further enhance these environments for pedestrian, cycling and public transport activity.

Trees are to be planted as far from the traffic lane as possible, with a recommended minimum lateral distance of 1.0 m from the face of kerb.

Where recent crash history, speed compliance issues or site specific factors indicate that planting or retaining trees may constitute a high risk, measures are to be taken to mitigate risks using approved safety treatments (e.g. approved barriers or approved safety bollards) or innovative solutions.

All other principles are also to be addressed prior to considering trees in the road reserve.

60 km/h road environments

In urban environments, many roads with a posted limit of 60 km/h experience high pedestrian and/or cycling activity and/or provide a strong sense of place for communities. In such locations, VicRoads supports the planting and retention of trees in line with community expectations to promote active transport and healthier environments.

Tree planting and retention can be considered using the below general guidance. Consideration is also to be given to traffic calming measures to further enhance these environments for pedestrian, cycling and public transport activity.

All other principles are also to be addressed prior to considering trees in the road reserve.

General Guidance

Table 1 - provides guidance for sites in 60km/h road environments where there is no history of lane departure, fatal, or serious injury crashes, or speed compliance issues.

Location features	Applicable policy guidance	Approach
Where there is permanent parking or designated bicycle lanes between edge of traffic lane and trees	The additional space provided by bicycle lanes and the physical separation provided by parked cars can be considered to lower the likelihood of vehicle into tree crashes.	Generally no further mitigation considered necessary, however, a minimum lateral distance of 1.0 m from the face of kerb, or edge of traffic lane where no kerb exists, to face of tree is recommended (for practical reasons e.g. door opening).
Where there is parking during off-peak and clearways during peak times on congested roads with operating speeds less than or equal to 50 km/h	The physical separation provided by parked cars can be considered to lower the risk of vehicle into tree crashes. During clearways, the lower operating speed of congested roads can be considered to lower the likelihood and severity of crashes.	Generally no further mitigation considered necessary, however, a minimum lateral distance of 1.0 m from the face of kerb, or edge of traffic lane where no kerb exists, to face of tree is recommended (for practical reasons e.g. door opening).
Minimum of 10 existing roadside hazards over 100m (e.g. trees or poles)	Where there are a minimum of 10 existing non-frangible hazards over 100m within the road reserve, and no history of lane departure fatal or serious injury crashes, it is considered that infill tree planting will not significantly increase the risk to road users.	Consideration can be given to infill tree planting in line with or ideally behind existing hazards, however, a minimum lateral distance of 1.0 m from the face of kerb, or edge of traffic lane where no kerb exists, to face of tree is recommended (for practical reasons e.g. door opening).
Generally on 60 km/h straight roads	VicRoads supports the planting and retention of trees in line with community expectations to promote active transport and healthier environments.	Consider speed reduction or use of approved safety treatments. Alternatively, a minimum lateral distance of 1.2 m from the face of kerb may be considered.

Where recent crash history or site specific factors (e.g. curves, lane merge locations or intersections) indicate that planting or retaining trees may constitute a higher risk than outlined above, measures are to be taken to mitigate risks.

Consider use of approved safety treatments (e.g. approved barriers, approved safety bollards or high profile barrier kerbs), consider speed reduction or limit planting. Alternatively, consider a principle-based decision.

Principle-based decision

Where the above general guidance is not considered appropriate for a specific location, a principle-based assessment should be undertaken and documented, and approval of the proposed approach obtained (see Appendix A).

Current VicRoads design guidelines and Austroads Guide to Road Design are to be considered.

70 km/h & 80 km/h road environments

Roads with posted speed limits of 70 km/h or 80 km/h often serve as significant routes for traffic, freight and over dimensional vehicles. In these speed environments, the risk to road users posed by trees in the road reserve of fatal and serious crashes is generally considered to be high. All other principles are also to be addressed prior to considering trees in the road reserve.

General Guidance

Table 2 - provides guidance for sites in 70 & 80km/h road environments

Location features	Applicable policy guidance	Approach
Where there are straight roads with permanent parking between edge of traffic lane and trees in verges	The additional space and protection provided by the physical separation and presence of parked cars can be considered to lower the risk of vehicle into tree crashes. Consider the occupancy of parking (as a guide parking spaces occupied >90% can be considered 'permanent')	Consider speed reduction or use of approved safety treatments. Alternatively, where there is no history of lane departure fatal or serious injury crashes, maximise the lateral distance from any trees and the face of kerb (or edge of traffic lane where no kerb exists).
Where there are straight roads with parking during off-peak and clearways during peak times on congested roads with operating speeds less than or equal to 50 km/h	For trees planted in verges, the physical separation provided by parked cars during off-peak periods can be considered to lower the risk of vehicle into tree crashes. This is most effective when, as a guide, parking spaces are occupied >90% during off-peak periods. During clearways, which typically operate during peak periods, the reduced operating speed can be considered to lower the consequence of crashes (see table for ≤ 50km/h).	Consider speed reduction or use of approved safety treatments. Alternatively, where there is no history of lane departure fatal or serious injury crashes, maximise the lateral distance from any trees and the face of kerb (or edge of traffic lane where no kerb exists).
Generally for 70 km/h and 80 km/h roads	Tree planting and retention can be considered where risks can be eliminated.	Adopt approved safety treatments (e.g. wire rope barriers, guard rail) or reduce speeds. Alternatively, consider innovative solutions using a principle-based approach (see Appendix A).

Principle-based decision

Where the above general guidance is not considered appropriate for a specific location, a principle-based assessment should be undertaken and documented, and approval of the proposed approach obtained (see Appendix A).

Current VicRoads design guidelines and Austroads Guide to Road Design are to be considered.

≥ 90 km/h road environments

Roads with posted speed limits of 90 km/h and greater serve as significant routes for traffic, freight and over dimensional vehicles. In these speed environments, the risk to road users posed by trees in the road reserve of fatal and serious crashes is considered to be high.

Unprotected trees in the road reserve are considered to pose an unacceptable risk to road users, as crashes at these speeds will most likely result in fatal and serious injuries. The safety risk to road users is to be addressed by installing approved safety treatments (e.g. wire rope barriers or guardrail) or through other innovative solutions documented and approved using a principle-based approach (see Appendix A).

All other principles are also to be addressed prior to considering trees in the road reserve.

Principle-based decision

Where the above general guidance is not considered appropriate for a specific location, a principle-based assessment should be undertaken and documented, and approval of the proposed approach obtained (see Appendix A).

Current VicRoads design guidelines and Austroads Guide to Road Design are to be considered.

2. Road Network Efficiency Principle

Some roads are more strategically important for moving people and goods efficiently, while other roads have a stronger role in providing access or are destinations in their own right. The relative significance of the movement and place function changes as you move along the network.

Defining the relative significance of movement and place informs future design choices and helps guide the adoption of appropriate measures such as speed, signage, street furniture and the need for dedicated measures for individual movement modes. The concept breaks away from traditional approaches to street classification, which considered traffic movement needs only.

Trees contribute considerably to enhancing the value of place and should therefore be supported under certain conditions. SmartRoads is one tool that can assist in applying VicRoads' Movement and Place decision-making framework. Accordingly, the SmartRoads Road Use Hierarchy (see references for more information) is to be used when considering tree planting and retention.

Indirect impact on road network operation

Trees in the road reserve may have an indirect impact on traffic movement, including freight, buses and trams, for instance, where branches impede traffic lanes. Consequently, trees are to be maintained to minimise indirect impacts on road network operation.

Direct impact on road network operation

Occasionally, tree planting may have a direct impact on road network operation, due to the need to mitigate road safety risks or to enhance the amenity of the area to support active transport, for instance through the reduction of speed limits or the number of traffic lanes.

Where a direct impact on traffic movement is being considered, a SmartRoads network fit assessment is to be undertaken in conjunction with the relevant VicRoads traffic team to consider the function of the road and to develop an appropriate treatment.

General Guidance

Table 3 - guidance for assessing tree planting and retention proposals

Movement and place decision-making framework	Guidance for assessing tree planting and retention proposals
<p>High place significance</p> <p>For instance, where there are priority pedestrian, cycling or public transport networks or areas, including:</p> <ul style="list-style-type: none"> • Principal Pedestrian Network (PPN) • Principal Bicycle Network (PBN) • Principal Public Transport Network (PPTN) 	<p>Generally, where a proposal is on a road which forms part of the PPN, PBN or PPTN, tree planting and retention is encouraged. Accordingly, a direct impact on traffic movement may be considered in order to support active transport by enhancing amenity and safety.</p> <p>A SmartRoads network fit assessment is to be undertaken in conjunction with the relevant VicRoads traffic team to consider the function of the road and to develop an appropriate treatment.</p> <p>Indirect impacts on the movement of buses and trams are to be avoided, by considering placement and maintenance of trees.</p>
<p>High movement significance</p> <p>For instance, where there are priority traffic and freight networks, including:</p> <ul style="list-style-type: none"> • Principal Freight Network (PFN), • Principal Traffic Flow Network (PTFN)² • Over-Dimensional Routes (ODR) • Over-Size Over-Mass Routes (OSOM) 	<p>Proposals regarding movement corridors and motorways are to be considered on a case-by-case basis. Movement corridors and motorways perform strategically important functions for moving people and goods. However, movement corridors may also contribute significantly to amenity and local communities.</p> <p>Trees along a road which forms part of the PFN, PTFN, ODR or OSOM may be considered, however a direct impact on traffic movement is generally not considered appropriate (e.g. speed reduction, removal of traffic lanes, etc.).</p> <p>A SmartRoads network fit assessment is to be undertaken in conjunction with the relevant VicRoads traffic team to consider the function of the road and to develop an appropriate treatment. Trees in the road reserve need to be positioned in such a way and maintained to ensure that branches do not impede traffic movement, including freight.</p> <p>Where the proposed treatment is on a road which forms part of the ODR or OSOM, or is on a road which is likely to form part of the ODR or OSOM, consultation with VicRoads Roads Transport Policy team is to be undertaken before further consideration of the proposal.</p> <p>Indirect impacts on road network operation are to be avoided, by considering placement and maintenance of trees.</p>

² The Principal Traffic Flow Network is currently being developed by VicRoads.

3. Sustainable Transport Principle

A key benefit of promoting trees in the road reserve is that it may encourage active transport such as walking, cycling and public transport use. The intent of this principle is to encourage facilities to support active modes as part of tree planting works on roads which have a clear active travel priority.

Generally, as part of tree planting works:

- Existing active transport facilities are to be maintained;
- Where appropriate, active transport facilities are to be upgraded or provided; and
- Provision for future facilities are to be allowed for (i.e. not prevented as a result of the planting design).

The context of the project is important in determining what provision is to be made for active transport. For example, a higher level of provision is generally appropriate in or around activity centres. Active transport connections across roads, as well as along roads, are to be considered.

For guidance on active transport facilities refer to:

- Austroads' Guide to Road Design Part 6A – Pedestrian and Cyclist Paths

Pedestrian and Cyclist Safety

As the number of pedestrians generally increases as a consequence of tree planting, the number of pedestrian crossing movements may grow accordingly. This may increase the likelihood of pedestrian/vehicle conflicts. It is necessary to encourage pedestrian crossing movements at safe locations through effective road design.

For further guidance on how to effectively design for pedestrian movements refer to:

- Austroads Guide to Traffic Management, Part 6: Intersections, Interchanges and Crossings.

4. Maintenance Responsibility & Cost Principle

Maintenance Responsibilities

It is important to carefully manage resources in order to deliver the best overall outcomes for the community. Tree planting and retention treatments are to be designed to minimise installation and ongoing maintenance costs.

Consideration is to be given to clearance envelopes over roadways and pathways, pavement damage (such as by tree roots), traffic and footpath management for maintenance activities, safety barriers and tree replacement.

Consideration of how tree planting treatments may reduce maintenance costs is also to be explored, for instance, where grass or high maintenance landscaping can be replaced with trees and low or no maintenance treatments.

Section 37 of the Road Management Act 2004 outlines that, subject to any arrangement made under section 15, the municipal council (as the responsible road authority) is responsible for the maintenance of vegetation in roadsides and outer separators in urban areas. VicRoads is the responsible road authority for vegetation in any centre median of an arterial road and for the roadside of arterial roads in non-urban areas.

Maintenance Cost

Municipal councils

Where a municipal council approaches VicRoads and proposes tree planting in the road reserve, funding for implementation is to be provided by the municipal council. If the tree planting treatment involves the centre median, then the municipal council is to provide the ongoing maintenance costs or enter an agreement (i.e. a section 15 agreement) to manage the maintenance of vegetation in the median along with any related infrastructure (e.g. traffic safety barriers).

Similarly, the municipal council must be consulted where VicRoads is proposing tree planting in outer separators and roadsides in urban areas where the municipal council will be responsible for the maintenance of the vegetation.

Developers and external parties

Where an external party (e.g. a developer) approaches VicRoads and proposes tree planting in a centre median, funding for implementation of the tree planting treatment and associated safety infrastructure along with ongoing maintenance costs is to be provided by the external party.

Funding models

Funding is necessary to cover implementation and ongoing maintenance costs of tree planting treatments and associated infrastructure, such as safety barriers. Examples of appropriate funding models for maintenance include:

- Ongoing maintenance by another road authority (e.g. municipal council) where VicRoads is the responsible road authority is to be managed via an arrangement under section 15 of the RMA.
- Ongoing maintenance costs paid annually with a written agreement from another road authority (e.g. a suitable arrangement with a municipal council), or
- Upfront one-off capitalised payment to cover ongoing maintenance costs in perpetuity (e.g. may be a suitable arrangement with a developer).

Selection of an appropriate funding model for maintenance costs is to be based on the relationship VicRoads has with the external party and the Region's confidence of cost recovery.

Tree location and species selection

Decisions regarding tree species and planting techniques are to be made in consultation with the relevant municipal council, a technical specialist (e.g. VicRoads' Environmental Practice) and the relevant VicRoads' Region, and is to:

- support the purpose of the treatment;
- be appropriate for the local environment;
- be cost effective;
- support the function of the road and not require closure of traffic lanes and footpaths for maintenance purposes (e.g. avoid species with propensity to drop limbs);
- not adversely affect pavement integrity; and
- be determined in consultation with the relevant utility infrastructure managers, based on the specific site and the ability of the tree to both enhance local amenity and co-exist with utility services infrastructure.

Utility services

VicRoads also has a legislative responsibility to ensure that the road reserve provides for the effective and efficient delivery of utility services. This means that when a tree planting treatment is being considered and designed, the treatment is to ensure existing services are maintained and that space is provided for future services. This applies to both underground and above ground services. Consideration is also to be given to undergrounding services, where possible.

Access to utility services in the road reserve is to be retained at all times for maintenance purposes.

5. Environmental Sustainability Principle

As part of any tree planting works, consideration is to be given to protecting and enhancing the environment and mitigating transport related impacts on the local community. Where appropriate, the design is to accommodate:

- habitat and biodiversity, particularly in the vicinity of parks and waterways
- water sensitive urban design to reduce stormwater runoff, mitigate the urban heat island effect and improve tree health. For further guidance, refer to:
 - VicRoads [Integrated Water Management Guidelines](#) (QD:1832161)
 - Melbourne Water's process and guidance on Water Sensitive Urban Design CSIRO publishing, 2005. WSUD Engineering Procedures: Stormwater

6. Community Wellbeing Principle

Trees are highly valued by the community. Providing trees in the road reserve will improve the amenity of the area and in turn, may increase active transport including pedestrian and cycling activity, and public transport use.

Additionally, existing trees often have significant value for local communities. While this may not be recognised through formal heritage classification, it is vital that local community values are identified and considered in all decisions regarding tree retention and tree planting.

Engagement with local government and the community is recommended as an initial step in identifying, and in turn responding sensitively to community values.

Tree selection should occur in consultation with the relevant municipal council, a technical specialist (e.g. VicRoads' Landscape and Design team) and the relevant VicRoads Region. Many municipal councils have published guidance on preferred tree species for particular locations within the municipality. Some tree species provide better shade, which may be suitable for locations where greater pedestrian and cycling activity is desirable. Refer to principle 4 of this policy under, *Tree location and species selection*, for further considerations.

Consideration may also be given to additional enhancement works to reduce visual clutter and improve other aspects of amenity (such as, seating, water fountains, etc.) to take advantage of the benefits provided by trees.

Responsibilities

Table 4 - Roles & Responsibilities of VicRoads Officers

<p>Regional Directors / Project Directors</p> <p>Use the policy guidance</p> <p>Use the policy principles in situations not covered by the policy guidance to make a principle-based decision and document the decision-making process using Appendix A.</p> <p>Approve policy principle-based decisions</p> <p>Demonstrate why it is necessary to deviate from the policy principles (policy exceptions) and document the decision making process using Appendix A.</p> <p>Endorse exceptions to this policy and seek approval from Strategy and Policy Governance Committee.</p>
<p>Director Integration Services</p> <p>Review, monitor and disseminate this policy</p>
<p>Strategy and Policy Governance Committee</p> <p>Approve this policy</p> <p>Approve exceptions to this policy</p>

Policy Evaluation and Review

This policy will be evaluated and reviewed on a regular basis to monitor its progress towards achieving the intended outcomes.

Contact Details

Questions relating to this policy should be directed to the Manager Transport Integration, Integration Services, VicRoads.

Policy Governance

Policy Ownership and Approval Record			
Business Area Owner – Transport Integration, Integration Services			
Rev. No. Date Released	Sections/Update	Description of Revision	Approved by:
Rev. 1.0 February 2015	First Edition	Development of policy	Executive Director Policy & Programs on 20 February 2015 (refer to QD 2870564)
Rev. 2.0 May 2016	Policy now considers existing trees. Guidance updated to refer to Movement & Place and consider community views, Inclusion of Appendix A - Risk Assessment Template, Appendix B – Risk Profile Examples.	First review of policy	Strategy and Policy Governance Committee on 30 May 2016
This policy is effective as of the date of approval.			

Related Documents

Document Title	Reference
Attachment A Principle-based Decision Making Assessment (Tree Policy) Template (EDITABLE)	QD 3614025
AASHTO, 2011, Road Design Guide, Chapter 10: Roadside Safety in Urban or Restricted Environments	
Austroads Improving Roadside Safety Summary Report 2014 (AP-R437-14) Austroads Guide to Road Design, Part 2: Design Considerations Austroads Guide to Road Design, Part 6: Roadside Design, Safety and Barriers Austroads Guide to Road Design, Part 6A: Pedestrian and Cyclist Paths Austroads Guide to Road Design, Part 6B: Roadside Environment Austroads Technical Report, Application of the Analytic Hierarchy Process in Road Asset Management: User Manual Austroads Guide to Road Safety, Part 9: Roadside Hazard Management Austroads Guide to Traffic Management, Part 6: Intersections, Interchanges and Crossings VicRoads Supplement to the Austroads Guide to Road Design	www.austroads.com.au
VicRoads Road Design Notes RDN 03-01: The use of High Profile Barrier Kerb (HPBK) RDN 06-02: The use of Wire Road Safety Barriers (WRSB) RDN 06-04: Accepted Safety Barrier Products RDN 06-08: The use of Guard Fence VicRoads Traffic Engineering Manual, Vol 1, Chapter 7: Speed Zoning Guidelines SmartRoads CrashStats Code of Practice – Management of Infrastructure in Road Reserves	www.vicroads.gov.au

APPENDIX A: PRINCIPLE-BASED DECISION MAKING ASSESSMENT

(Tree Policy 2016)

Approval process

Prior to deviating from the guidance outlined in VicRoads Tree Policy, the following context specific assessment must be undertaken.

Step 1 – Complete the assessment table for each Principle (1 – 6)

Step 2 – Based on the assessment of each Principle, provide an overall recommendation

Step 3 – Seek approval of the assessment by the relevant Regional Director.

Refer to QD 3614025 for editable version of this document (which provides additional guidance).

Title / Project	
To	
From	
Quickdocs Reference	
Purpose	
Introduction (Briefly outline key points for site & background)	
Summary of Proposal (Briefly summarise the proposal)	

1. Safe System Risk Principle

The risk of death and serious injury is directly related to the likelihood of a crash and the impact forces on the vehicle occupants when a vehicle impacts an object.

Where the planting or retention of trees would clearly result in a high risk of death or serious injury for vehicles leaving the carriageway, then mitigation measures are to be present to eliminate the risk.

Where the planting or retention of trees is in a location with a higher likelihood of vehicles leaving the carriageway (i.e. curves, intersections etc.) AND there is potential for a high risk of death or serious injury, then mitigation measures are to be present to eliminate the risk.

The planting or retention of trees should not impact on sight lines to hazards and other road users for the safe operation of the road for the whole life of the trees.

Austrroads Safe System Assessment Framework (AP-R509-16) outlines an approach to guide practitioners to consider exposure to a crash risk, likelihood of it occurring and the severity of a crash should it occur, when assessing road safety risk for different road environments. This approach has been adapted below to assist practitioners consider risk associated with lane departure crashes into trees. For further guidance refer to AP-R509-16.

Consider Category 1, 2 and 3 Risk Ratings to make assessment.

Category 1 - Road User Exposure

Attribute	Current situation risk	Proposed situation risk
Volume (include appropriate info, e.g. 15000vpd)		
Length of Section		
Priority Routes / Principal Networks		
Category 1 - Risk Rating (i.e. Low, Medium, High)		

Category 2 - Crash Likelihood

Attribute	Current situation risk	Proposed situation risk
Context of Location (urban or rural, activity centre, township, near a school or industrial area)		
Road Infrastructure (presence or type of kerb, shoulder, divided/undivided, barrier, bicycle paths, off sets, parking, pavement condition)		
Road Geometry (sight lines, lane width, verge/median width, curves, grade, turning or merge lanes)		
FSI Crash History (number of lane departure crashes into fixed hazards and discussion of how crash occurred)		
Category 2 -Risk Rating (i.e. Low, Medium, High)		

Category 3 - Crash Severity		
Attribute	Current situation risk	Proposed situation risk
Speed		
Physical Characteristics of Roadside (non-frangible and frangible hazards, density of hazards, safety infrastructure, run-off area length, landscaping, traversable terrain, swale drains, embankments, earth mounding)		
Road Infrastructure (presence or type of kerb, shoulder, barrier, parking)		
ANRAM Analysis (where available undertake an ANRAM analysis to contribute to understanding current risk)		
Category 3 - Risk Rating (i.e. Low, Medium, High)		
Discussion (consider Category 1 + 2 +3) (Discuss the safety implications of the proposal compared with the current situation. Discuss changes to risk profile with tree planting proposal, where appropriate consider risk during growth and at tree maturity.)		
Current Situation (Risk Level Judgement)		
Proposed Situation (Risk Level Judgement)		

2. Road Network Efficiency Principle

Where roads are designated as significant freight or traffic routes, then the planting or retention of trees is to be managed to ensure there are no adverse impacts on the efficiency of vehicle movement on those roads.

Priority Route (i.e. Principal Traffic Flow Network, Principal Public Transport Network)	
Volume (include appropriate information, e.g. 15,000vpd (10%cv))	
Approach (Explain approach to meet this principle)	
Current Situation (.e. Negative/Positive impact on priority route)	
Proposed Situation (i.e. Negative/Positive impact on priority route)	

3. Sustainable Transport Principle

Where the planting or retention of trees will significantly enhance opportunity for walking, cycling or public transport participation, and the road is a priority route/area, then trees are strongly supported.

Priority Routes / Principal Networks (i.e. Principal Public Transport Network (buses))	
Estimated Volume (include appropriate information, e.g. 150 buses per day)	
Existing Infrastructure (i.e. currently no bus lanes provided)	
Related FSIs	
Approach (Explain approach to meet this principle)	
Current Situation (i.e. supports/does not support principle)	
Proposed Situation (i.e. supports/does not support principle)	

4. Maintenance Responsibility and Cost Principle

Where tree planting increases the long term cost to maintain the road, then the planting of trees and the tree management arrangements should be implemented in a way that minimises any cost increase to VicRoads.

If the planting of trees will significantly increase the cost to maintain or provide utility services in the road reserve, then planting should be done in a way that minimises the impact.

Estimated upfront costs (Explain how upfront costs will be managed)	
Estimated ongoing cost (including by VR, other parties, what the cost will cover)	
Approach (Explain approach to meet this principle)	
Current Situation (i.e. supports/does not support principle)	
Proposed Situation (i.e. supports/does not support principle)	

5. Environmental Sustainability Principle

When planting trees in the road reserve, consideration is to be given to environmentally sensitive species selection and adopting landscape designs that protect and enhance the environment.

Existing Vegetation (Explain how upfront costs will be managed)	
Existing Remnant Vegetation	
Water Sensitive Design	
Habitat and Biodiversity	
Approach (Explain approach to meet this principle)	
Current Situation (i.e. supports/does not support principle)	
Proposed Situation (i.e. supports/does not support principle)	

APPROVAL

Prepared by:

Name:

Endorsed by (where appropriate):

Name

Officer Level / Team Leader

Date:

Phone:

Technical Expert / Manager

Date:

Phone:

APPROVED / NOT APPROVED

REGIONAL DIRECTOR / PROJECT DIRECTOR

/ /

APPENDIX B: RISK PROFILE EXAMPLES

(Tree Policy 2016)

The following examples can be used to assist with determining the risk profile of a road environment. These examples capture expert opinion and can be used as indicative guidance as part of undertaking a risk evaluation of a tree proposal.



Maroondah Hwy (A road)

Exposure: This is a priority bus, bicycle and pedestrian area attracting high volumes of general traffic (~31,000 AADT BD), cyclist and pedestrian activity; resulting in high exposure at this location.

Likelihood: The straight geometry, good pavement condition, presence of traffic calming measures, bicycle lanes, wide pedestrian crossings and parking complements the awareness of road users. There have also been no FSIs since the completion of the project, indicating low likelihood.

Severity: This is a low speed environment (40 km/h) indicating low severity of crashes.

Overall: Generally considered low risk



Phillip Island Road (B road)

Exposure: This is a priority bicycle, bus and a principal tourist road which attracts a low volume of traffic (7,200 AADT BD) indicating low exposure.

Likelihood: The straight geometry of the road environment, offset to trees of approximately 3.0m, presence of parking and absence of related lane departure crashes into fixed objects over the past 5 years, indicates this environment has a low likelihood of crashes.

Severity: This is a moderate speed environment (60 km/h) which due to township, activity centre and mixed road users has a reduced operating speed, indicating low/moderate severity of crashes.

Overall: Generally considered low risk



Canterbury Rd (B road)

Exposure: This is a preferred traffic route attracting high volumes of general traffic (20,000 AADT); resulting in high exposure at this location.

Likelihood: The straight geometry, residential environment, good pavement condition, presence of bicycle lanes and parking (providing physical separation to trees), combined with no related FSIs along this section, indicate a low likelihood of lane departure crashes.

Severity: This is a moderate speed environment (60 km/h) which during peak periods has a reduced operating speed, indicating low-moderate severity of crashes.

Overall: Generally considered low-moderate risk



Princes Highway West (A road)

Exposure: This road attracts low volumes of traffic (5,500 AADT); resulting in low exposure at this location.

Likelihood: The straight geometry, good pavement condition and offset of approximately 5 metres to trees, combined with no related FSIs along this section, indicate a low likelihood of lane departure crashes.

Severity: This is a moderate speed environment (60 km/h), indicating moderate severity of crashes.

Overall: Generally considered low-moderate risk.



Somerville Road (B road)

Exposure: This road attracts moderate volumes of general traffic (9,800 AADT); resulting in moderate exposure at this location.

Likelihood: The straight geometry, divided road, good pavement condition, little abutting land use and a reasonable offset of approximately 3.5 metres to low density trees, indicate a low likelihood of lane departure crashes. There has been one lane-departure serious injury crash along this section in the past 5 years.

Severity: This is a moderate-high speed environment (70 km/h) which during peak periods has a reduced operating speed, indicating moderate severity of crashes.

Overall: Generally considered moderate risk



Pakenham Bypass (M road)

Exposure: This is a preferred traffic route attracting very high volumes of traffic (76,200 AADT BD); resulting in high exposure at this location.

Likelihood: The straight geometry, wide traffic lanes, divided road, wide sealed shoulder, good pavement condition, restricted access and high recovery area of greater than 12 metres prior to low density trees, indicate a low likelihood of lane departure crashes into trees. There has been one lane-departure serious injury crash along this section in the past 5 years; where the driver suffered a possible heart attack.

Severity: This is a high speed environment (100 km/h), indicating high severity of crashes.

Overall: Generally considered moderate risk.



Plenty Road (B road)

Exposure: This is a preferred traffic route attracting high volumes of general traffic (32,000 AADT); resulting in high exposure at this location.

Likelihood: The straight geometry, residential environment, good pavement condition, divided road, kerb and a reasonable offset of approximately 2.5 metres to low density trees (none near driveways where they may impact sight lines), combined with two lane-departure serious injury crashes (one alcohol related) along this section in the past 5 years, indicate a moderate likelihood of crashes.

Severity: This is a moderate speed environment (60 km/h) which during peak periods has a reduced operating speed, indicating low-moderate severity of crashes.

Overall: Generally considered moderate risk



Thompsons Road (B road)

Exposure: This is a preferred traffic route, priority bicycle and a future bus priority route attracting moderate volumes of general traffic (17,200 AADT BD); resulting in moderate exposure at this location.

Likelihood: The straight geometry, residential environment, good pavement condition, divided road, wide shoulders and a reasonable offset of approximately 8 metres to low density trees, restricted access (driveways on service road), combined with no related FSIs along this section, indicate a low likelihood of lane departure crashes.

Severity: This is a high speed environment (90 km/h), indicating high severity of crashes.

Overall: Generally considered moderate-high risk



Forrest-Apollo Bay Road (C road)

Exposure: This road is a secondary tourist road and attracts low volumes of general traffic (7,500 AADT); resulting in low exposure at this location.

Likelihood: The narrow, straight geometry, moderate pavement condition, and low offset of approximately 2 metres to high density significant trees, combined with expected overtaking manouevers and likely higher operating speeds due to rural location indicate a high likelihood of lane departure crashes. There have been no related FSI along this straight section of road in the past 5 years.

Severity: This is a high speed environment (90 km/h), indicating high severity of crashes.

Overall: Generally considered high risk