Yan Yean Road Upgrade

Stage 2 | Landscape strategy

13/08/2020
v6

ARUP

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MAJOR ROAD PROJECTS VICTORIA

By:

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Name	Role / Title, Organisation	Version Reviewed	Date	Signature
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Contents

FIGURE E1: AERIAL VIEW OF THE YAN YEAN ROAD CORRIDOR AND YARRAMBAT PARK, LOOKING NORTH FROM ABOVE BANNONS LANE

Yan Yean Road Stage 2 will act as a **safe,** well **vegetated** transport corridor, **stitching** together the urbanising suburbs to the west with the existing rural landscape to the east.

The road will provide a **climate resilient** landscape approach that delivers a legacy of **environmental benefits**, improved **amenity** for users and the wider community, while respecting, **protecting** and **enhancing** the **cultural values** of the existing landscape.

FIGURE E2: VISION STATEMENT

Executive summary

Major Road Projects Victoria (MRPV) is upgrading Yan Yean Road between Kurrak Road and Bridge Inn Road in Yarrambat and Doreen (the Project). The works aim to improve safety and traffic flow in the area, completing the Yan Yean Road corridor with two lanes in each direction between Plenty and Doreen.

Yan Yean Road and its surroundings have a distinct and evolving character. Fueled by development within the Northern Growth Corridor, the north western part of the road corridor is rapidly urbanising. Southern and eastern sections of the corridor continue to provide a scenic rural buffer to urban development as part of Nillumbik's Green Wedge landscape.

The Yan Yean Road corridor will play an important role in connecting these two contrasting land uses. Approximately 20% of the project area supports patches of remnant vegetation, while historic land uses such as agriculture, mining and rural settlement continue to exert subtle influences on the landscape character of the road corridor and surrounding area. The road is also known for its scenic rural views and identified as a 'Key Viewing Corridor' within the Shire of Nillumbik's *'Landscape Character Assessment'*.

The upgraded Yan Yean Road must work as a 'Connector' for people and goods while respecting the inherent ecological, cultural, social and landscape values found along its length.

Purpose of report

The Landscape strategy has been created to respond to the Minister of Planning Scoping Requirements by:

- Identifying the values of the existing landscape, visual amenity and vegetation along the Project corridor
- Assessing and describing the likely Project impacts to these values
- Developing strategies to prevent and mitigate impacts and enhance the identified values through robust landscape and urban design treatments.

Value assessment

Community and Stakeholder engagement
The following key findings were made:

- Preserving the existing ecology and landscape character were important themes for the local community and stakeholders, including references to the River Red Gums at Bridge Inn Road/Doctors Gully Road intersection and general concern for flora and fauna impacts along the Project corridor
- Community and local council expressed a strong preference for the use of indigenous plant species
- Cycling and walking pathways were highly valued by the local community
- Mixed sentiments were expressed in relation to future public art and street furniture
- There was a community desire for a softer approach to the urban/landscape design of the Stage 2 upgrade compared to Stage 1
- A careful balance will be needed to provide an environment in-keeping with the area's well vegetated character while managing the need for safe and efficient maintenance.

Cultural value of vegetation
The following key findings were made:

- 2,399 out of 7,039 vegetation components analysed within the project area (trees, parkland and significant flora species) were identified as having some form of cultural value based on a definition adapted from the *Australian ICOMOS, Burra Charter, 2013*
- Of these, 2115 (88%) triggered one value criteria, 272 (11%) triggered two, 10 (0.4%) triggered three and two trees (0.08%) triggered four value criteria - the River Red Gums at Bridge Inn Road intersection
- Social value was the most common criteria triggered (23% of all vegetation components). Five areas of public open space (including Doreen Recreation Reserve, Orchard Park, Werther Park and Yarrambat Park) recorded social value for their contribution to public amenity
- Trees with aesthetic value (1.8% of all vegetation components) are found across the Project alignment and include large and old landmark trees as well as trees planted along original driveways and paddock boundaries. These provide structure to the landscape and a connection with historical land uses
- Trees with scientific value (14% of all vegetation components) are spread throughout the project area and often appear as clusters of native trees that provide Swift Parrot foraging habitat
- Value hot spots include the River Red Gums at Doctors Gully Road/Bridge Inn Road intersection, 'Avenue of Honour' WW1 memorial plantings at Yarrambat Primary School and important aesthetic/social value trees within Yarrambat Township such as the 'historic oak'.

Landscape Character
The following key findings were made:

- The landscape character of the wider project area includes a mix of existing modified rural landscapes and rapidly urbanising growth precincts. Landscape sensitivity varies between High (LCZ 2 - *Undulating Agricultural*) and Low (LCZ 4 - *Doreen Urban Area*). LCZ 2 is valued regionally for its scenic undulating topography, distant vistas and patches of remnant vegetation
- The greatest operation phase landscape character impacts are expected on LCZ 1 - *Suburban Rural* (Moderate), LCZ 2 - *Undulating Agricultural* (Moderate/High) and LCZ 3 - *Yan Yean Road Corridor* (Moderate) where the removal of vegetation and increase in road footprint would reduce the naturalistic/rural qualities of the existing landscape and increase the dominance of road infrastructure
- Project landscape treatments are expected to reduce impacts for all LCZs as they mature over time. Moderate/Low to Low residual impacts are expected on LCZ 1 - *Suburban Rural*, LCZ 2 - *Undulating Agricultural* and LCZ 3 - *Yan Yean Road Corridor* where there would be a permanent reduction in tree canopy and an increase in the road corridor footprint
- Several historical landscape features such as planted windbreaks and old remnant trees would be lost across LCZ 1 - *Suburban Rural*, LCZ 2 - *Undulating Agricultural* and LCZ 3 - *Yan Yean Road Corridor*. These features currently contribute to the scenic amenity and cultural heritage of the Project corridor and their removal will negatively impact landscape character.

Visual Impact
The following key findings were made:

- The visual character of the project area is defined by its undulating topography, vegetated nature and varied built form. The visual experience along Yan Yean Road ranges from panoramic views towards distant mountain ranges from elevated positions to filtered, narrow views, framed by dense roadside tree planting
- The clearing of vegetation and the increase of the road corridor footprint in proximity to sensitive receptors has the greatest potential to cause visual impacts. It should be noted that topography and existing vegetation would limit the majority of views of the Project to an area approximately 100m either side of the road corridor
- Temporary construction phase visual impacts would be Moderate/High for the majority of view locations assessed
- The greatest operational phase visual impacts (High and Moderate/High) are expected on sensitive residential receptors in close proximity to the road corridor where existing screening vegetation is likely to be removed. This includes properties near Youngs Road intersection (*view location 7*) and south of North Oatlands Road (*view location 11*)
- The Doctors Gully Road/Bridge Road Intersection (*view location 1*) has elevated visual sensitivity due to the presence of the Doreen General Store and heritage listed River Red Gums which form distinctive local landmarks. The large mature trees alongside Doreen Recreation Reserve also provide structure to the landscape. A Moderate impact rating assumes retention of the River Red Gums and Doreen General Store which would continue to provide a visual landmark
- Moderate operation phase visual impacts are expected at the northern end of Ironbark Road within Yarrambat township (*view location 10*) where there would be a noticeable increase in the scale of the intersection, including a new retaining wall
- Operation phase visual impacts on Yarrambat Park (*view location 5*) and Yarrambat Park Golf Course (*view location 7*) are expected to be relatively minor and limited to their eastern boundaries, adjacent to Yan Yean Road
- Project landscape treatments are expected to reduce visual impacts for all view locations as they mature over time. Residual impacts are expected on receptors in close proximity to the road where there would be a permanent reduction in tree canopy extent and an increase in the road corridor footprint such as Plenty Valley Christian College (*view location 3*), land uses near Youngs Road intersection (*view location 8*) and residential dwellings in close proximity to the road corridor between North Oatlands Road and south of Worns Lane (*view location 11*).

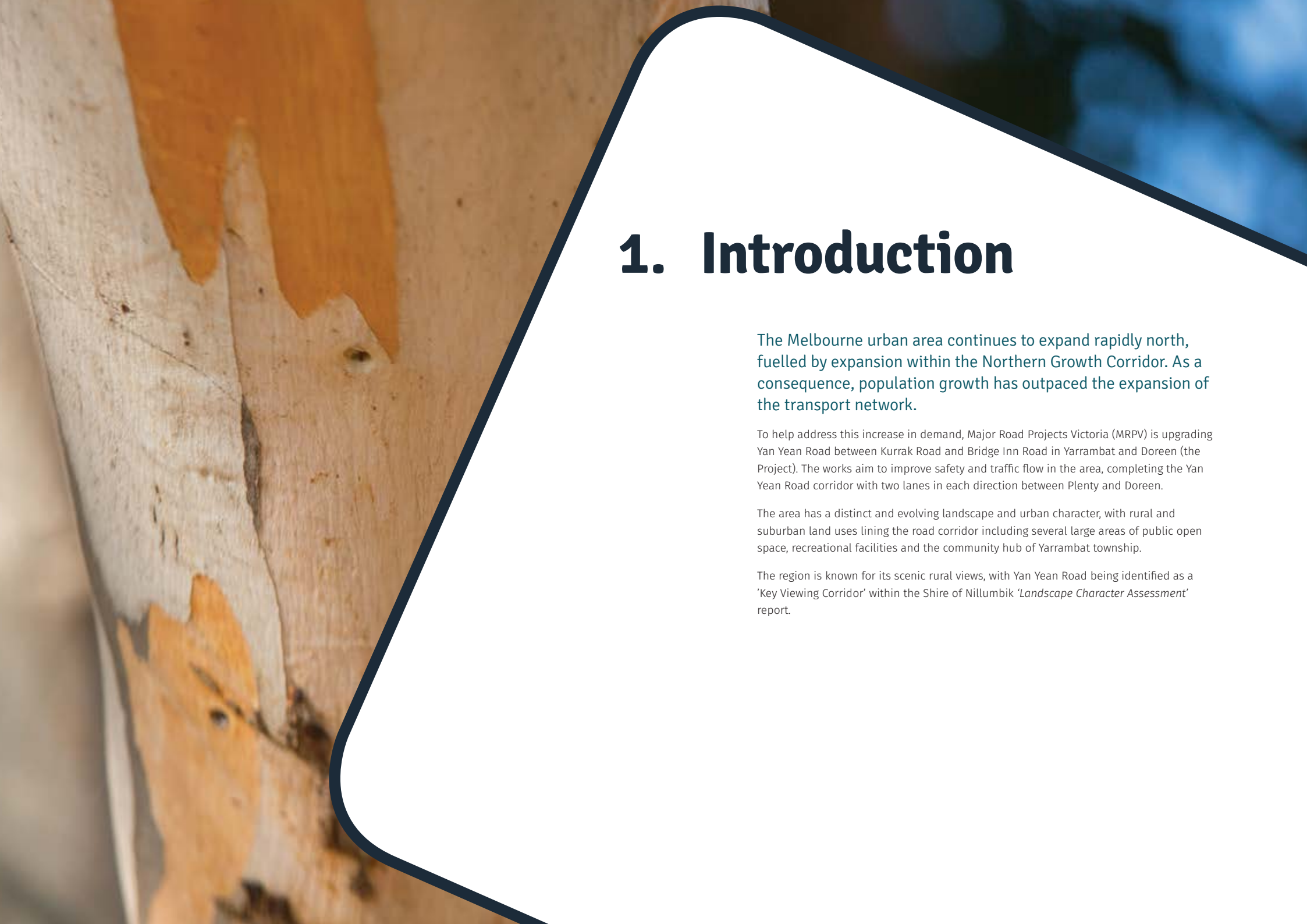
Landscape strategy design guidelines

The guidelines provide high level requirements as to how Project elements should be designed, constructed and maintained across the Project life cycle. The guidelines seek to ensure the Project works contribute to creating a high quality, safe experience for all users based on a contextually responsive and ecologically sound landscape approach.

The **vision** statement (refer Figure E2) describes the landscape ambition for the Yan Yean Road Stage 2 Upgrade.

The **key moves** (refer Figure E3) support the vision and serve as a framework for the design guidelines. They provide a hierarchy of actions that underpin the strategy's approach to first prevent and reduce impacts to the existing area's values, before rehabilitating the site and enhancing identified values.

FIGURE E3: KEY MOVES



1. Introduction

The Melbourne urban area continues to expand rapidly north, fuelled by expansion within the Northern Growth Corridor. As a consequence, population growth has outpaced the expansion of the transport network.

To help address this increase in demand, Major Road Projects Victoria (MRPV) is upgrading Yan Yean Road between Kurrak Road and Bridge Inn Road in Yarrambat and Doreen (the Project). The works aim to improve safety and traffic flow in the area, completing the Yan Yean Road corridor with two lanes in each direction between Plenty and Doreen.

The area has a distinct and evolving landscape and urban character, with rural and suburban land uses lining the road corridor including several large areas of public open space, recreational facilities and the community hub of Yarrambat township.

The region is known for its scenic rural views, with Yan Yean Road being identified as a 'Key Viewing Corridor' within the Shire of Nillumbik '*Landscape Character Assessment*' report.

1.1 Purpose of report

The upgraded Yan Yean Road corridor would play an important role in connecting the mosaic of contrasting land uses across the region. The upgraded Yan Yean Road must work as a 'Connector' for people and goods while respecting the inherent ecological, cultural, social and landscape values found along its length.

The Project's landscape design would be a key component in the successful outcome of the works, reducing Project impacts and enhancing the area's existing values for current and future generations.

A successful landscape outcome needs to be founded on a thorough understanding of the unique opportunities and challenges of the Yan Yean Road corridor and surrounding area. A robust but adaptable Landscape strategy would allow the landscape works to be influenced by, but also exert influence on, the region's ongoing environmental and land use changes.

The Project's Landscape strategy aims to ensure the Yan Yean Road Stage 2 corridor:

- Fits sensitively with the landform and the built, natural and community environments through which it passes
- Contributes to the safe accessibility and connectivity of communities and a general permeability of movement through and along the corridor
- Contributes to the overall quality of the public domain for the community
- Supports a high quality ecological outcome that is climate resilient while bolstering native flora and fauna
- Acknowledges the strategic directions, maintenance requirements and design strategies of relevant stakeholders including the Department of Transport (DoT), Shire of Nillumbik and City of Whittlesea
- Successfully integrates with the works completed as part of the Stage 1 upgrades.

To achieve these aims, this report:

- Identifies and maps landscape character and visual amenity sensitivity and potential impacts that are likely to occur as a result of the Project
- Identifies and maps the cultural value of vegetation within the project area
- Identifies key opportunities and constraints for enhancing connectivity, amenity, ecology, functionality and place-making for the Project corridor and surrounds
- Provides a strategic landscape design strategy for the Project that presents a high-level vision, key moves and design guidelines to direct the future landscape works
- Provides requirements for the future design of Project elements to ensure the Project exhibits outcomes of an appropriate quality in design, material and finish
- Describes the approach to monitoring and subsequent contingency measures to be implemented in the event of adverse residual effects to identified values.

FIGURE 1.1: BRIDGE INN ROAD/DOCTORS GULLY ROAD INTERSECTION

1.2 Scoping requirements

In October 2018, the Victorian Minister for Planning confirmed that an Environment Effects Statement (EES) was required for the Project.

The Department of Environment, Land, Water and Planning (DELWP) finalised the Yan Yean Road Stage 2 Upgrade EES Scoping Requirements in June 2019 (Figure 1.2). This Landscape strategy report supports the EES by addressing several of the Minister for Planning's Scoping Requirements in relation to Social and Cultural Values - refer Table 1.1.

> "avoid or minimise the adverse effects on social and cultural values, including landscape values, Aboriginal and historical cultural heritage values, and remnant, planted and regenerated vegetation, and to maximise the enhancement of these values where opportunities exist."

MINISTER FOR PLANNING SCOPING REQUIREMENTS - SOCIAL AND CULTURAL VALUES

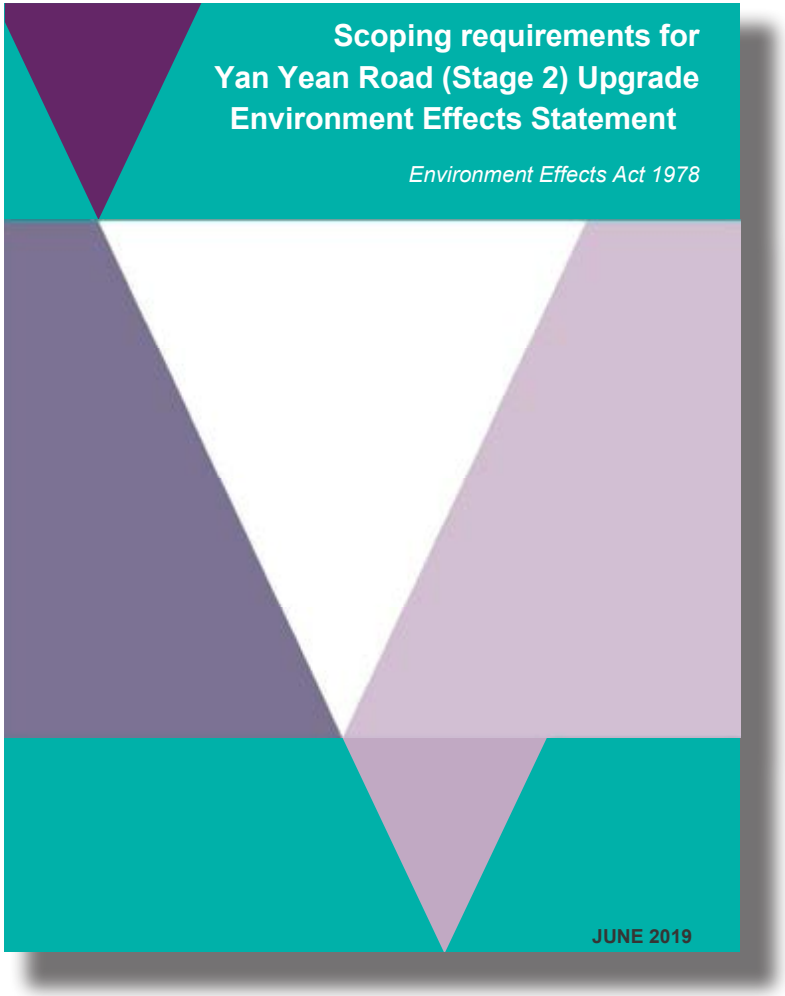


FIGURE 1.2: MINISTER FOR PLANNING SCOPING REQUIREMENTS

Minister for Planning Scoping Requirements - Social and cultural values	
Requirement	Where addressed in report
Existing environment + Identify the cultural and social value of trees within the project area and determine the existing amenity, cultural and ecological services value of the trees that may be affected by the Project + Identify key landscape features and visual amenity values, as provided by trees, including urban landscape character, canopy cover, form, appearance, aesthetics and function.	Chapter 4 - Corridor context Chapter 5 - Value Assessment 5.2 Cultural value of vegetation 5.4 Landscape character assessment 5.5 Visual impact assessment 5.6 Value assessment summary 6.4 Constraints 6.5 Opportunities
Likely effects + Assess likely extent and duration of residual adverse effects on, or improvements to, landscape aesthetics and functions + Assess likely effects on visual amenity values, as provided by arboriculture, including through use of photomontages, sections and analysis drawings or other suitable methods for depicting predicted landscape changes, particularly from key viewing points.	Chapter 5 - Value Assessment 5.2 Cultural value of vegetation 5.4 Landscape character assessment 5.5 Visual impact assessment (including photomontages) 5.6 Value assessment summary 8.2 Residual impacts
Design and mitigation + Develop potential and proposed design options and measures that can avoid or minimise significant direct and indirect effects on trees or other landscape elements + Develop strategies to address the loss of trees or other landscape elements + Describe design, management or offset measures to enhance or alternatively avoid or minimise adverse effects on landscape and visual amenity.	Chapter 6 - Landscape strategy Chapter 7 - Planting selection Chapter 8 - Future management
Performance objectives + Describe the arboriculture and landscape value outcomes that the Project must achieve + Describe and evaluate the approach to monitoring and subsequent contingency measures to be implemented in the event of adverse residual effects on arboriculture and landscape values requiring further management.	Chapter 1.4 - Implementation of the Landscape strategy Chapter 6 - Landscape strategy Chapter 8 - Future management

TABLE 1.1: MINISTER FOR PLANNING SCOPING REQUIREMENTS AND WHERE THEY ARE ADDRESSED IN THIS REPORT

1.3 Structure of report

Chapter 1 - Introduction

Provides an overview of the purpose behind the report and a description of the relevant Minister for Planning Scoping Requirements.

Chapter 2 - Project description

Describes the main features of the Project.

Chapter 3 - Planning and policy

Describes the state and local policy/legislation relevant to the Landscape strategy.

Chapter 4 - Corridor context

Describes and maps the physical and non-physical features of the wider project area.

Chapter 5 - Value assessment

Describes and assesses the inherent values of the area and likely Project impacts to those values.

Chapter 6 - Landscape strategy

Describes the constraints and opportunities along the road corridor before providing an overall vision, key moves and design guidelines for the Project.

Chapter 7 - Planting selection

Provides recommendations for planting types and species selection.

Chapter 8 - Future management

Describes the approach to monitoring and subsequent contingency measures to be implemented in the event of adverse residual effects on the identified values.

FIGURE 1.3: STRUCTURE OF THE STRATEGY

Figure 1.3 and Figure 1.4 indicate the structure of the overall Landscape strategy and the process that has been undertaken to develop the report.

Two key groups of inputs have been used to build a comprehensive picture of the wider project area. '**Corridor Context'** records definitive quantitative items such as heritage, vegetation and planning overlays, while the **'Value Assessment'** covers the more subjective qualitative aspects of the area, including visual amenity, community/ stakeholder interests, landscape character and the cultural value of vegetation along the corridor.

These two groups of inputs have informed mapping of **opportunities** and **constraints** along the Project corridor, before the development of a strategic landscape **vision**, **key moves** and finally the **design guidelines** for the landscape and urban elements of the Project.

It should be noted that the term 'Landscape' is used in a broad sense and includes both hard and soft elements such as planting, retaining walls, pathways, roundabouts, intersections and fencing.

The feedback loop on the right of the diagram indicates how relevant stakeholders have had the opportunity to review the draft strategy and provide further input and refinements.

1.4 Structure of strategy

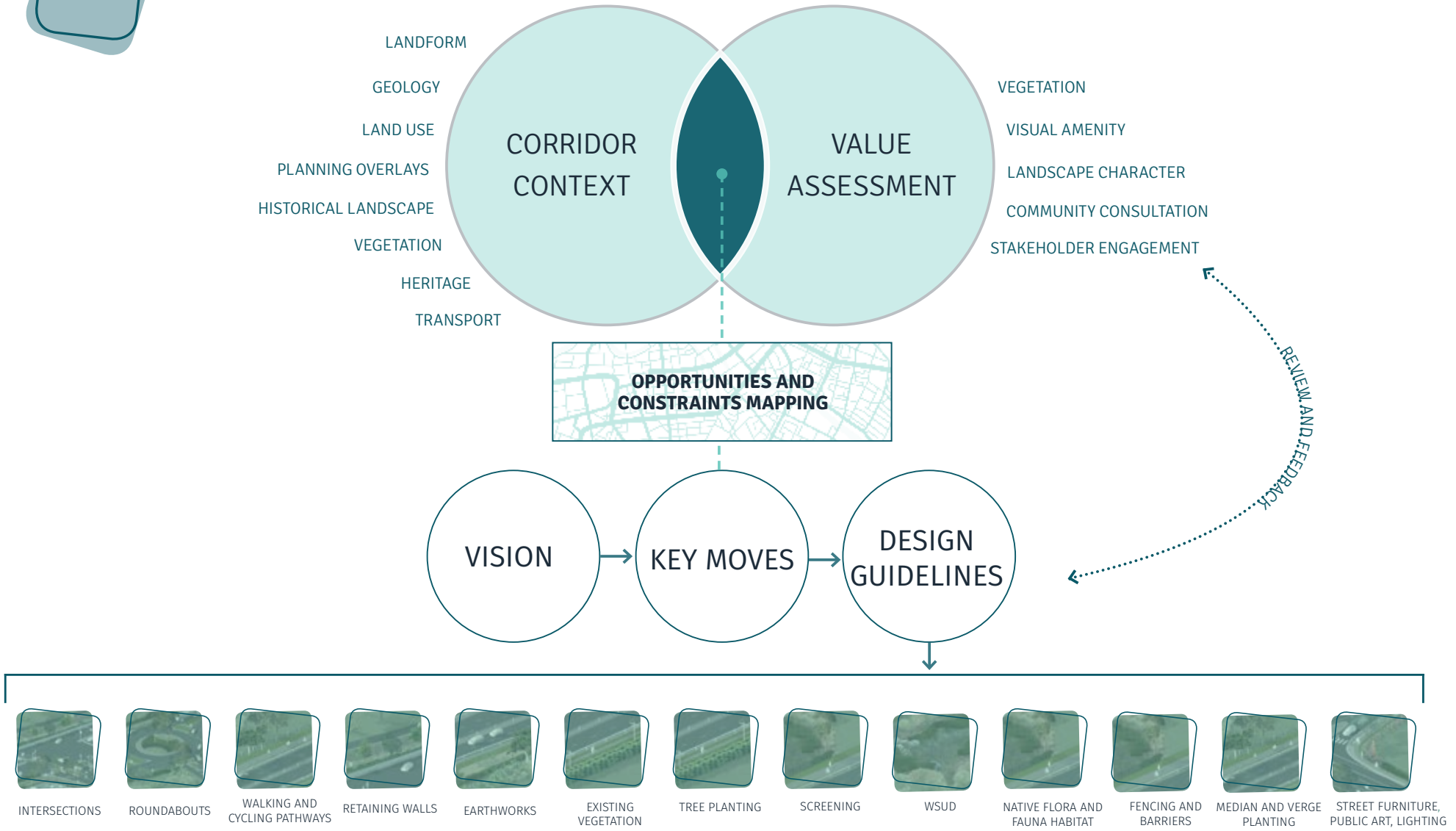


FIGURE 1.4: STRATEGY DEVELOPMENT PROCESS

1.5 Environmental Performance Requirements

Context

An environmental risk assessment has been carried out as part of the wider EES Scoping Requirements. This is a risk-based approach that enabled key risks and impact pathways with the potential to lead to significant impacts on the environment and/or on local communities to be identified and prioritised (refer Figure 1.5).

The risk assessment included construction, operation and maintenance phases of the Project. The EES has used a systematic risk-based approach to understand the existing environment and the potential impact of the Project on the environment. The assessment also evaluates the effectiveness of measures to avoid, minimise or manage risks and impacts.

Environmental Performance Requirements (EPRs) were subsequently developed to specify the fundamental requirements for environmental performance that would govern the further design, construction and operation of the Project.

The effectiveness of an EPR is determined by its anticipated ability to reduce the likelihood of the event occurring and / or reduce the potential consequence to the affected receptor(s). Where necessary, EPRs were identified iteratively or refined and their effectiveness reassessed to reduce the residual risk or impact. MRPV has prepared an Environmental Management Framework, which includes EPRs, to define project-wide environmental outcomes that must be achieved during the design and construction of the Project.

Relevance of the Landscape strategy

The risk assessment and EPRs have been influenced by the impact assessments found within the technical specialist reports, including Chapter 5 - *Value assessment* of the Landscape strategy.

Implementation of the Landscape strategy itself forms part of several key EPRs for mitigating Project impacts to landscape character, visual amenity and the cultural values of the wider project area. Refer to Chapter 8 - *Future management* for a full list of the relevant EPRs and EES Chapter 12 – *Environmental Management Framework* for more details.

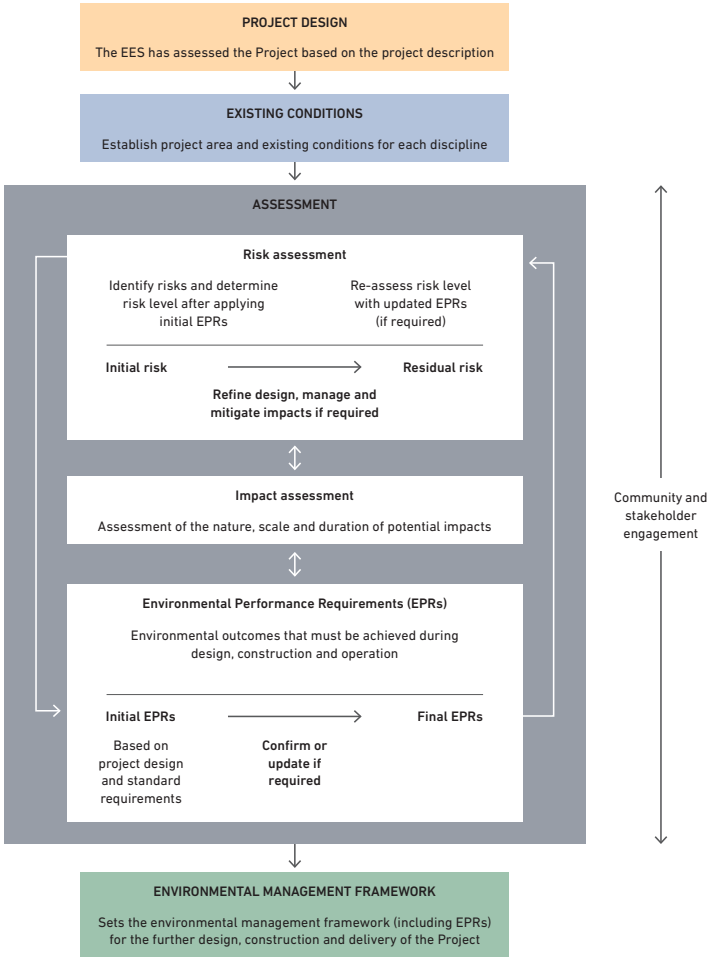


FIGURE 1.5: OVERVIEW OF THE RISK AND IMPACT ASSESSMENT PROCESS

1.6 Implementation

Successful implementation of the Landscape strategy is key to achieving the stated strategy aims and vision for a well vegetated corridor with a high quality, safe and contextual landscape outcome.

To help ensure the intent of the strategy is implemented through the ongoing Project planning, design, construction and operational phases, the mechanisms described in Figure 1.6 would likely be put in place.

Critical to a successful landscape outcome is embedding the strategy's value assessment and design guideline thinking within the future concept/reference design. This would set the appropriate direction for the works, informing the later stages of design and ultimately, the built works themselves.

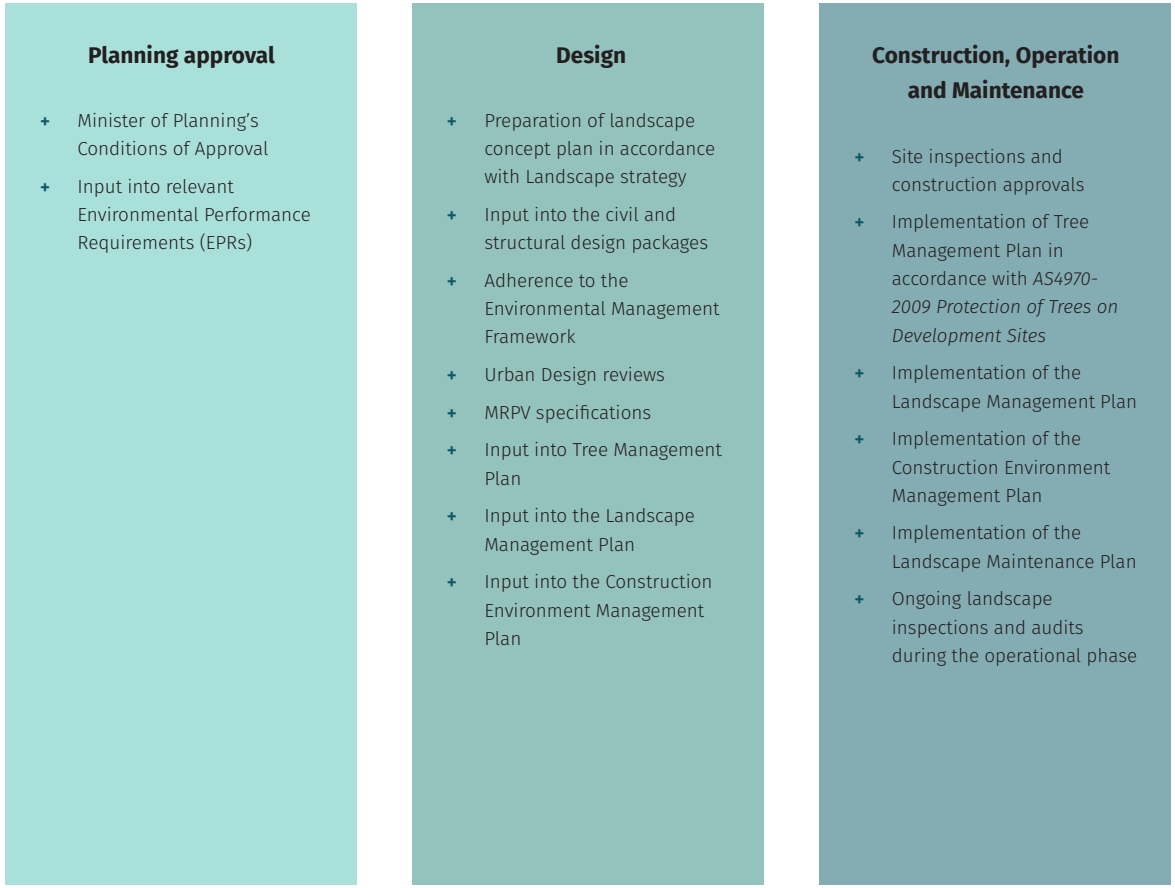


FIGURE 1.6: IMPLEMENTATION MECHANISMS

1.7 Glossary

Term	Description
CFA	Country Fire Authority
Cultural value/significance	'Aesthetic, historic, scientific, social or spiritual value for past, present or future generations.' (Australian ICOMOS, Burra Charter Article 1.2, 2013)
Deflection zone	The distance the safety barrier deflects on impact by a vehicle.
Department of Transport (DoT)	Department responsible for ongoing operation and coordination of Victoria's transport networks, as well as the delivery of new and upgraded transport infrastructure. DoT absorbed most functions of VicRoads and Public Transport Victoria on 1 July 2019.
Environmental Performance Requirement (EPR)	A performance-based requirement that sets out an outcome, objective or limit to be achieved. This outcome, objective or limit may be set by regulation, policy or guideline, or may otherwise be a project commitment to achieve a particular outcome.
Ecological Vegetation Classes (EVC)	The standard unit for classifying native vegetation types in Victoria. EVCs are described by a combination of floristics, lifeforms and ecological characteristics. EVCs include a benchmark for the characteristics of the vegetation type in its mature, natural (pre-1750) state.
Frangible planting	Planting which breaks under the impact of a motor vehicle (and hence helps to stop a vehicle). Generally trees and shrubs with a mature trunk diameter of less than 100 millimetres at around 500 millimetres above ground level are considered frangible.
Landscape Character Zone (LCZ)	Areas having a distinct, recognisable and consistent pattern of elements making one-character zone different from another. This includes broad areas of common physical, environmental, ecological and cultural characteristics.
project area	Area contained within the Project boundary. This is the maximum extents of the Project works. It should be noted that the project area indicated would be larger than the eventual disturbance boundary to allow some flexibility in the final design.
Plant provenance - indigenous, native, exotic	The location from which a seed or plant is from. Indigenous = local area. Native = Australia. Exotic = Outside Australia.
Scarred trees	Tree associated with Aboriginal cultural use. It is known that the wood and bark of trees have been used for a variety of purposes, such as carrying implements, shield or canoes. The removal of this raw material from a tree produces a 'scar'. The identification of a scar associated with Aboriginal custom as opposed to natural scarring can be difficult. The scar should be of a certain size and shape to be identifiable with its product; the tree should also be mature in age, from a time that Aboriginal people were still active in the area.
Seeding	The application of seeds and other materials by manual, mechanical, pneumatic or hydraulic methods to revegetate exposed ground.
Useful Life Expectancy (ULE)	Useful life expectancy of a tree is not an estimate of tree longevity but the estimated duration with which it will be useful in the landscape at an acceptable level of risk and management input.
Visual receptor	The viewer of a particular scene
Wider project area	Study area beyond the Project boundary covered by this report, as shown within the relevant figures and mapping.

TABLE 1.2: GLOSSARY OF COMMON TERMS USED WITHIN THIS REPORT

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2. Project description

The Yan Yean Road Stage 2 Upgrade is located approximately 25 km north-east from Melbourne's Central Business District (CBD) and runs from Kurrak Road to Bridge Inn Road within the Whittlesea and Nillumbik council areas.

The Project would duplicate a 5.5 kilometre section of Yan Yean Road between Kurrak Road and Bridge Inn Road increasing the existing two lanes to four lanes (comprising two lanes in each direction).

The design speed along Yan Yean Road within the extent of the project area is 70 kilometres per hour, with the exception of north of Bridge Inn Road which is 80 kilometres per hour. The design for the Project assessed in this Environment Effects Statement (EES) has 3.5 metre wide lanes with the majority of the Project using a central 2.2 metre wide median.

This cross section was adopted in design due to various constraints ranging from road safety issues, steep and rolling terrain, high cut and fill batters and subsequent retaining walls at certain locations, as well as seeking to limit impacts to existing properties, local accesses and trees along Yan Yean Road. The existing road alignment has been retained due to constraints around the existing topography and land uses adjacent to the road corridor. The project area and key Project components are shown in Figure 2.1.

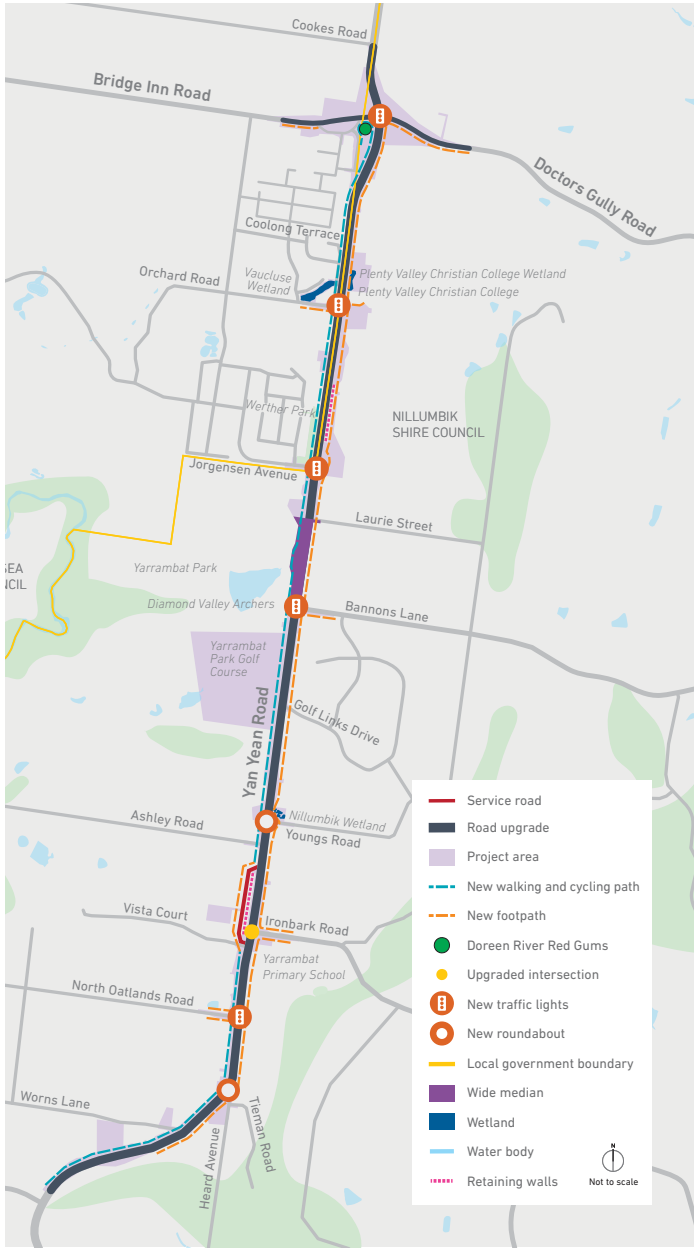


FIGURE 2.1: PLAN OF PROJECT CORRIDOR

The Project includes:

- Two new roundabouts at Heard Avenue, and Youngs Road
- Five new signalised intersections at Bannons Lane, Jorgensen Avenue, North Oatlands Road, Orchard Road and Bridge Inn Road
- Upgrades to one existing signalised intersection at Ironbark Road, including an additional right-hand turning lane, slip lane, and traffic island
- New street lighting at all intersections, road signage and landscape treatments
- A new walking and cycling path on the western side and a footpath on the eastern side of Yan Yean Road, linking Diamond Creek to Doreen and improving safety and connectivity for pedestrians and cyclists
- Continuous safety barriers running along the Project's length, proposed in the median and behind outer kerbs along the mid-block sections of the carriageways
- A wide median between Bannons Lane and Jorgensen Avenue to provide for additional landscape opportunities and potential avoidance of existing biodiversity values and large trees.

2.1 Project details

2.1.1 Typical cross section

Figure 2.2 indicates the typical cross-section of the road design for this Project. This shows the preferred mid-block cross section design, allowing for duplication with a 2.2 metre median with safety barriers. The installation of safety barriers provides opportunities for tree planting in closer proximity to the road carriageway than would be otherwise permissible, in accordance with the Project's Landscape strategy.

The total road reservation width of the majority of the proposed design is 24.2 metres. The current typical width of Yan Yean Road is 8 metres. At some locations along the alignment, such as intersections or roundabouts, this cross section would be slightly different and wider (Figure 2.3).

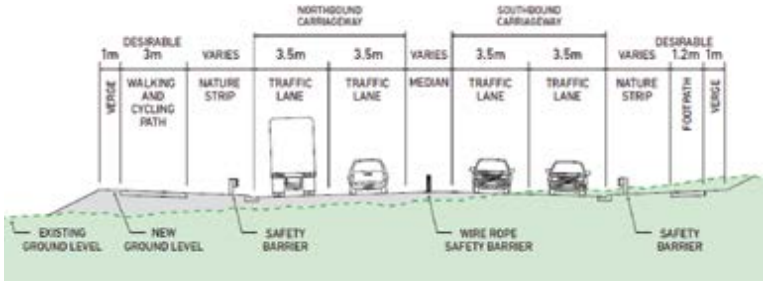


FIGURE 2.2: PREFERRED CROSS SECTION

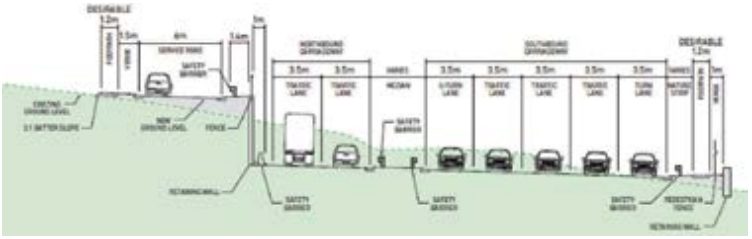


FIGURE 2.3: IRONBARK ROAD INTERSECTION DEPARTURE (NORTHBOUND)

2.1.2 Wide median

A divided carriageway (boulevard design) increases the median width of Yan Yean Road from 2.2 metres to approximately 14 metres by aligning the northbound carriageway between Bannons Lane and Jorgensen Avenue. The maximum width at this point would be approximately 33 metres, although the cross section would taper at either end to tie back into the standard cross section as described above.

A wider median at this location would provide for additional landscape opportunities and potential avoidance of existing biodiversity values and large trees in accordance with the Project's Landscape strategy. The southbound carriageway is aligned to follow the existing carriageway edge to retain the existing separation distance between driveways, residences and Yan Yean Road.

2.1.3 Safety barrier design

Continuous safety barriers are proposed in the median and behind most outer kerbs (where there are not intersections). Safety barriers would be installed at various setbacks from the kerb ranging from 0.6 to 1 metre, depending on factors such as speed limit, topography and barrier type. Safety barriers require a cleared area behind them to maintain the integrity of their effectiveness. Proposed safety barriers include guardrail, wire rope and concrete barriers if deemed required.

2.1.4 Fencing design

The Project is required to ensure adequate safety measures are in place so that golf balls from Yarrambat Park Golf Course do not land on the walking and cycling path or road. This EES assumes that a 30-36 metre high, 360 metre long fence on the edge of the golf course is included in the design to avoid golf ball collisions with pedestrians, cyclists or vehicles. The proposed fence would incorporate elements to increase its visibility to Swift Parrot and other bird species. The alternative option to building a fence is to reconfigure golf course holes 1, 10 and 18 to increase the distance from the road and reduce the risk of golf balls landing on the new road and walking and cycling path to an acceptable level. This would not require a reduction in the number of holes at the gold course.

A 1.8 metre timber paling fence has been designed to mitigate associated the risk of arrows from the Diamond Valley Archers facility affecting the road or walking and cycling path.

2.1.5 Retaining walls design

Retaining walls are proposed at selected locations along Yan Yean Road in an effort to minimise the extent of land acquisition on adjacent properties, provide access to properties abutting Yan Yean Road, maximise the retention of existing trees and reduce the extent of cut earthworks. Materials are to be added to retaining walls in accordance with guidelines in the Project's Landscape strategy.

Retaining walls are likely to be installed at the following locations (Figure 2.4):

- Between Service Road A and Yan Yean Road: a 270 metre long wall with an approximate maximum height of 3.6 metres. This retaining wall has been proposed to retain access to existing properties abutting Yan Yean Road and minimise impacts to existing trees
- At the north east corner of Ironbark Road: a 230 metre long wall with an approximate maximum height of 2.4 metres. This retaining wall has been proposed to minimise the extent of land acquisition to the adjacent property
- North of North Oatlands Road along the western verge of Yan Yean Road: a 50 metre long wall with a maximum height of 1.1 metres. This retaining wall has been proposed to minimise the extent of land acquisition of the adjacent property and minimise the impact to the existing driveway arrangement
- North of Jorgensen Avenue along the eastern verge of Yan Yean Road: a 220 metre long wall with an approximate maximum height of 8 metres. This retaining wall has been proposed to avoid impacting the existing telecommunication tower on the abutting property, maintain access to the adjacent property and telecommunication tower, maximise the retention of existing trees and reduce the extent of cut works.

FIGURE 2.4: LOCATION OF RETAINING WALLS

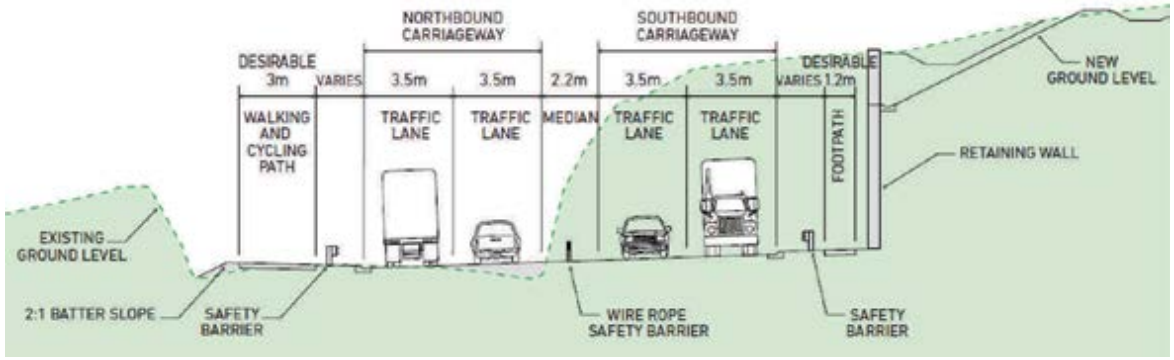


FIGURE 2.5: RETAINING WALL CROSS-SECTION – NORTH OF JORGENSEN AVENUE INTERSECTION (NORTHBOUND)

2.1.6 Bridge Inn Road intersection

The Project design at Bridge Inn Road would retain the two Doreen River Red Gums situated adjacent to the Bridge Inn Road and Yan Yean Road T-intersection and the General Store/former post office on the corner of Doctors Gully Road (Figure 2.8).

It proposes shifting the whole intersection to the north east corner of Yan Yean Road/ Bridge Inn Road with two lanes in each direction. The design at Bridge Inn Road has been refined following community consultation and in response to additional arboriculture advice on the Doreen River Red Gums, which are situated south-west of the proposed intersection.

FIGURE 2.8: BRIDGE INN ROAD INTERSECTION DESIGN

2.1.7 Access design

All existing accesses would be changed to left in/left out arrangements, given the installation of a centre median and safety barriers. U-turn lanes would be provided at the following locations to allow for the safe turning of vehicles wishing to travel in the opposite direction:

- Bridge Inn Road signalised intersection (cars only)
- Orchard Road signalised intersection (cars only)
- Jorgensen Avenue signalised intersection (cars only)
- Bannons Lane signalised intersection (cars only)
- Youngs Road roundabout (cars, cars with trailers / horse floats, semi-trailers and trucks)
- Ironbark Road signalised intersection (cars only)
- North Oatlands Road signalised intersection (cars only)
- Heard Avenue roundabout (cars, cars with trailers / horse floats, semi-trailers and trucks).

All existing Council approved property access and driveways are proposed to be maintained with minor tie-in works, except for properties on the western side of Yan Yean Road from Vista Court to Ashley Road. At this location, a service road would be provided for local access due to the steep grade and level differences between properties and Yan Yean Road.

Yarrambat Primary School and Plenty Valley Christian College are proposed to have revised access conditions due to intersection upgrades impacting existing access and car park arrangements.

2.1.8 Plenty Valley Christian College and Yarrambat Primary School

Access to Plenty Valley Christian College and Yarrambat Primary School directly adjacent to the project area would be maintained during construction and in operation. Some temporary arrangements may be required during construction to manage road works adjacent to the schools.

The Project would reconfigure and reinstate an existing car park at Plenty Valley Christian College. This includes a new access road to tie into the existing road. The dam at Plenty Valley Christian College would also require reconfiguration. This would be completed in collaboration with the school.

FIGURE 2.7: BUS SIGNAGE - YAN YEAN ROAD STAGE 1 UPGRADE

FIGURE 2.6: TYPICAL EXISTING ELECTRICITY TRANSMISSION LINE ALONG YAN YEAN ROAD CORRIDOR

Land currently used by Yarrambat Primary School for informal car parking would require reconfiguration. To facilitate these changes, partial land acquisition would be required along the frontage of both schools. This would be limited in extent and would not result in a long-term change to the existing land use, however, would result in a permanent reduction in the land area on both school sites.

2.1.9 Bus facilities

Existing bus stops are proposed to be reinstated at the same location or within close proximity, in consultation with the Department of Transport and Public Transport Victoria. The project area allows for indentations around bus stops along the alignment if required.

2.1.10 Walking and cycling path and footpath

The design provides a walking and cycling path on the western side of Yan Yean Road (for pedestrians and cyclists) in the following locations:

- Adjacent to northbound carriageway of Yan Yean Road from Kurrak Road to Bridge Inn Road and to connect to the existing walking and cycling path at both ends
- Adjacent to eastbound carriageway of Bridge Inn Road, to be connected to existing walking and cycling paths.

Between Bannons Lane and Jorgensen Avenue, the walking and cycling path is realigned through Yarrambat Park and Shire of Nillumbik land to avoid the removal of more trees on the western side of Yan Yean Road. The walking and cycling path north of Jorgensen Avenue follows the existing footpath for the same purpose. The walking and cycling path would generally be 3 metres wide and would reduce slightly in width at various locations to accommodate the retention of trees.

In addition, a 1.2 metre wide footpath has been proposed on the eastern side of Yan Yean Road in the following locations:

- Adjacent to the southbound carriageway of Yan Yean Road from Bridge Inn Road to Kurrak Road to connect into existing footpath
- Adjacent to the northbound carriageway of Yan Yean Road, along Service Road A from Vista Court to Ashley Road to connect to the proposed walking and cycling path extents
- Along Doctors Gully Road to Yan Yean Road to connect into the existing footpath.

2.1.11 Utilities

New utility service upgrades, relocations and protection works may be required along the length of the Project. Where utility services cannot be avoided, protection/relocation/diversion works would occur adjacent to the proposed road pavement.

Relocation of power lines along the alignment is anticipated to involve a combination of above ground and underground power. Works associated with existing water mains, sewer, gas and telecommunications assets may also require relocation and/or diversion adjacent to the road pavement.

As such, a minimum allowance of 5 metres from the outermost construction extent (toe/top of batter, retaining wall, etc.) has been made to allow for potential utility upgrades and service relocations within the project area.

2.1.12 Drainage design

New drainage works, upgrades and relocations would occur along the length of the Project. Drainage along the alignment has been developed based on a transverse crossings and outfall model, however the Project is also required to comply with water sensitive urban design requirements from Melbourne Water.

This is likely to comprise grassed swale drains, detention basins and water treatment basins. The project area allows for a minimum 10 metres offset from the top of each drainage swale to allow for construction. In areas where drainage swales are not required, a minimum allowance of 5 metres from the outermost construction extent (toe / top of batter, retaining wall, etc.) has been provided in the project area to allow adequate construction space.

The Project would coordinate closely with local schools to ensure the functionality of existing car parks and outdoor playing fields is maintained if impacted by drainage works.

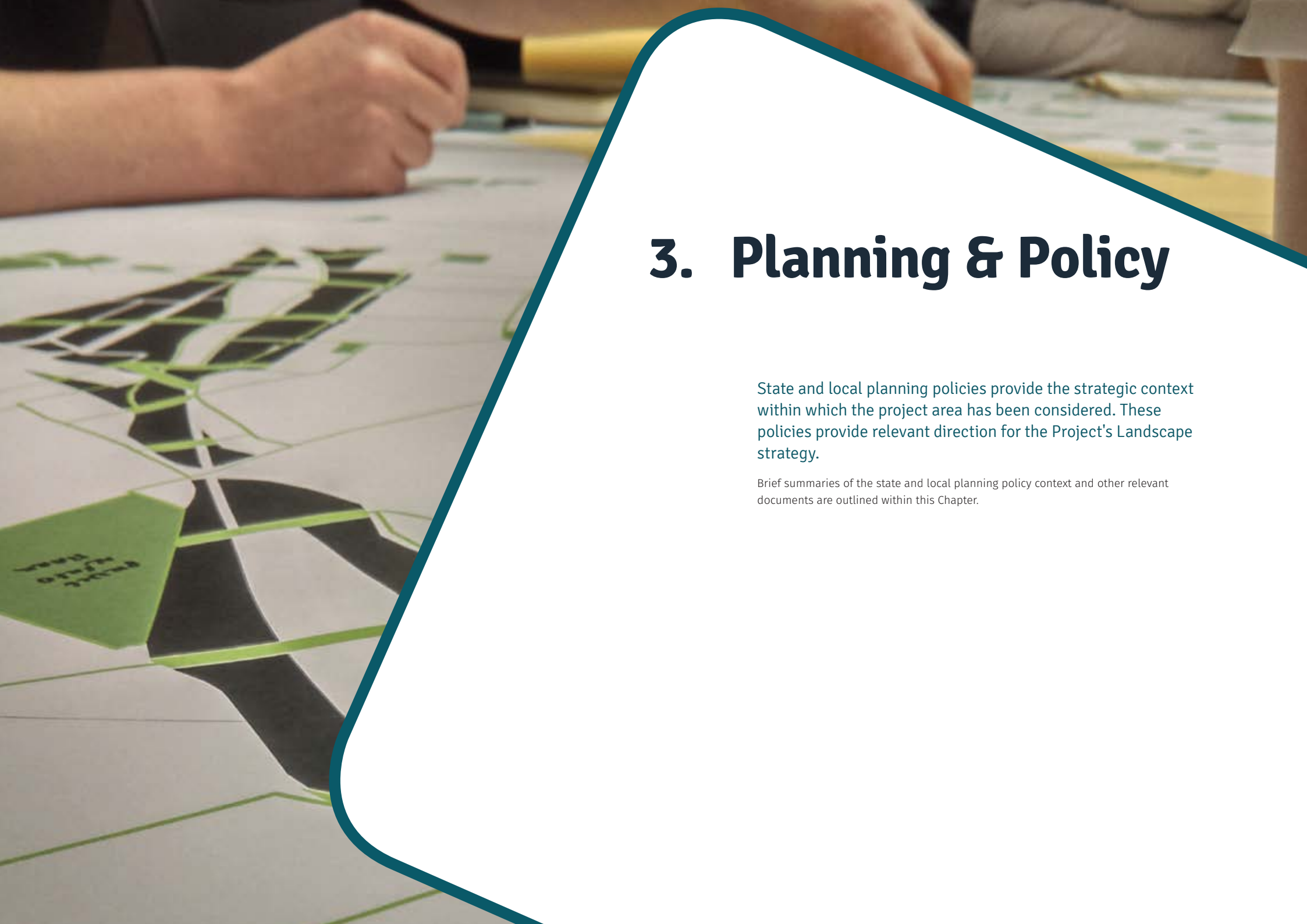
Detention basin sites have also been allowed for within the project area for surface water management in proximity to Worns Lane, Heard Avenue, Youngs Road, Orchard Road (Melbourne Water wetland) and Bridge Inn Road.

2.1.13 Construction activities

Proposed construction activities would be standard road construction activities to be undertaken in accordance with the EPRs for the Project. Site establishment would involve tree clearance and vegetation lopping and removal within the project area, establishment of construction site compounds, clearing and grubbing, temporary sediment and erosion control works, and establishment of environmental and traffic controls.

Earthworks would involve remediation of any existing contamination and removal of any hazardous material, as appropriate, protecting and relocating services, widening of existing rock cuttings (approximately 750 metres of existing cut along the Project would be widened by approximately 20 metres), new cuttings (approximately 1,300 metres of new rock cut would be required to a width of approximately 5 metres along the Project), and bulk earthworks and haulage. Some of the cutting locations would require retaining walls. Refer to Figure 5.7 for location of proposed retaining walls in the Project and Figure 5.8 for a representative retaining wall cross section.

Civil and structure works would involve construction of infrastructure, including intersection upgrades, walking and cycling path and pedestrian paths, retaining walls, drainage works, and pavement works. Reinstatement would involve implementation of traffic management systems and landscaping in accordance with the Landscape strategy for the Project.



3. Planning & Policy

State and local planning policies provide the strategic context within which the project area has been considered. These policies provide relevant direction for the Project's Landscape strategy.

Brief summaries of the state and local planning policy context and other relevant documents are outlined within this Chapter.

3.1 State

3.1.1 Environment Effects (EE) Act 1978

The EE Act provides for assessment of the Project works that may have a significant effect on the environment. Assessment under the EE Act will inform the approval decisions, but will not result in an approval in its own right.

3.1.2 Planning and Environment Act 1987

The Planning and Environment Act 1987 seeks to establish a planning framework to:

"ensure that the effects on the environment are considered and provide for explicit consideration of social and economic effects when decisions are made about the use and development of land."

3.1.3 Transport and Integration Act 2010

The Victorian Transport Integration Act 2010 lays out a framework for an integrated and sustainable transport system that *"contributes to an inclusive and environmentally prosperous state."*

Of relevance to the Project Landscape strategy, the Act specifies transport system objectives which include a social and economic inclusion objective stating that a transport system *"should provide a means by which persons can access social and economic opportunities to support individual and community wellbeing".*

3.1.4 Planning Policy Framework (PPF)

The PPF is included in the municipal planning scheme for all Victorian councils. It outlines aspects of state planning policy that councils, as local planning authorities, must consider in their respective areas.

Clauses of relevance to the Project's Landscape strategy include:

Clause 11 - Planning is to facilitate sustainable development that takes full advantage of existing settlement patterns and investment in transport, utility, social, community and commercial infrastructure and services.

Clause 12 - Planning should help to protect the health of ecological systems and the biodiversity they support (including ecosystems, habitats, species and genetic diversity) and conserve areas with identified environmental and landscape values.

Clause 13 - Planning should strengthen the resilience and safety of communities by adopting a best practice environmental management and risk management approach.

Clause 15 - Planning must support the establishment and maintenance of communities by delivering functional, accessible, safe and diverse physical and social environments, through the appropriate location of use and development and through high quality buildings and urban design.

3.1.5 Movement and Place, 2018

The Department of Transport's (DoT) *Movement and Place 2018* supersedes the VicRoads *SmartRoads Guidelines 2015* and outlines a new approach to network planning by recognising that transport links perform two functions: movement of people and goods, and serving as a place. This approach encourages movement and placemaking to be considered simultaneously when developing the network and helps manage competing land use and transport interests.

Yan Yean Road is a 12 km section of roadway, classified as an M3 road for *"Moderate movement of people and/or goods within a municipality"* and P5 for *"Place of local significance"* in accordance with the DoT's Movement and Place in Victoria Framework 2019. This classifies the road as a 'Connector'.

Movement and Place specifies that a successful 'Connector' should:

"*provide safe, reliable and efficient movement of people and goods between regions and strategic centres and mitigate the impact on adjacent communities.*"

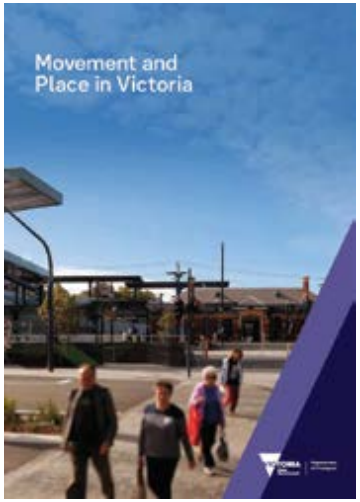


FIGURE 3.1: MOVEMENT AND PLACE 2018, DEPARTMENT OF TRANSPORT

3.1.6 Plan Melbourne 2017-2050

Plan Melbourne 2017-2050 is the metropolitan planning strategy to manage Melbourne's growth and change over the next three decades. Integrating long-term land use, infrastructure and transport planning, Plan Melbourne 2017-2050 sets out the strategy for supporting jobs and growth, while building on Melbourne's legacy of distinctiveness, liveability and sustainability.

The strategy contributes to the overall vision for the state, and includes links with regional Victoria. The plan will be given statutory effect through amendments to the State Planning Policy Framework within the Victoria Planning Provisions.

The following outcomes identified in Plan Melbourne 2017–2050 are the most relevant to the Landscape strategy:

Outcome 3: *Melbourne has an integrated transport system that connects people to jobs and services and goods to market.*

Policy 3.2.1 - Improve roads in growth areas and outer suburbs

Outcome 4: *Melbourne is a distinctive and livable city with quality design and amenity*

Policy 4.1.2 - Integrate place-making practices into road-space management

Policy 4.3.1 - Promote urban design excellence in every aspect of the built environment

Policy 4.4.1 - Recognise the value of heritage when managing growth and change

Policy 4.4.2 - Respect and protect Melbourne's Aboriginal cultural heritage

Policy 4.4.4 - Protect Melbourne's heritage through telling its stories

Policy 4.5.1 - Strengthen protection and management of green wedge land

Policy 4.5.2 - Protect and enhance valued attributes of distinctive areas and landscapes

Policy 4.6.1 - Create diverse opportunities for communities to participate in planning.

Outcome 5: *Melbourne is a city of inclusive, vibrant and healthy neighbourhoods*

Policy 5.2.1 - Improve neighbourhoods to enable walking and cycling as a part of daily life

Policy 5.4.1 - Develop a network of accessible, high-quality, local open spaces.

Outcome 6: *Melbourne is a sustainable and resilient city*

Policy 6.2.1 - Mitigate exposure to natural hazards and adapt to the impacts of climate change

Policy 6.2.2 - Require climate change risks to be considered in infrastructure planning

Policy 6.3.1 - Reduce pressure on water supplies by making the best use of all water sources

Policy 6.3.2 - Improve alignment between urban water management and planning by adopting an integrated water management approach

Policy 6.4.1 - Support a cooler Melbourne by greening urban areas, buildings, transport corridors and open spaces to create an urban forest

Policy 6.5.1 - Create a network of green spaces that support biodiversity conservation and opportunities to connect with nature.

3.1.7 North Growth Corridor Plan

Growth Corridor Plans were developed in 2012 by the then Growth Areas Authority (now Victorian Planning Authority) to provide an integrated approach to planning land use, transport and services in Melbourne's outer growth areas.

The northern section of Yan Yean Road forms the eastern boundary of the northern growth corridor. A key objective of the North Growth Corridor Plan is: *"extending the northern region's public transport and arterial road networks into the Growth Corridor so that future residents and workers will enjoy a similar level of accessibility to those living and working in established parts of the north".*

Designated town centres have been created to focus economic and employment opportunities across the region. Yan Yean Road and associated arterials serve to connect the growth area of Doreen with the Mernda and South Morang activity centres.

FIGURE 3.2: PLAN MELBOURNE 2017-2050, VICTORIA STATE GOVERNMENT

Relevant directions from the plan include:

- Preserving and enhancing the natural features of the Growth Corridor, including the significant landscape and biodiversity values
- Retention of key views to the hills that flank the Growth Corridor to the west, north and east
- Link areas of open space (Figure 3.3)
- Retention of distant views from the Growth Corridor to the Great Dividing Range to the north and north east.

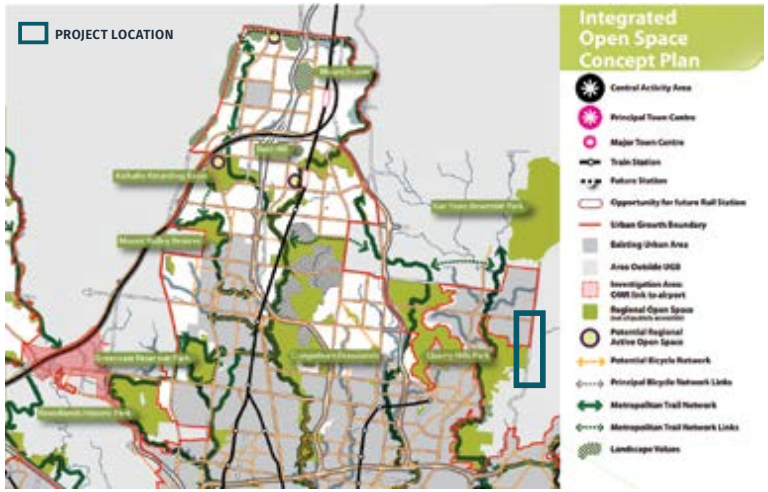


FIGURE 3.3: OPEN SPACE WITHIN THE URBAN GROWTH BOUNDARY - GROWTH AREAS AUTHORITY

3.1.8 Heritage

Victorian Aboriginal Heritage Register (VAHR)

The Department of Premier and Cabinet is required to maintain a register of Aboriginal places and objects under the Aboriginal Heritage Act 2006. Technical Report F – *Aboriginal and Historical Cultural Heritage Impact Assessment* resulted in the identification of six Aboriginal archaeological places within or in close proximity (50m) to the project area. Refer *Section 4.3 - Heritage* of the Landscape strategy for mapping.

Victorian Heritage Register (VHR)

VHR established by the Victorian Heritage Act 2017, provides the highest level of statutory protection for historical sites in Victoria. Only the State's most significant historical sites are listed on the VHR. In accordance with Technical Report F – *Aboriginal and Historical Cultural Heritage Impact Assessmen*t, no registered historical heritage places were identified within the project area.

Victorian Heritage Inventory (VHI)

VHI, established by the Victorian Heritage Act 2017, provides the statutory protection for all historical archaeological sites older than 75 years, areas or relics, and private collections of relics, in Victoria. Sites listed on the VHI are not of State significance but are usually of regional or local significance. In accordance with Technical Report F – *Aboriginal and Historical Cultural Heritage Impact Assessmen*t, a search of the VHI was conducted which did not identify any registered historical heritage places in the project area.

National Trust Register (NTR)

The National Trust of Australia (Victoria) is an independent, not-for-profit organisation that classifies a number of heritage places. Listing on the NTR does not impose any statutory protection; however, often National Trust listings are supported by the local council Planning Scheme or the VHR. Within the project area, a large River Red Gum at 25 Doctors Gully Road is included on the register:

- File Number T12370 - *significant for aesthetic and social reasons at Regional level. Tree is significant to the local community in providing an important landmark at the intersection of Doctors Gully and Yan Yean Road.*

3.2 Local

The project area falls across two municipalities: City of Whittlesea and Shire of Nillumbik. The following summarises the Whittlesea and Nillumbik Planning Scheme, land use policies and local strategies that are of relevance to the Landscape strategy.

3.2.1 Shire of Nillumbik

Planning Scheme

Clause 21.03 of Nillumbik's Municipal Strategic Statement (MSS) identifies that *"the high level of car usage and projected population increase may encourage the upgrade of arterial roads in the municipality. The construction of new roads or road upgrades should be considerate of potential impacts on the rural amenity and should be consistent with local environmental values"*. The clause highlights Nillumbik's rural areas as highly valued by residents and visitors for its strategic environmental and landscape qualities.

Clause 21.05-5 relates to the effective provision and management of infrastructure throughout the shire, specifically Objective two that seeks *"to provide safe and efficient roads and road links within the municipality and to the wider region"*. Yan Yean Road has been identified as a key transport link that requires special planning considerations to minimise the impacts that capacity constraints and upgrades have on local amenity.

The MSS in general identifies the importance of regional recreation resources which are serviced by Yan Yean Road including Plenty Gorge Parklands and Yarrambat Park, as well as the protection of the Shire's significant landscape and ecological value.

Clause 21.05-3 of the MSS relates to Environment, Conservation & Landscape. Objective one seeks to *"protect and enhance sites of environmental significance"* which includes:

- Encourage the protection and enhancement of sites of environmental significance with planting of indigenous vegetation rather than exotics
- Protect and enhance roadside vegetation through the implementation of the Nillumbik Shire Council Roadside Management Plan (2012).

Objective three seeks *"To protect places of natural and cultural heritage"*, including:

- Protect heritage sites, buildings and trees identified in heritage studies
- Encourage new use and development to contribute to the protection and enhancement of natural and cultural heritage.

Objective six seeks *"To promote resource conservation"*, including:

- Encourage retention and planting of indigenous vegetation through planning provision and environmental initiatives, recognising the role that vegetation plays in reducing greenhouse gas emissions.

Objective seven seeks *"To protect and enhance conservation areas and identify opportunities to create and link areas of open space in accordance with the Open Space Strategy"*.

Clause 22.04 of the Planning Scheme sets out the Siting and Design Policy for Buildings and Works in Non-Urban Areas. Under this policy, where a permit is required, it is policy that:

- Undergrounding of services, such as power, will be encouraged to minimise visual impact in rural areas
- Buildings, earthworks (including internal roads and dams) and utility services should be located to ensure minimal impact on native vegetation
- Earthworks should not increase the potential for erosion.

Schedule 5 to the development plan overlay (DPO) concerns planning controls to the Plenty Gorge Fringe residential area (DPO5), located to the west of Yan Yean Road between Yarrambat Park and Bridge Inn Road. Relevant items include:

- The need to preserve existing locally indigenous vegetation and habitat links, and the desire to require additional planting of locally indigenous vegetation, especially where vegetation is to be removed to facilitate subdivision or development.
- The need to minimise the impact of the development upon the local landscape.

Environmental Significance Overlay (ESO)

The ESO applies to sites or areas that have demonstrated environmental values. The overlay is concerned with ensuring that the development of land does not affect identified environmental values and qualities of particular areas within the Shire.

The Nillumbik Planning Scheme has four separate schedules to the ESO. Of relevance to the project area is:

- ESO1 - Sites of Faunal and Habitat Significance. This overlay is designed to protect and enhance significant faunal and habitat sites and to allow fauna to move between different living areas. *"Identification, protection and enhancement of these environmentally significant sites, and the strengthening of connecting habitat links, will assist in the protection of biodiversity within the Shire and surrounding areas."*

ESO1 applies to three broad locations with partially overlap with the project area (refer Section 4.1 - *Land use and Planning* of the Landscape strategy for mapping). Under this Schedule a permit is required to remove any vegetation unless the vegetation is identified as a pest plant in the Shire of Nillumbik Environmental Weed List 2009.

Open Space and Recreation Strategy, 2005

Shire of Nillumbik adopted the Open Space Strategy in November 2005 to guide the long-term planning and management of the municipal open space system. The strategy is particularly important within Nillumbik given its designation as a green wedge shire and the high proportion of open space land that is under the ownership of Council, government agencies or is Crown Land managed by Parks Victoria. The Strategy identifies opportunities for future open space and developing linkages between existing areas and trail systems.

The strategy includes the following vision statements:

- Nillumbik will provide a diversity of open space with a range of high quality regional, district and neighbourhood parks linked by a network of trails
- Nillumbik's open space network will be easily accessible and provide all residents and visitors with a range of passive and active recreation opportunities
- Nillumbik will ensure its open space is developed and managed on a sustainable basis to meet the needs of the community and protect environmental values for present and future generations.

The strategy notes collaborating with DoT to create dedicated bicycle lanes on Yan Yean Road as a direction.

One of the listed recommendations within the strategy is to liaise with Parks Victoria and encourage the extension of the trail network along the Plenty River from Greensborough to Yarrambat Park, through the Plenty Gorge Parklands.

Green Wedge Management Plan, 2019

The Project Area falls within the Nillumbik Green Wedge. The stated vision of the plan is:

"*Management of the Nillumbik green wedge will lead the way in supporting a vibrant, resilient, connected and diverse community; living in the landscape to enhance the environmental, social and economic sustainability of Nillumbik's green wedge.*"

Relevant objectives for the Project's Landscape strategy include:

Goal 1: Engaged connected communities

O1.1 - Enable our people to take greater shared responsibility for the future of our green wedge.

Goal 2: Safe and healthy environments

O2.1 - Protect and enhance biodiversity, habitats and habitat links

O2.2 - Enhance climate change resilience, mitigation and adaptability

O2.3 - Reduce the number and impact of bushfire incidents

O2.4 - Improve stream condition, water flows, water quality, catchment quality and people's connection to their waterways

O2.5 - Conserve remnant vegetation and rural landscapes to maintain the character and natural beauty of the green wedge.

Goal 3 : Active and creative people

O3.1 - Encourage active living and enhanced mental wellbeing

O3.2 - Provide a diversity of open spaces with a range of high-quality regional, district and neighbourhood parks linked by a network of trails

O3.5 - Work with Heritage Victoria, the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation and other government agencies to support local heritage protection

O3.6 - Ensure that Council-owned heritage places are accessible and sustainable and make better use of our heritage assets to support cultural tourism initiatives and leverage further economic benefits for green wedge communities.

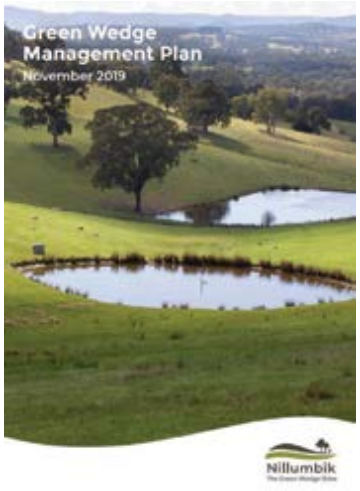


FIGURE 3.4: GREEN WEDGE MANAGEMENT PLAN 2019, SHIRE OF NILLUMBIK

Nillumbik Biodiversity Strategy, 2012

The Nillumbik Biodiversity Strategy 2012 provides the strategic direction for biodiversity management across Nillumbik to inform programs, standards and targets for the Shire. The strategy also seeks to further develop a coordinated approach to ensuring that ecosystems are healthy, resilient, and productive and connected across the landscape for future generations. It identifies threats to conserving ecosystem function and opportunities to enhance and protect these functions.

Its objectives are to:

+ Improve monitoring, knowledge and information relating to significant species, communities and ecological processes
+ Conserve maintain and enhance ecosystem services and processes
+ Improve decision making and target investments to conserve biodiversity
+ Create a consistent and practical response to fire management and biodiversity recovery after bushfire
+ Support the community to take action to protect and enhance biodiversity.

Nillumbik Trails Strategy, 2011

The draft Nillumbik Trails Strategy outlines a vision that Shire of Nillumbik will be recognised for the quality and diversity of its trail network. The network will be developed and managed sustainably while ensuring economic, heath and wellbeing benefits are provided to the community.

Although no listed regional or local trails are in proximity to the project area, the strategy's Roadside Trail and Off-road Trail categories are relevant to the Project works and the opportunity exists to incorporate the Project's new walking and cycling paths into the established trail network.

Bushfire Mitigation Strategy, 2019 – 2023

Planning for Bushfire Victoria has been designed to support the implementation of the Bushfire Management Overlay (BMO). This resource was developed to provide clear guidance to planning permit applicants, the Responsible Authority and Referral Authorities. Planning for Bushfire Victoria supports Country Fire Authority's (CFA) decision-making process as a referral authority under the Planning and Environment Act 1987 and Victoria's planning system.

Much of the southern portion of the project area is covered by the BMO (refer Section 4.1 - *Land use and Planning* of the Landscape strategy for mapping). Nillumbik's Bushfire Mitigation Strategy 2019-2023 identifies four strategic priorities and associated goals aimed at:

+ Reducing the number and impact of bushfire incidents
+ Creating a community focused approach to bushfire
+ Creating a coordinated approach between key agencies and the communities of Nillumbik.
+ Ensuring strong advocacy.

It also identifies four operating principles for bushfire mitigation:

+ Protection of human life
+ Balancing environmental protection with bushfire risk
+ Shared responsibility
+ Reducing, managing and modifying fuels.

Heritage

The Heritage Overlay (HO) of the Nillumbik Planning Scheme identifies two registered historical heritage place within the project area and one adjacent to the project area. Refer Section 4.3 - *Heritage* of the Landscape strategy for more details:

+ HO191 - 2x River Red Gum Trees
+ HO219 - St. Michaels Anglican Church
+ HO170 - Golden King gold mine battery & equipment.

FIGURE 3.5: BIODIVERSITY STRATEGY, 2012, SHIRE OF NILLUMBIK

Nillumbik Shire Council Roadside Management Plan, 2012

The Nillumbik Shire Council Roadside Management Plan 2012 guides maintenance and construction techniques, as well as planning decisions which may impact roadsides to:

- Ensure the safe and effective function of roadways
- Protect service assets located on roadsides
- Minimise the risk and impact of fire
- Protect, maintain and enhance the diversity of indigenous vegetation, particularly significant species and habitat corridors for wildlife
- Prevent further land degradation and erosion on roadsides and improve water quality
- Prevent the further spread of weeds and soil-borne disease organisms
- Maintain and enhance the visual amenity and landscape quality of the roadside
- Recognise the importance of roadside trails for recreational opportunities
- Protect the cultural and heritage values of the roadside.

Nillumbik Shire Council Tree Management Policy and Guidelines, 2018

It is estimated that Council is responsible for around 500,000 trees on reserves, roadsides and other council owned or managed land.

The policy outlines Council's commitment to tree management to support enhancing canopy quality, biodiversity, tree health, public safety and ensuring the legacy of the Shire's trees is carried on well into the future. The Nillumbik Tree Management Guidelines specify how the policy will be implemented.

The key objectives of the policy are to:

- Maintain and enhance Nillumbik's tree population to maximise benefits to the environment and the community, contributing to the quality and quantity of canopy across the Shire
- Meet all relevant legislative requirements and apply consistent management practices
- Minimise and manage risks to the community within Council's legal responsibilities and capacity to deliver tree services as far as reasonably practical
- Engage with the community in the management and enhancement of Nillumbik's urban and rural canopy.

Of relevance to the Landscape strategy, the guidelines note:

- Council use predominantly indigenous tree species with some non-local natives and exotic tree species where appropriate
- Council plants trees and other vegetation types to enhance amenity value, increase quality and useability of public spaces for the community and environment
- Council plants indigenous species within bushland areas (reserves, wetlands and roadsides) to support biodiversity, buffer and connect indigenous and native vegetation and provide habitat for threated species
- Planting link and collector roads is one of the most effective ways of improving the image of a municipality
- Plantings along these roads should be designed to link individual townships and enhance Shire entrance sites.

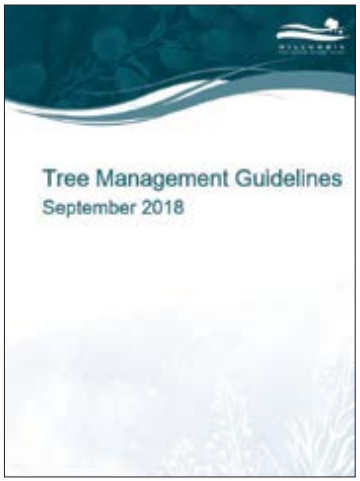


FIGURE 3.6: TREE MANAGEMENT GUIDELINES, 2018, SHIRE OF NILLUMBIK

Yarrambat Park Masterplan, 2012

The Yarrambat Park Masterplan guides the future development of the Yarrambat Park Golf Course and parkland. It aims to enhance the business, tourism and community use opportunities of the park while preserving its natural character. The vision for Yarrambat Park is relevant to Project's Landscape strategy and states:

"The natural ambiance and landscape character of Yarrambat Park will be protected and enhanced whilst providing spaces and facilities that support a range of formal and informal community events, activities, sports and recreational participation."

The masterplan's concept diagram (Figure 3.8) includes the following relevant items which abut the Project works:

- Low level plants and shrubs will be planted in the revegetation area (area 17) adjacent to Yan Yean Road so current resident views over the lake area will not be compromised
- The proposed walking/bike path around the lake (marked in red) is indicative. This trail would connect with the residential area to the north of the park, the lake, gully area and golf clubhouse café facility. Council will negotiate with Parks Victoria to access their land for the trail linkage to the residential area north of the park
- Upgrades to the golf course including drainage and layout modifications.

Yarrambat Township Plan, 2014 - ongoing

In 2014, Council began working on a Township Plan for Yarrambat, as identified in Council's Green Wedge Management Plan. The plan included in depth community consultation. Relevant objectives from the plan included:

- Development which is sympathetic to the rural character
- Having a pedestrian and cycling friendly environment to get around and use for leisure and recreation
- Urban design that creates opportunities for public transport and parking to be integrated into the design of the township.

The *Yarrambat Neighbourhood and Site Context Assessment*, 2013 (Figure 3.7) includes the following relevant recommendations:

- Ensure development along Yan Yean Road corridor sensitively responds to the visual and environmental conditions
- Preserve panoramic views north and north east to distant hills
- Improve gateway presentation through signage, public art or landscape and environmental works
- Improve presentation of the key corner of Yan Yean and Ironbark Roads
- Place power lines underground to avoid physical and visual clutter
- Maintain the semi-rural township character.

Figure 3.9 indicates the 2016 concept plan for Yarrambat Township. Items of relevance to the Project include:

- Connecting the golf course path with Yarrambat Township
- Identification of Yan Yean Road/Ironbark Road intersection as a key junction
- Identification of the Yan Yean Road landscape corridor.

At the July 2018 Shire of Nillumbik Ordinary Council Meeting, it was decided to continue township planning with a simplified revised scope that would remove any housing or residential subdivision components.

As of July 2019, Council is nearing the completion of a draft concept plan for the Yarrambat Township sreetscape. This draft concept captures opportunities for improved pedestrian and vehicle access, car parking, drainage improvements and beautification.

The Project Landscape strategy makes reference to the intent of both the Yarrambat Township Plan and Yarrambat Park masterplan within the opportunity and constraints mapping, as well as the design guidelines themselves.

The ongoing landscape design of the Project should take into account the outcomes of the yet to be released 'Yarrambat Township streetscape concept plan'.

FIGURE 3.7: DETAIL FROM IMPROVEMENT OPPORTUNITIES MAP WITHIN YARRAMBAT NEIGHBOURHOOD AND SITE CONTEXT ASSESSMENT, 2013

FIGURE 3.8: YARRAMBAT PARK MASTER PLAN CONCEPT DESIGN, 2012

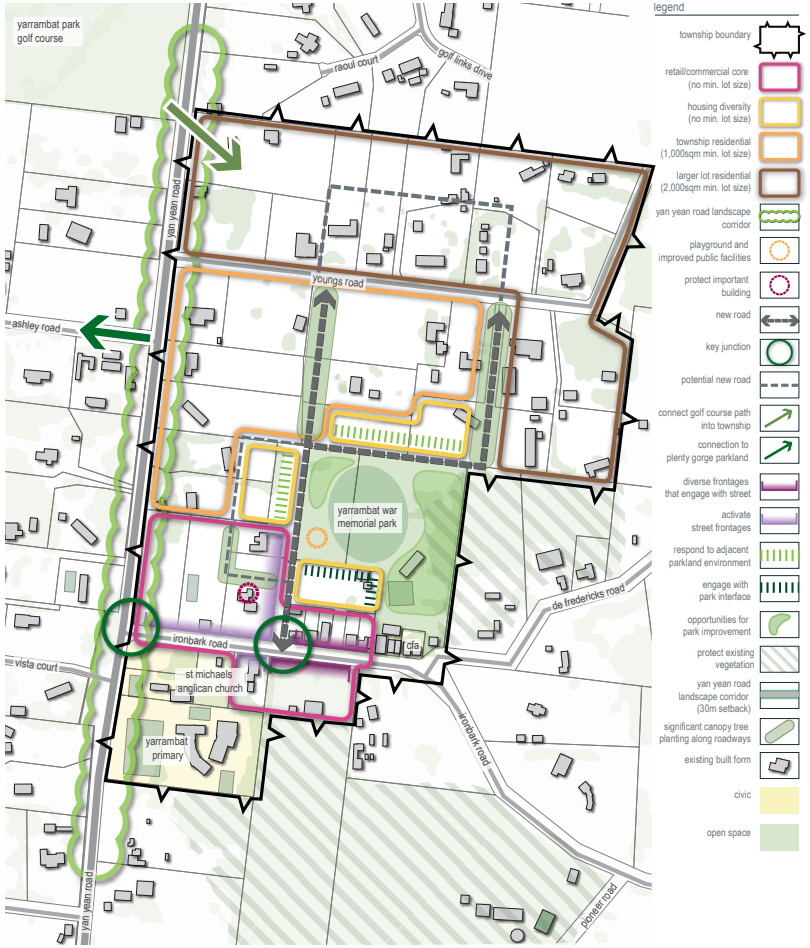


FIGURE 3.9: YARRAMBAT TOWNSHIP MASTER PLAN CONCEPT DESIGN, 2016

3.1.9 City of Whittlesea

Planning Scheme

The Municipal Strategic Statement (MSS) sets out key policy and strategic planning objectives within the municipal planning scheme. The following summarises key directions as included in the MSS for Whittlesea.

Clause 21.11 of the MSS relates to transport. This clause states council's commitment: *"...to establish an efficient, interconnected multi-modal transportation system which increases the level of accessibility and choice within and beyond the City of Whittlesea."*

A key strategy (1.2) of Clause 21.11-1 Integrated Transport is to provide new and improved arterial roads to enable the provision of trunk public transport services between activity areas, railway stations and public transport interchanges.

Environmental Policy

The section of Yan Yean Road adjacent to the urban growth boundary is not within an area identified as a significant environmental or landscape feature (Clause 21.05 Environmental and Landscape Values). Of relevance to the Project, however, is the objective of Clause 22.10 - River Red Gum Protection Policy to:

"ensure that the development of existing and future urban and rural areas takes into account the presence of and plans for the retention, enhancement and long-term viability of River Red Gum trees."

The policy requires:

- A comprehensive site analysis and arborist's report with any planning proposal for development on land which contains one or more remnant River Red Gum trees
- Maximise as a priority the retention, protection and incorporation of mature River Red Gums into the design of any development or subdivision
- Recognise that juvenile River Red Gum trees have an important role to play in the preservation of mature specimens
- Ensure that River Red Gum trees proposed for retention should be sited in public open space reserves and/or road reserves, unless a suitable alternative development design outcome can be demonstrated.

A section of the project area within City of Whittlesea is also covered by Vegetation Protection Overlay Schedule 1 (VP01) – River Red Gum Grassy Woodland. VPO1 applies to only the north-western section of the Project, to the north of Jorgenson Avenue (refer Section 4.1 - *Land use and Planning* of the Landscape strategy for mapping).

This overlay is designed to protect River Red Gum Woodland. It requires additional consideration of habitat corridors and vegetation retention.

Both Whittlesea and Nillumbik councils acknowledge the importance of roadside trees and vegetation within their municipalities and the importance of the protection of these assets for community and environmental benefit.

Whittlesea Integrated Transport Strategy, 2014

The Whittlesea Integrated Transport Strategy promotes active transport including walking and cycling through the following objectives:

- Council will provide a safe urban environment where walking is encouraged through appropriate infrastructure and a built environment that encourages walking
- Council will enable the community to adopt cycling as a viable alternative to the car for a wide variety of trips within the municipality and our neighbouring municipalities, through provision of infrastructure, encouragement programs and supporting infrastructure.

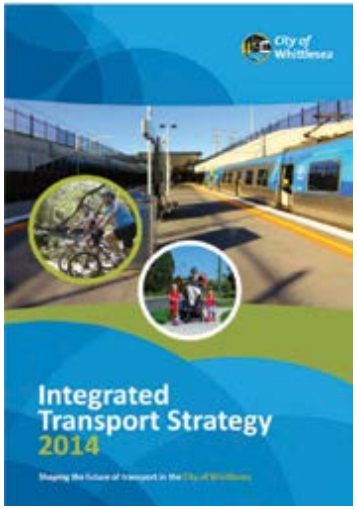


FIGURE 3.10: INTEGRATED TRANSPORT STRATEGY, CITY OF WHITTLESEA, 2014

Environmental Sustainability Strategy, 2012-2022

The strategy aims to protect the regions unique natural assets and quality of life, in the face of rapid urban growth. Of relevance to the Project's Landscape strategy, the sustainability strategy includes the following priorities:

Biodiversity - Protect native vegetation, Maintain and improve local biodiversity, Protect species of significance and increase appreciation of the natural environment in the community.

+ Protecting urban open space networks (creek and river corridors, parks, sporting fields) and gardens via targeted programs
+ Maintaining buffers between waterways, floodplains, and wetlands and strengthening local planning policy and open space strategies
+ Ensuring native vegetation offsets are located within close proximity to the land where vegetation has been removed
+ Planting trees to provide carbon storage and support carbon markets that allow for alternate biodiversity revenue for landholders.

Urban Development and the Built Environment - Sustainable transport options, Sustainable public realm improvements.

+ Use water sensitive urban design to treat and control stormwater to improve the health of our waterways
+ Provide infrastructure to support cycling and walking and access to buses and trains
+ Protect habitat and provide connected areas of open space, particularly along creek lines.

Biodiversity Strategy, 2019-2029

The strategy sets out six key objectives to protect and improve local biodiversity:

+ Improve our knowledge and understanding of local biodiversity
+ Strengthen the Planning Scheme to achieve better biodiversity outcomes
+ Support our rural landowners to protect biodiversity on their land
+ Encourage awareness and participation in urban biodiversity and improvement
+ Manage Council land to reduce threats and improve habitat quality
+ Collaborate with other land management agencies.

Open Space Strategy, 2016

The strategy sets out the strategic direction for the future planning, provision, design and management of open space in the City of Whittlesea through to 2026. Open space within the project area in Whittlesea includes Municipal open space (Doreen Recreation reserve) and Local open space (Werther Park, Orchard Park).

While there is no particular directions for these reserves and parks within the document, the strategy's broad aims for open space include the following principles:

+ Accessible
+ Supportive of community health and wellbeing
+ Diverse
+ Equitable
+ Sustainable
+ Connected
+ Cultural
+ Ecological.

FIGURE 3.11: ENVIRONMENTAL SUSTAINABILITY STRATEGY 2012-2022, CITY OF WHITTLESEA, 2019

FIGURE 3.12: BIODIVERSITY STRATEGY, CITY OF WHITTLESEA, 2019

Active Whittlesea Strategy 2019-2028

Active Whittlesea provides the strategic and operational direction for Council to meet its requirement under the Local Government Act (1989) *"to improve the overall quality of life of people in the local community".* Under the strategy's 'Places and Spaces' focus area, the following success factors are listed:

+ Enhance the built environment/facilities and open spaces
+ Create multi-purpose facilities and spaces to enable maximum utility.

Key Direction 3: Open Space/Infrastructure includes the following relevant objectives:

+ Improve equity, accessibility and safety of community spaces through the development of infrastructure plans and the delivery of inclusively designed new works projects
+ Connect, improve and expand existing travel networks to create built environments that support active travel, incidental exercise and physical activity.

Climate Ready Whittlesea

The plan focuses on making sure that services and assets are taking into consideration the latest science to build a vibrant and resilient city. Relevant actions include:

+ Cultivate the City of Whittlesea's urban forest
+ Improve the resilience of our assets to climate change
+ Identify how climate change will impact the City of Whittlesea's biodiversity values.

Heritage

No local heritage items are located in proximity to the project area, however research into the City of Whittlesea Heritage Study indicated that the former Post Office and General Store located at the Bridge Inn Road/Doctors Gully Road intersection may have heritage potential. A search of the databases showed that although this place was suggested to be given status during the Heritage study, it currently does not have any statutory protection.

The grading given to the property was D indicating *"sites are either reasonably intact representatives of particular periods or styles, or they have been substantially altered but stand in an area which retains much of its original character."* (Meredith Gould Architects Pty Ltd 1990).

Doreen Recreation Reserve Masterplan, 2014

The masterplan guides the future use of Doreen Recreation Reserve, located on the corner of Bridge Inn Road and Yan Yean Road in Doreen (Figure 3.14).

The master plan includes:

+ Commemoration of the history of Doreen Hall
+ Accessible public toilets
+ Tennis Courts
+ Picnic facilities and shelters
+ New playground/play space
+ Improved pathways
+ Open space for sporting and community events.

The master plan notes the likely removal of the large native trees along the southern edge of the reserve as the result of intersection upgrades related to the Project.

The Project Landscape strategy makes reference to the intent of this masterplan within the opportunity and constraints mapping, as well as during the formation of the design guidelines themselves.

It should be noted that the location and functioning of the Doreen Recreation Reserve masterplan's proposed car park, footpath network and landscape treatments would be dependent on the outcome of the final Project design.

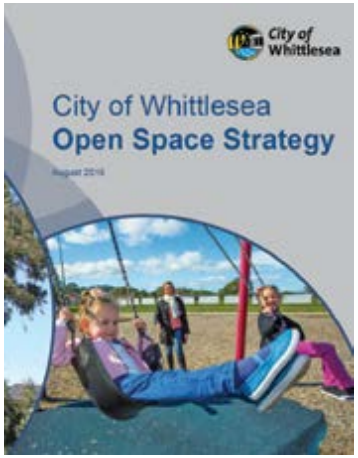


FIGURE 3.13: OPEN SPACE STRATEGY, CITY OF WHITTLESEA, 2016

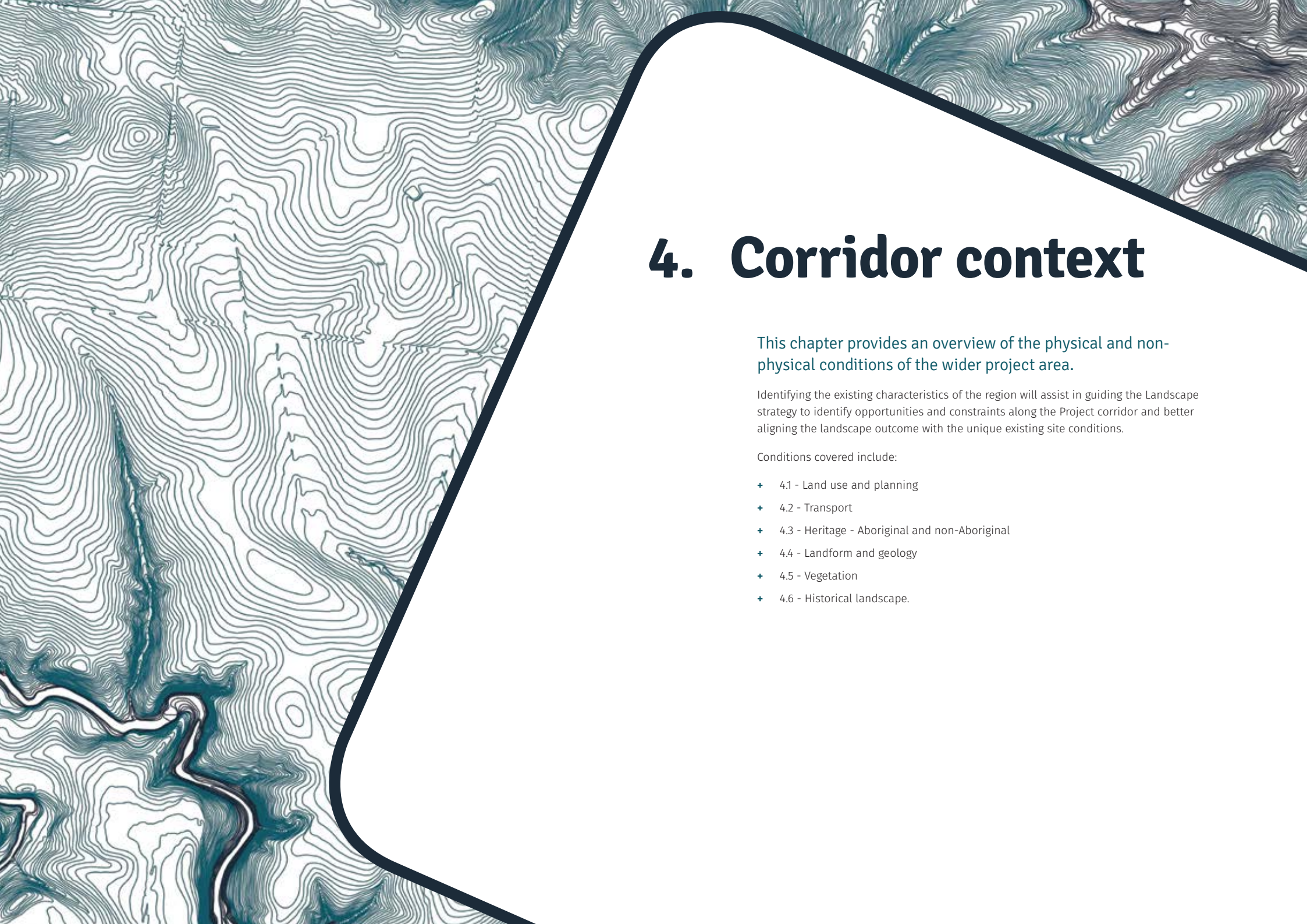
FIGURE 3.14: DOREEN RECREATIONAL RESERVE MASTERPLAN, 2014

LEGEND

- Existing Trees
- Existing Shrubs
- Proposed Tree
- Proposed Shrubs
- Existing Stormwater Drainage Pipes
- Existing Sewer Line
- Existing Electrical Overhead Powerline (outside transmission line easement)
- Existing Electrical Underground Powerline
- Existing Telecommunication Line
- Existing Water Supply
- Existing Site Features to be demolished and removed off site
- Existing Title Boundary
- Proposed Title Boundary
- Existing Line of Electrical Transmission Line Easement
- Proposed 2.5m Wide Concrete Path
- Proposed Asphalt Paving
- Proposed High Black PVC Chainwire Mesh Fence
- Proposed Vehicular Exclusion Barrier
- Proposed Vehicular Access Gate
- Proposed Low Black PVC Chainwire Mesh Fence with timber posts to match vehicular exclusion fence

NOTES

1. Proposed asphalt car park with linemarking for 37 spaces and garden beds with low planting. Vehicular access gate at western end to provide access for maintenance and overflow car parking (if required).
2. New car park entry. Subject to VicRoads approval. Allow right hand turns out of car park and right hand turns into the car park south bound along Yan Yean Road.
3. Remove existing tennis courts to facilitate construction of the new car park.
4. Remove existing clubroom, BBQ and concrete paving.
5. Proposed public toilet (Exeloo unisex wheelchair accessible automated self cleaning).
6. Proposed local level playspace and public gathering space with spectating seating, shelter, BBQ and picnic settings.
7. Existing cricket pitch to be removed.
8. Remove existing asphalt car park and fencing, so that the frontage can be beautified.
9. Remove existing trees, shrubs and all chainwire mesh fencing.
10. Demolish existing hall to facilitate the proposed road intersection upgrade. Salvage materials suitable for re-use and interpretation as part of landscape improvements or in the proposed community building envelope.
11. Proposed path connection to new signalised intersection pedestrian crossing points.
12. Proposed path connection to future shared trail proposed under Council's Mernda Strategy Plan.
13. Retain existing shrubs along boundary, remove all noxious weeds and replant with native species suitable under transmission overhead lines. Remove all rural fencing.
14. Proposed path connection to future off-road shared trail proposed under Council's Mernda Strategy Plan. Remove adjacent vegetation to improve sightline.
15. Proposed path connection to future shared trail proposed under Council's Mernda Strategy Plan. Remove adjacent vegetation to improve sightline.
16. Proposed low chainwire mesh fence to prevent balls hit onto Bridge Inn Road.
17. Remove existing trees to facilitate the proposed road upgrade.
18. Proposed public tennis courts with synthetic turf surfacing and fencing. No lighting.
19. Demolish existing toilet block to facilitate the proposed road intersection upgrade.
20. Circuit path around open space.
21. Proposed 2.5m wide shared use path located within road reserve.



4. Corridor context

This chapter provides an overview of the physical and non-physical conditions of the wider project area.

Identifying the existing characteristics of the region will assist in guiding the Landscape strategy to identify opportunities and constraints along the Project corridor and better aligning the landscape outcome with the unique existing site conditions.

Conditions covered include:

- 4.1 - Land use and planning
- 4.2 - Transport
- 4.3 - Heritage - Aboriginal and non-Aboriginal
- 4.4 - Landform and geology
- 4.5 - Vegetation
- 4.6 - Historical landscape.

FIGURE 4.1: AERIAL VIEW OF THE YAN YEAN ROAD CORRIDOR AND YARRAMBAT TOWNSHIP, LOOKING SOUTH WEST FROM ABOVE IRONBARK ROAD

4.1 Land use and planning

Land use

Land uses along the Project corridor are varied and include a mixture of rural and urban typologies. Known as the 'Green Wedge Shire', the Nillumbik LGA is predominately rural with large tracts of open space, remnant vegetation and several small townships including Yarrambat, which sits adjacent to Yan Yean Road.

The Whittlesea region is an area currently in transition, with older established suburbs in the south merging into newer greenfield development forming an area of urban/rural transition. The area's future growth is guided by the North Growth Corridor (Urban Growth Boundary) that runs to the north of the project area and defines the extent of existing and planned urban settlements.

The predominant land uses in the wider project area include (Figure 4.2)

- Number of commercial premises (mixed use zone) near Bridge Inn Road
- General residential area, located to the south west of the Bridge Inn Road intersection (City of Whittlesea)
- Education and religious facilities such as St Macarius Coptic Orthodox Church, Plenty Valley Christian College, Yarrambat Primary School, child care centres and early learning centres
- Open space and recreation including Yarrambat Park which contains Yarrambat Park Golf Course, horse and pony club, a pistol club, archery club and model aircraft club
- Low density residential areas in proximity to Yarrambat township.

Planning overlays

The wider project area is also covered by the following planning overlays (refer Chapter 3 - *Policy & Planning* for more details):

- ES01 - Environmental Significance Overlay (Shire of Nillumbik)
- VP01 - Vegetation Protection Overlay (City of Whittlesea)
- Bushfire Management Overlay (BMO).

FIGURE 4.2: LAND USE AND PLANNING OVERLAYS ACROSS THE WIDER PROJECT AREA


LEGEND
Point of Interest
Project area
Bushfire Management Overlay
Environmental Significance Overlay
Vegetation Protection Overlay
Commercial 1 Zone
Public Conservation and Resource Zone
Public Park and Recreation Zone
Public Use Zone and Service Utility
Public Use Zone Education
Public Use Zone Local Government
Road Zone Category 1
Road Zone Category 2
Low Density Residential Zone
Mixed Use Zone
General Residential Zone
Farming Zone
Green Wedge Zone
Rural Conservation Zone
Special Use Zone
Bannons Lane
Golf Links Drive
Youngs Road
Yan Yean Road
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
Ironbark Road
YARRAMBAT TOWNSHIP HUB
YARRAMBAT PRIMARY SCHOOL
Tiernan Road
Heard Avenue
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK GOLF COURSE
YARRAMBAT PARK
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
ES01 - ENVIRONMENTAL SIGNIFICANCE OVERLAY (SHIRE OF NILLUMBIK)
HEARD AVENUE RESERVE
Ashley Road
N Oatlands Road
Worns Lane
Yan Yean Road
ES01 - ENVIRONMENTAL SIGNIFICANCE OVERLAY (SHIRE OF NILLUMBIK)
N
0
200m

4.2 Transport

Bus network

The Project corridor is currently served by two Dysons public bus routes providing connectivity to Mernda, Diamond Creek Station and Greensborough - 381, Mernda Station to Diamond Creek Station and 385, Greensborough to Mernda North. Several bus stops are located along Yan Yean Road providing access to bus services for the adjacent residential areas and schools, refer Figure Figure 4.3.

Pedestrian network

There are only short sections of footpath for pedestrians and (school aged) cyclists off road at discrete locations along Yan Yean Road. The short lengths of formal footpath are generally found on one side of the road in the vicinity of Plenty Valley Christian College (Orchard Road to Bridge Inn Road) and Yarrambat Primary School (around Ironbark Road, between North Oatlands Road and Youngs Road), typically to provide access to local bus stops and local residential areas. Additionally, there are several informal paths along Yan Yean Road, used occasionally by pedestrians, cyclists and horse riders.

Cycle network

The Principal Bicycle Network (PBN) is a network of bicycle routes that provide access to major destinations in the Melbourne metropolitan area, developed by DoT in conjunction with local councils to guide investment in bicycle infrastructure and support cycling as a mode of transport. The section of the Project route between Bridge Inn Road and Jorgensen Avenue is part of the PBN and provides connectivity north to Arthurs Creek and Yan Yean Reservoir and connects to the east-west running PBN along Bridge Inn Road with access to Mernda Station (refer Figure 4.3).

The existing route along Yan Yean Road does not provide formal facilities for cycling on-road, even within the PBN section, and the narrow width of the road likely discourages its use by cyclists. The recently completed Yan Yean Road Stage 1 Upgrade provides a new shared walking and cycling path along the full length on the west side which would connect to the Project.

Horse riders

There is an informal crossing over Yan Yean Road for horse riders to access the Yarrambat Horse & Pony Club to the north of Laurie Street (refer Figure 4.3). The current crossing is poorly signed.

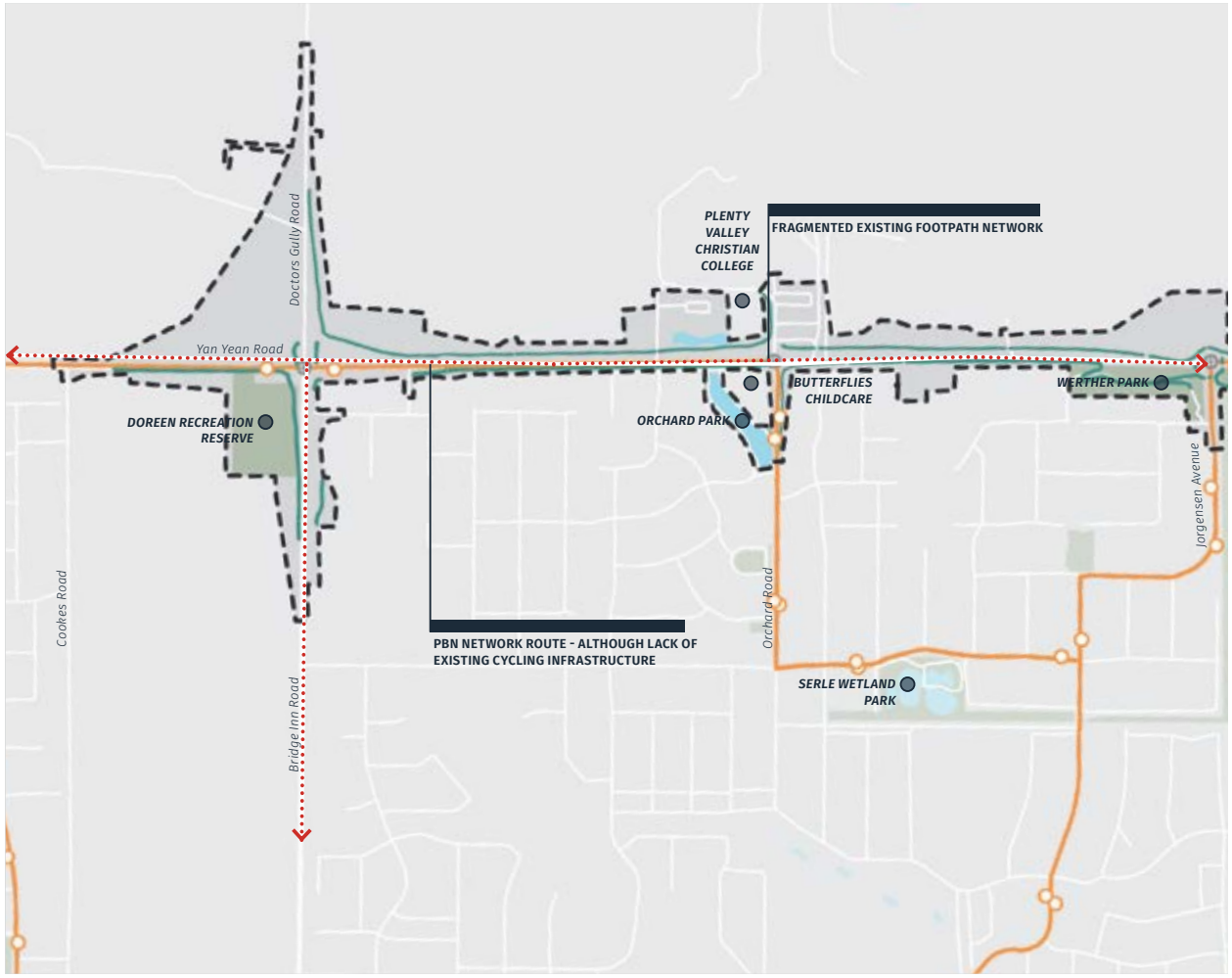
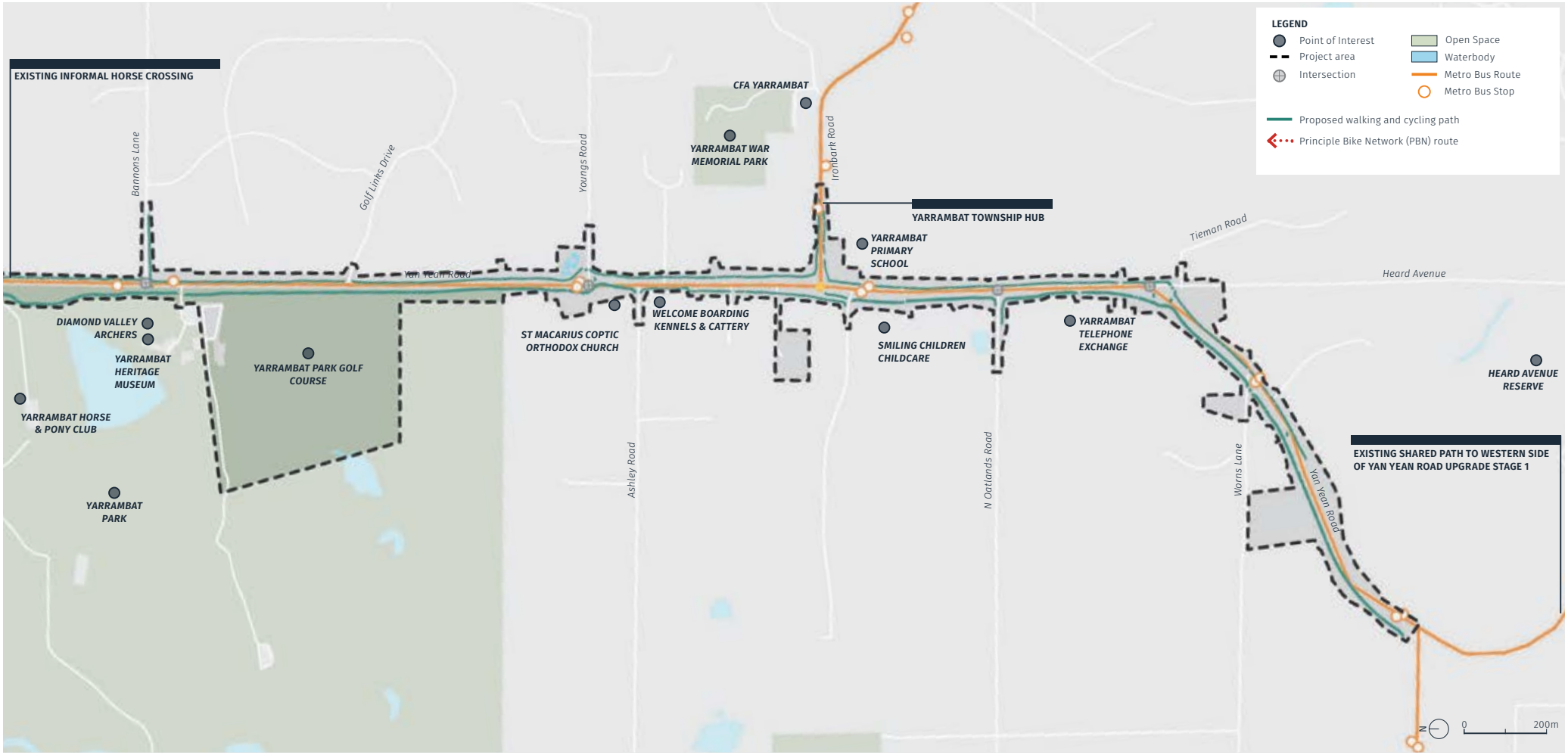


FIGURE 4.3: TRANSPORT ACROSS THE WIDER PROJECT AREA


LEGEND
Point of Interest
Project area
Intersection
Open Space
Waterbody
Metro Bus Route
Metro Bus Stop
Proposed walking and cycling path
Principle Bike Network (PBN) route
EXISTING INFORMAL HORSE CROSSING
Bannons Lane
Golf Links Drive
Youngs Road
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
Ironbark Road
YARRAMBAT TOWNSHIP HUB
YARRAMBAT PRIMARY SCHOOL
Tieman Road
Heard Avenue
Yan Yean Road
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK GOLF COURSE
YARRAMBAT PARK
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
Ashley Road
SMILING CHILDREN CHILDCARE
N Oatlands Road
YARRAMBAT TELEPHONE EXCHANGE
HEARD AVENUE RESERVE
Worns Lane
EXISTING SHARED PATH TO WESTERN SIDE OF YAN YEAN ROAD UPGRADE STAGE 1
N
0
200m

4.3 Heritage

Heritage forms an important component of landscape character and visual amenity, providing a sense of history and cultural narrative. The provision of heritage designations can increase the sensitivity of a landscape or viewpoint to change.

Aboriginal heritage

At the time of European contact, the Doreen and Yarrambat areas, as well as surrounding region, lay within the traditional lands of people from the Woi wurrung language group. The Registered Aboriginal Party (RAP) for the wider project area is the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (Wurundjeri). Technical Report F – *Aboriginal and Historical Cultural Heritage Impact Assessment* resulted in the identification of several Aboriginal archaeological places within or in close proximity (50m) to the project area (Figure 4.4), as recorded on the Victorian Aboriginal Heritage Register (VAHR):

+ VAHR Registered 1 - Stone Artefact Scatter
+ VAHR Registered 2 - Low Density Artefact Distribution
+ VAHR Registered 3 - Low Density Artefact Distribution
+ VAHR Registered 4 - Low Density Artefact Distribution
+ VAHR Registered 5 - Low Density Artefact Distribution
+ VAHR Registered 6 - Low Density Artefact Distribution

No Aboriginal scar trees were identified within the project area.

Non-Aboriginal heritage

The following were identified within or adjacent to the project area, refer Figure 4.4 (Heritage Overlay under the Nillumbik Planning Scheme):

+ HO191 - Two River Red Gum trees - Significant as an *'expression of the indigenous vegetation at European Settlement'* and *'for their relative prominence and maturity, located at the community centre of Doreen'.*
+ HO219 - St. Michaels Anglican Church - Significant as *'the only church building in Yarrambat and now the oldest public building on its original site'.*
+ HO170 - Golden King gold mine battery & equipment - *'The Golden King gold mine battery is historically, technically and archaeologically significant to the Shire of Nillumbik.'*

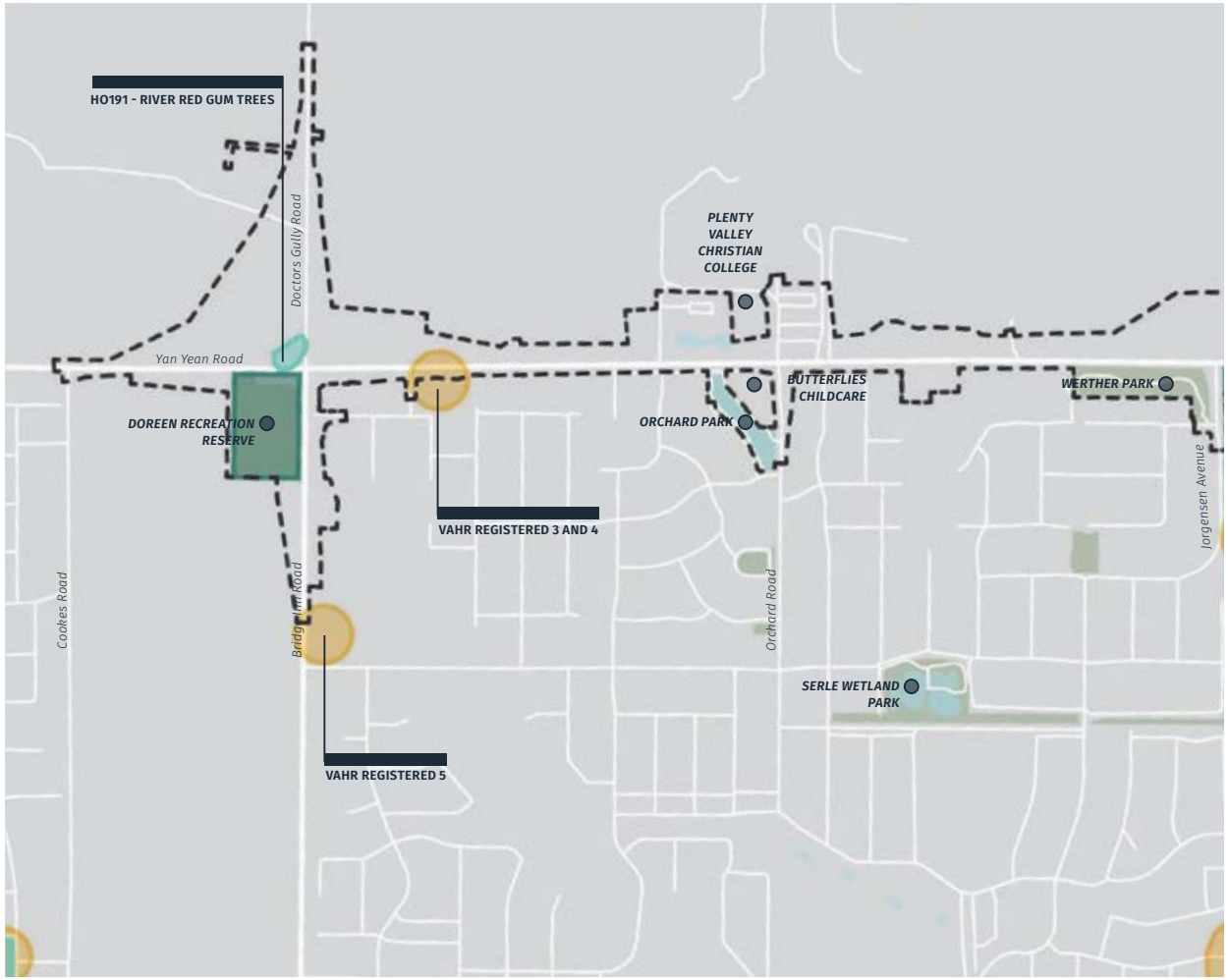
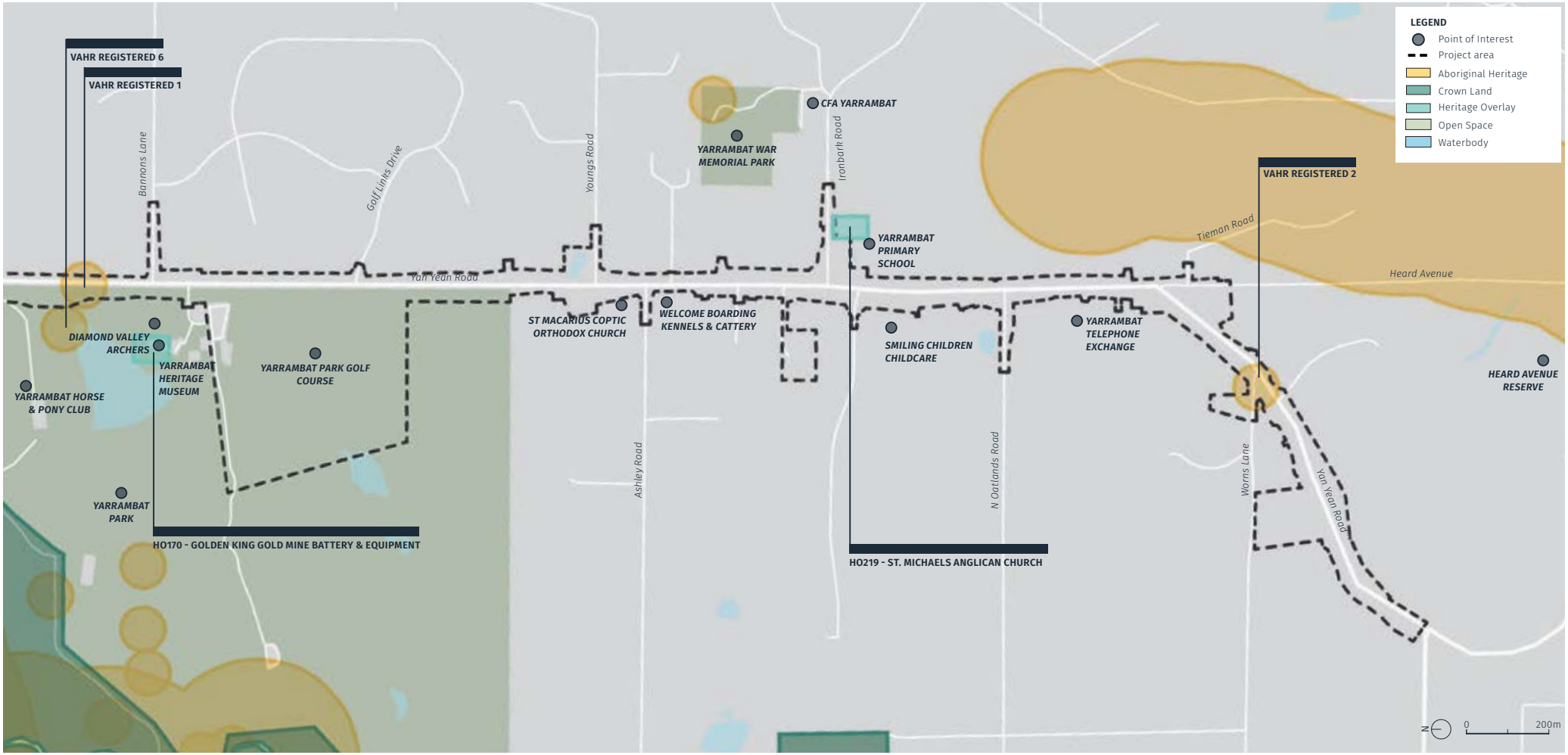


FIGURE 4.4: HERITAGE ACROSS THE WIDER PROJECT AREA


LEGEND
Point of Interest
Project area
Aboriginal Heritage
Crown Land
Heritage Overlay
Open Space
Waterbody
VAHR REGISTERED 6
VAHR REGISTERED 1
VAHR REGISTERED 2
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
YARRAMBAT PRIMARY SCHOOL
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
HEARD AVENUE RESERVE
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT PARK GOLF COURSE
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK
HO170 - GOLDEN KING GOLD MINE BATTERY & EQUIPMENT
HO219 - ST. MICHAELS ANGLICAN CHURCH
Bannons Lane
Golf Links Drive
Youngs Road
Ironbark Road
Yan Yean Road
Tieman Road
Heard Avenue
Ashley Road
N Oatlands Road
Worns Lane
Yan Yean Road
N
0
200m

4.4 Landform and geology

Topography

The Project is broadly situated in the Eastern Victorian Uplands (Eastern Uplands), a plateau-like surface of hills known as the Nillumbik Terrain which extends from the eastern suburbs of Melbourne around Mount Dandenong and further eastwards to the NSW border.

The project area and surrounding landscape form an undulating landform with a series of rolling, moderate to steep hill sides and pronounced ridges. These hills enclose plains and flats that from a distinctive landscape character across the wider project area.

The elevation along the road corridor varies from approximately 164 metres at its lowest point near Bridge Inn Road and Youngs Road, to approximately 200 metres at Ironbark Road and 205 metres along the ridge line just north of Jorgensen Avenue (refer Figure 4.5).

Further north from the project area, landform is steeper and comprises upland hills with ridgelines of over 200 metres, framed by the Kinglake Ranges with elevations typically over 400m.

Waterways

Major waterways in the wider area include the Plenty River to the west and the upper reaches of Diamond Creek to the east. These both sit at some distance from the project area, although drainage lines of both these major waterways intersect with the project area at several points.

Geology

The wider project area is largely underlain by Dargile Formations, a Silurian aged sedimentary (marine) geology consisting of sandstone with interbedded siltstone and shale. In addition, there are areas of Quaternary age river alluvium deposits comprising sand, silt, clay and minor gravel.

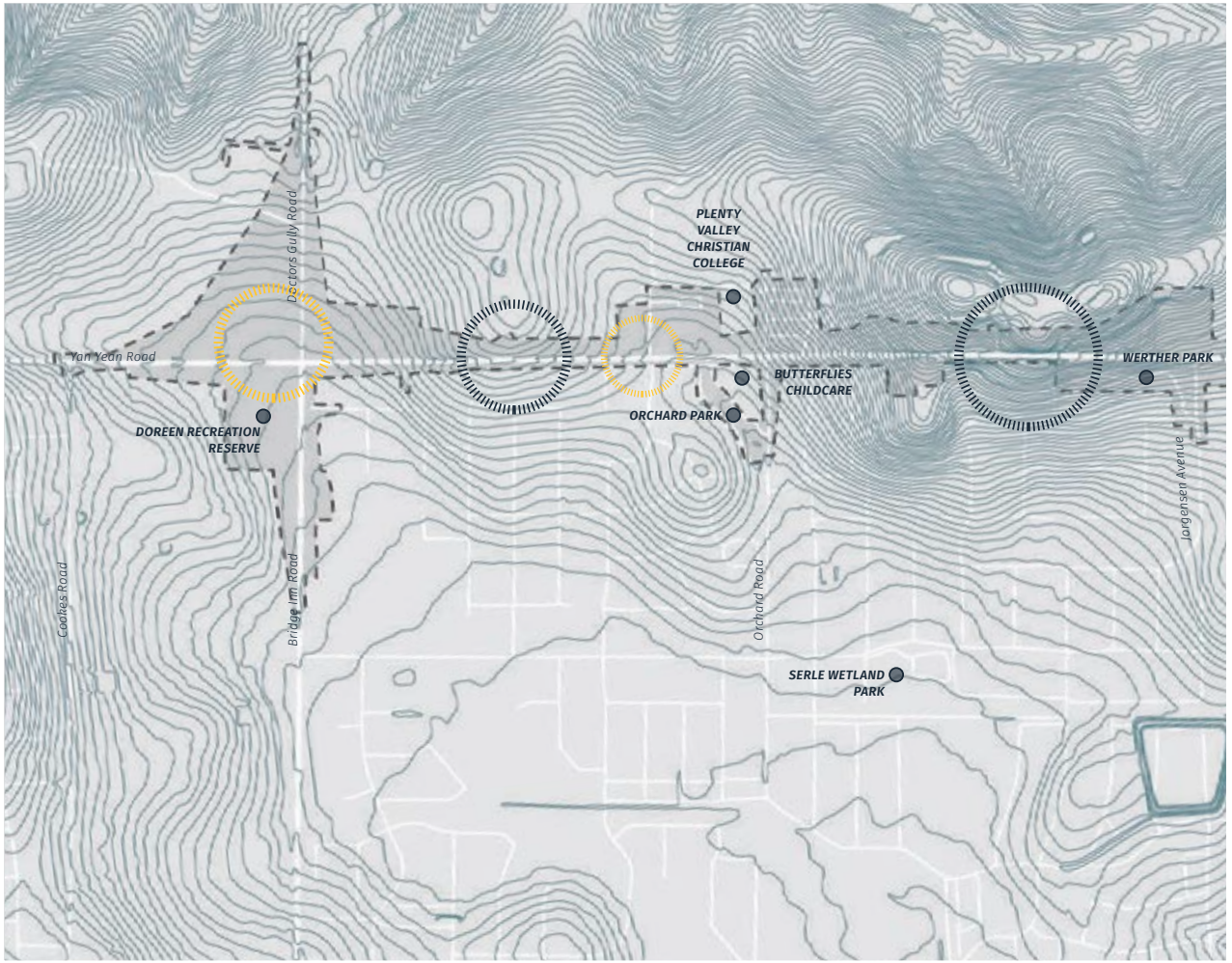
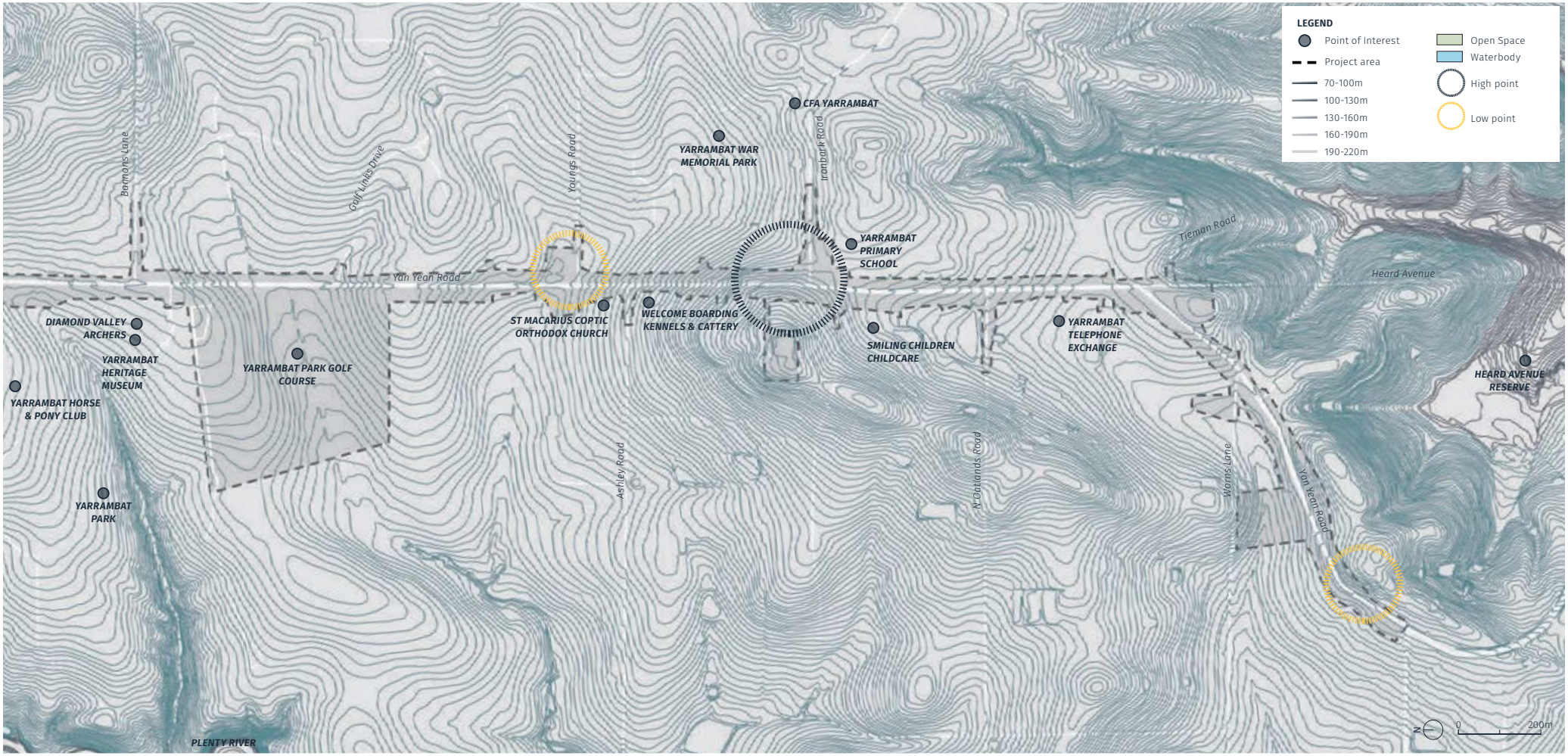


FIGURE 4.5: TOPOGRAPHY ACROSS WIDER PROJECT AREA


LEGEND
Point of Interest
Project area
70-100m
100-130m
130-160m
160-190m
190-220m
Open Space
Waterbody
High point
Low point
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
YARRAMBAT PRIMARY SCHOOL
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
HEARD AVENUE RESERVE
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK GOLF COURSE
YARRAMBAT PARK
PLENTY RIVER
Bonnors Lane
Golf Links Drive
Youngs Road
Ironbark Road
Yan Yean Road
Tieman Road
Heard Avenue
Ashley Road
N Oatlands Road
Worms Lane
Yan Yean Road
N
0
200m

4.5 Vegetation

Vegetation forms an important component of the wider project area's character, adding structure, texture, ecology and varied spatial qualities depending on type, appearance and biodiversity value. While much of the wider area's native vegetation was cleared by European settlers for agriculture, large quantities of native vegetation on both public and private land remain.

Approximately 20% of the project area supports remnant native vegetation. Weeds are also numerous in some parts of the project area. Areas of intact native flora provide a high level of fauna habitat, supporting a wide range of native animals.

There are a total of **7,030** trees within and in close proximity to the project area, as recorded within Technical Report C – *Arboriculture Assessment.* This included **3,743** indigenous trees, **1,852** Australian natives and **1,435** exotic specimens.

Ecological Vegetation Classes (EVCs)

EVCs are the standard unit for classifying native vegetation types in Victoria. EVCs include a benchmark for the characteristics of the vegetation type in its mature, natural (pre-1750) state. The following EVC patches were recorded within the project area following a site visit in accordance with Technical Report B1 - *Biodiversity Existing Conditions Report.* The EVC data outside the project area has been mapped using standard DEWLP 2018 mapping units.

- EVC 22 Grassy Dry Forest - 14.291 ha (Least Concern)
- EVC 47 Valley Grassy Forest - 1.594 ha (Vulnerable)
- EVC 55 Plains Grassy Woodland - 0.295 ha (Endangered)
- EVC 653 Aquatic Herbland - 0.066 ha (Endangered)
- EVC 821 Tall Marsh - 0.408 ha (Least Concern)
- EVC 136 Plains Sedgy Wetland - 0.141 ha (Endangered)
- EVC 937 Swampy Woodland - 0.499 ha (Endangered).

Three ecologically significant flora species were recorded within project area:

- Two Matted Flax-lilies - *Dianella amoena*
- One Studley Park Gum - *Eucalyptus x studleyensis*
- Pale-flowered Crane's Bill Geranium.

PALE-FLOWERED CRANE'S BILL GERANIUM

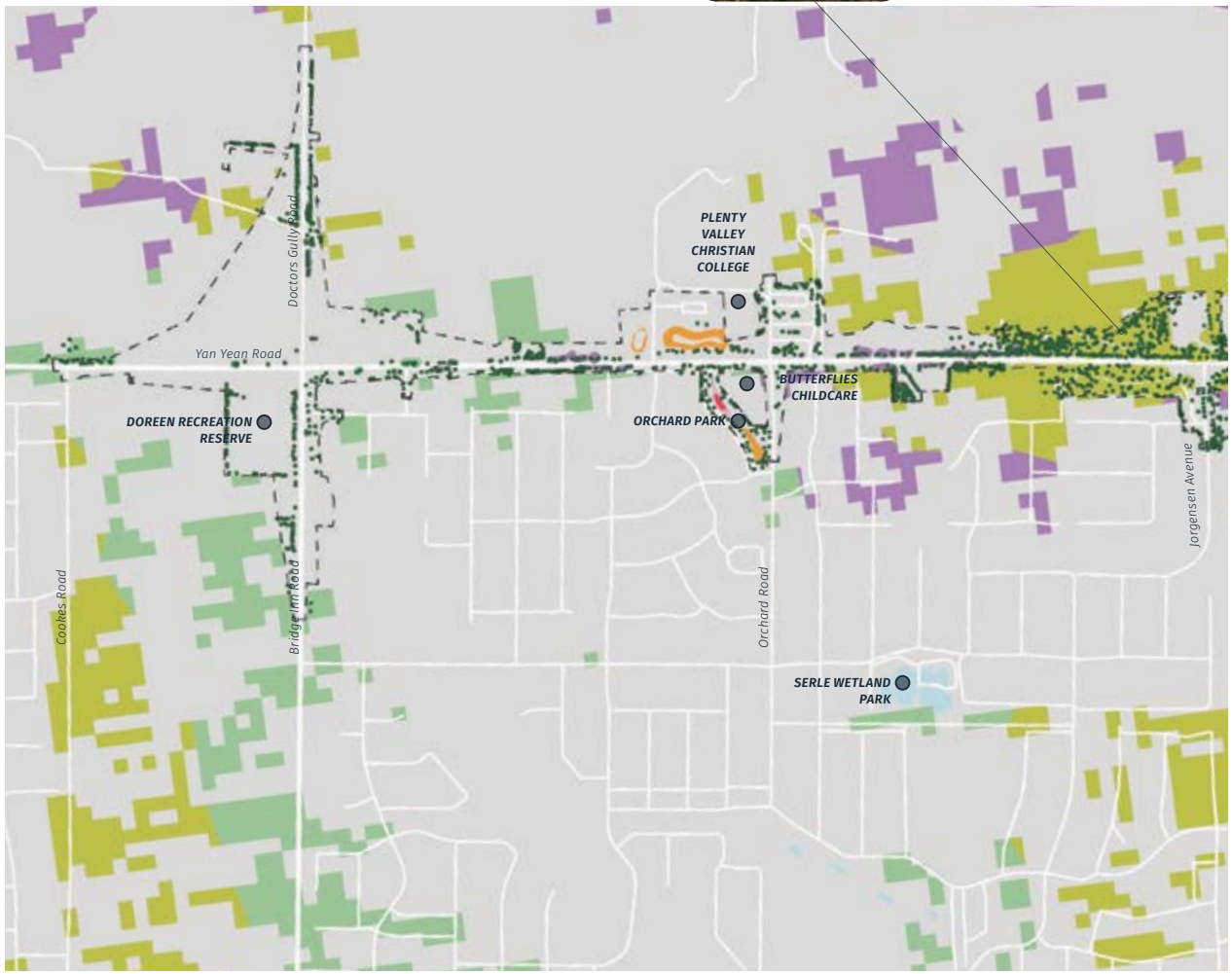
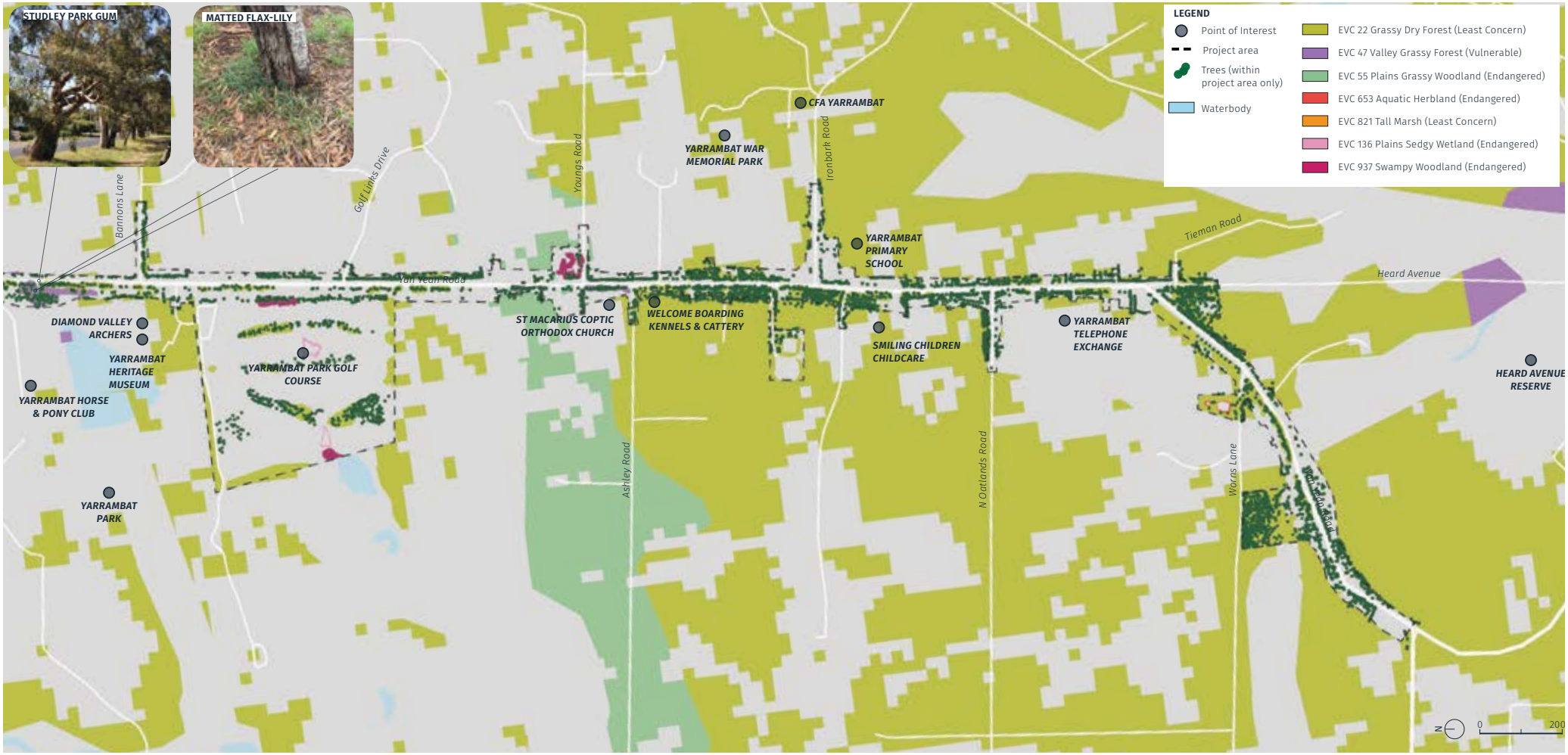


FIGURE 4.6: VEGETATION ACROSS WIDER PROJECT AREA


STUDLEY PARK GUM
MATTED FLAX-LILY
LEGEND
Point of Interest
Project area
Trees (within project area only)
Waterbody
EVC 22 Grassy Dry Forest (Least Concern)
EVC 47 Valley Grassy Forest (Vulnerable)
EVC 55 Plains Grassy Woodland (Endangered)
EVC 653 Aquatic Herbland (Endangered)
EVC 821 Tall Marsh (Least Concern)
EVC 136 Plains Sedgy Wetland (Endangered)
EVC 937 Swampy Woodland (Endangered)
Bannons Lane
Golf Links Drive
Youngs Road
Ironbark Road
Tieman Road
Heard Avenue
Ashley Road
N Oatlands Road
Worns Lane
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
YARRAMBAT PRIMARY SCHOOL
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK GOLF COURSE
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
HEARD AVENUE RESERVE
YARRAMBAT PARK
N
0
200

4.6 Historical landscape

The land use history of the wider project area forms an important component of its character and continues to influence the existing landscape of the region. Historical land uses and landscape features such as tree plantings, remnant vegetation, mining works, dams and field boundaries provide a tangible connection to history and form part of the cultural narrative of the project area.

Relevant features are described below and indicated on Figure 4.12 and Figure 4.13. They have been considered within Chapter 5.2 - *Cultural value of vegetation* and 5.4 - *Landscape Character assessment*. Where relevant, they have also influenced the landscape design guidelines within Chapter 6 - *Landscape strategy* with the intent to protect, reinforce or rehabilitate these features where feasible.

Pre-European Settlement (1750)

At the time of European contact, the Doreen and Yarrambat areas, and surrounding region lay within the traditional lands of people from the Woi wurrung language group. Due to increased rainfall, this temperate zone had many watercourses and lakes which provided a reliable water supply to the Aboriginal population. This allowed a relative growth of the human populations in the region.

Relevant landscape features:

+ Native vegetation types in their mature, natural (pre-1750) state (eg. River Red Gums at Bridge Inn Road intersection).

European Settlement (1824 - 1910)

The Plenty Valley was among the first of the Port Phillip districts to be settled. Initial permanent European settlement commenced in 1837. Though the land was suitable for pastoral development, the first settlers found themselves faced with problems such as flooding and bushfire.

By the mid-1840s, all of the suitable land in the Plenty district to the west of the river was in private ownership. To the east, which was poorer, sedimentary country, the pastoral period lasted longer. The Doreen area was first settled at this time, under the name of Hazel Glen by McLaughlan and Campbell, later followed by Patrick Reid in 1844, naming the area Doreen. The junction of Yan Yean Road and Bridge Inn Road, at the northern end of the project area, became the town's centre, which included a store (1890), post office and recreation reserve. In the early 20th century, a public hall was opened.

The early pastoralists practiced cultivation and dairying predominately. A second wave of settlement began in the early 1850s and large-scale speculators and small-scale farmers began to have a lasting impact on the land use and environment. The area, which had previously been purely pastoral, was slowly being turned into agricultural land. By 1853 it was said that the Plenty district was one of the most important districts in the colony.

The gold rush of the 1850s brought increased trade to the area, and as a result, numerous townships and settlements were established in the Plenty Valley. Diggings to the east of the project area appear on a map of Victoria's goldfields in 1866. By 1868 the area had been mapped for the Geological Survey of Victoria, and gold workings are shown to be located near to the southern part of the project area, at the location of what is labeled as 'Gray's Reef'.

Associated mine shafts and infrastructure are located within several properties adjoining the Yan Yean Road reserve to the south of the project area. Also shown on the Geological Survey map is a dotted line leading from the parish boundary northwards towards the reef. This is likely to have been a track servicing the mine, possibly the earliest iteration of Yan Yean Road.

Another aspect that contributed to the growth of the area was the construction of the Yan Yean Reservoir between 1853 and 1857, which led to large numbers of workers and their families settling in the Plenty Valley. Yan Yean Road did not yet exist at this time, and the area was accessed via Plenty Road (known as 'Yan Yean Road' in 1912). By 1859, a railway line from Melbourne to Whittlesea had been established, which led to a growth in the dairying and fruit growing industries in the area due to efficiency of transport to the Melbourne markets.

The first Yarrambat Primary School was opened in 1878 (Figure 4.7) and the original classroom has been relocated to the Yarrambat Heritage Museum. The modern school was opened in 1988.

Relevant landscape features:

+ Native and exotic feature trees planted along driveways, paddock boundaries or close to homestead sites
+ Exotic trees planted as windbreaks in long, linear arrangements (Figure 4.8)
+ Patches of remnant vegetation and scattered remnant trees
+ Dams for farming and mining

FIGURE 4.7: YARRAMBAT PRIMARY SCHOOL C1940
SOURCE: YARRAMBAT HISTORICAL SOCIETY

FIGURE 4.8: LARGE WINDBREAK ALONG YAN YEAN ROAD

FIGURE 4.9: GOLDEN KING MINE MACHINERY
SOURCE: YARRAMBAT HISTORICAL SOCIETY

+ Mine tailings
+ Historic buildings (eg. Yarrambat post office)
+ Designated areas of public recreation (eg. Doreen Recreation Reserve).

Increased subdivision (1910 - present)

Agriculture has remained a key landuse of the wider project area over the last 100 years. Based on aerial imagery from 1951, many of the lots facing Yan Yean Road have been cleared for agricultural purposes. A few exceptions appear to be lot 59 in the southern extent of the activity area which appears to have been cleared for an orchard and lot 58 which appears to contain dense vegetation.

Aerial imagery from 1951 and 1963 indicates that many of the lots that face Yan Yean Road have established exotic windbreaks. The windbreaks were likely planted between 1886 and 1920 (as they take approximately 35 years to mature).

The former Golden King battery plant was erected at the North Oatlands Road Golden King mine site in 1941, after being removed from an unknown mine at Spargo Creek in central Victoria. It was removed to the Yarrambat Heritage Museum when the mine was closed down (Figure 4.9). The battery is of local historical significance as a surviving remnant of mining in Yarrambat, and in particular of quartz mining which was undertaken in the district on a relatively small scale from the late nineteenth to the late twentieth century.

The wider project area's rural land has been heavily influenced by the '*Planning Policies for the Melbourne Metropolitan Region*' (1971) which identified that rural land should be preserved. The current *Nillumbik Green Wedge Management Plan* (2019) reinforces this focus on protecting landscape values, cultural heritage, rural living and agricultural land.

More recently, the pattern of development within the northern project area has been reinforced by the introduction of an Urban Growth Boundary in 2002, as well as the release of the *North Growth Corridor Plan* in 2012. This has lead to the rapid urbanisation of suburbs within Doreen (Figure 4.10).

Relevant landscape features:

+ Patches of remnant vegetation and scattered remnant trees
+ Dams for farming and mining (eg. Yarrambat Park Lake)
+ Native and exotic street trees
+ Native revegetation
+ Private gardens and institutional amenity plantings
+ Parks, manufactured wetlands and other areas of open space.

Yan Yean Road corridor (1800 - present)

From its likely beginnings as a mining track in the mid 1800's, to the major connector route it is today, the Yan Yean Road corridor has transformed considerably. Yan Yean Road has become the state arterial travel route for commuters from new housing estates to the city, leading to increased pressure on the roadway.

The land use along the road boundary has changed too, with a general shift from agricultural to residential. Landscape elements along the corridor reflect the past land uses with a reduction in remnant vegetation and presence of large windbreaks and screening hedges, creating linear elements along the corridor (Figure 4.8).

Patches of remnant vegetation, including large, old indigenous trees remain a distinct characteristic of the road corridor (Figure 4.11). Old native and exotic feature trees are also visible from the road, planted along driveways, paddock boundaries or close to homestead sites.

Relevant landscape features:

+ Patches of remnant vegetation and scattered remnant trees
+ Exotic trees planted as windbreaks in long, linear arrangements
+ Native and exotic feature trees planted along driveways, paddock boundaries or close to homestead sites
+ Private gardens and institutional amenity plantings
+ Parks, manufactured wetlands and other areas of open space.

FIGURE 4.10: DEVELOPMENT WITHIN THE DOREEN

FIGURE 4.11: NATIVE TREE PLANTING LINING YAN YEAN ROAD

FIGURE 4.12: HISTORICAL LANDSCAPE FEATURES ACROSS WIDER PROJECT AREA

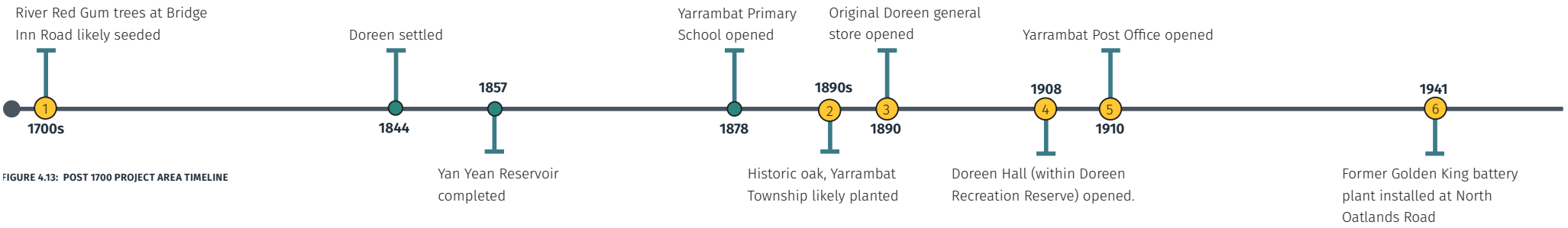


FIGURE 4.13: POST 1700 PROJECT AREA TIMELINE

The oak tree was probably planted by Robert and James Grey in the late 1800's. They were sons of George Grey (Senior) who lived at Tanck's corner for a short time and had previously worked under Baron Von Mueller with tree-planting in the Fitzroy Gardens. George Grey's older brothers (Jim and Bob) founded 'Grey's Reef' mine which was later taken over by the Clayton Brothers and renamed 'The Golden Stairs'. Source: Ye Olde Yarrambat Walk, Yarrambat Historical Society.

1974 (7)
A service station on the corner of Yan Yean Road and Worns Lane is present

1988 (8)
Modern Yarrambat Primary School opens

1990 (9)
Yarrambat Park Lake constructed. Mine operations on the corner of North Oatlands Road and Yan Yean Road have ceased. Area converted to a residential property. Some mining dams are still present.

2005 (10)
Yarrambat Golf Course established. Doreen township under construction

2015 (11)
Doreen Hall demolished. Yarrambat Primary School Avenue of Honour opened.

2017 (12)
Retail/commercial outlets and service station constructed on the corner of Bridge Inn Road and Yan Yean Road.

2019 (13)
Yan Yean Road Stage 1 upgrade complete.

2025
Yan Yean Road Stage 2 upgrade expected to be complete.

5. Value assessment

This chapter of the report provides a description and assessment of the inherent landscape values of the wider project area and the likely level of Project impacts upon those values.

Identifying the desirable qualities of the region and Project corridor will assist in guiding the Landscape strategy to better protect and enhance these values.

A wide range of methods have been employed to collect information on the area including professional analysis, vegetation surveys, ecological surveys, stakeholder engagement and community consultation.

The following key value assessments are covered within this chapter:

- 5.1 - Stakeholder and community engagement
- 5.2 - Cultural value of vegetation
- 5.4 - Landscape Character assessment
- 5.5 - Visual impact assessment.

5.1 Stakeholder and community engagement

Engaging the local community and relevant stakeholders ensured that place specific concerns, interests, values, design preferences and development plans could be considered early and incorporated into the Landscape strategy.

The findings from the engagement process are summarised within this Chapter, including a description of how the information received has shaped the Landscape strategy.

The following engagement activities were undertaken:

+ Exhibition of the Draft Scoping Requirements (April 2019 - May 2019)
+ Consultation on initial reference design (April - May 2018)
+ Land owner interviews (late 2017 - ongoing)
+ Online survey (May 2020)
+ Stakeholder Workshop 1, including pre-workshop survey (02/04/2020)
+ Stakeholder Workshop 2 (06/05/2020)
+ Stakeholder review of draft Landscape strategy.

5.1.1 Community feedback

For full details of community consultation activities undertaken as part of the Project, refer EES Chapter 6 and Attachment IV - *Stakeholder and Community Engagement Report.*

Exhibition of the Draft Scoping Requirements

During the consultation period between 30 April and 17 May 2019, 76 submissions were provided to DELWP in relation to the draft Scoping Requirements.

Of the 76 submissions, 62 referred to the two River Red Gum trees on the corner of Yan Yean and Doctors Gully Road. Other relevant submissions were about:

+ The loss of total trees along the alignment, including ecosystem concerns
+ Protection of wildlife and wildlife corridors
+ The protection for the culturally significant post office on the corner of Doctors Gully and Yan Yean roads.

Consultation on initial reference design

Analysis of the feedback received between April and May 2018 suggests the community is predominantly concerned with safety, traffic flow, local access and environmental impacts. Key relevant aspects of the feedback highlighted:

+ Support for the upgrade from a connectivity perspective however concerns about centre median barriers and access restrictions for local residents
+ The road will become a safer place for all users, and shared use paths and footpaths will improve active travel in the area
+ The environment and amenity are valued by the community and tree loss and wildlife barriers should be minimised, especially the two large River Red Gums on the corner of Yan Yean and Doctors Gully roads.

Land owner interviews

Face to face meetings have been undertaken since 2017 with the land owners of all properties along the Project corridor where acquisition is required, as well as those properties with access changes or properties that directly abut the road. These meetings are ongoing and have been followed up with phone conversations and emails.

Any location specific vegetation discussed within the interviews has been incorporated into the relevant mapping of Section 5.2 - *Cultural value of vegetation assessment.*

The following summarises the output from these meetings that is of relevance to the Landscape strategy:

+ Vegetation along property boundary's is valued for its ability to screen views of Yan Yean Road and reduce vehicle noise
+ Concerns around loss of privacy from removal of vegetation, especially in proximity to pathways
+ Numerous land owners expressed interest in a private property planting initiative
+ Desire to see existing boundary fences either reinstated or upgraded
+ Preferences expressed for retaining walls over batters to reduce Project footprint and associated land take.

Online survey

An online community engagement platform (Figure 5.1) was activated in May 2020 and included a survey on the types of landscape outcomes and treatments that the community would like to see implemented for the Project. The following is representative of the common feedback themes received.

Q1. Landscaping- Planter boxes, native trees and vegetation. What type of planting and plant species make your local area feel like home? What would you like to see more or less of?

+ Words mentioned most frequently with positive associations were 'native plants', 'trees', 'wildlife', 'greenery' and 'unobtrusive'
+ 'Locally indigenous preferably'
+ 'No planter boxes please - these will just require maintenance which will eventually go into neglect'
+ 'Increase vegetation wherever possible'
+ 'Reduce concrete and barriers (compared to stage 1)'
+ 'Less concrete and more footpaths, bike paths and native plants to create a public space that people can enjoy too. not just cars'
+ 'Trees, trees and more trees'
+ 'More native trees for birds and I would prefer some form of tunnels for wombats'
+ 'More Gumtrees, more banksia, hakea, protea, kangaroo paw, wattles'
+ 'Flowering natives for the bees and birds. Native grasses. A mix of heights in the planting. Ground covers to limit weeds. There are many families in the area, so play spaces are important. Preferably natural play spaces that are less likely to be targeted by vandals. Most importantly, maintenance to ensure that all areas are kept neat, tidy and safe.'

Q2. Streetscaping- What would you like to see as part of the Project? This could include public art, street furniture or natural play spaces.

+ Words mentioned most frequently with positive associations were 'playspaces', 'street furniture' and 'public art'
+ 'Public art' and 'street furniture' also had several mentions with negative associations
+ 'Public art that responds to features that are valued by the local community - e.g. native vegetation, native animals. I'd like to also see the area's heritage celebrated through any artworks or landscaping'
+ 'No art please, keep the ambiance of the bush'
+ 'If there is an option for a play space / eating picnic areas near the old post office would be wonderful. There are many food retailers in this local area but not really anywhere to sit outside and eat. Some art from the local schools / kindergartens would be a nice touch. This could include ceramic pieces that could be incorporated into a path or the concrete under the seating / play area'
+ 'Street furniture is silly. It won't be used. Any art should blend in with the vegetation'
+ 'Looking at the way people are using the first stage during the Corona virus, its great to see such a mixture of people walking and cycling. Provision for both of these activities as well as consideration of old people such as me, the odd toilet, lots of art, and places for me to catch my breath'
+ 'Public art that links to the indigenous and non-indigenous history of Doreen, either in the form of sculpture, mosaics or murals'
+ 'Footpaths for crossing the road safely'

FIGURE 5.1: YAN YEAN ROAD UPGRADE STAGE 2 CONSULTATION WEBSITE - ENGAGE VICTORIA

+ 'Street furniture would be beautiful, in a shaded landscape. That way people could buy food from the shops and sit out, under cover, to enjoy it'
+ 'Information about the first nations people that have been the custodians of this land for 60,000 years'
+ 'Separated bicycle lanes and wide footpaths. A less car-dominated environment'
+ 'Maybe art or street furniture that doubles as some shade for those walking in the summer. That is something lacking around Doreen'
+ 'Some art in the centre of the roundabouts like the Apple peel at Fitzsimmons lane Templestowe would be good'
+ 'Wicking beds where communal food could be grown'
+ 'The excessive use of steel barricades, and fencing in the first section of yan yean rd is extremely ugly and inappropriate in a semi rural area'
+ 'Bike tracks away from road would be awesome. Covered bus shelters.'

Q3. Timber reuse - How would you like to see timber that is removed for the Project re-purposed to benefit the local community? This could include sculptures, benches, habitat logs, timber and mulch donation to local community groups or natural play spaces.

+ Words mentioned most frequently with positive associations were 'public art', 'wildlife', 'street furniture', 'benches' and 'recycling'
+ 'Public art' also had several mentions with negative associations
+ 'If timber has to be removed, I believe that it should be re-purposed for sculptures, natural playspaces and street furniture. Areas set aside for native habitat could have logs used for habitat. Timber could also be donated to community groups as mulch, usable timber (Men's Sheds, kindergartens etc)'
+ 'Donation of mulch to Butterflies childcare centre and Yarrambat Primary School, and any of the local schools / kindergarten in the area'
+ 'I love the sculptures and benches along Stage 1. Perhaps benches and table seating in appropriate areas - like along the shared footpath and at the Bridge In Rd intersection. Perhaps even used to make pergolas to sit under'
+ 'It would be good to see any timber remain as close to it's point of origin as possible'
+ 'Tree stumps should be carved'
+ 'Sculptures of defence force personnel'.

Q4. Bridge Inn Road - Some of our design options create some opportunities to landscape near the two River Red Gum trees. What would you like to see at this intersection?

+ Words mentioned most frequently with positive associations were 'native plants', 'trees', 'parks', 'greenery' and 'unobtrusive'
+ 'I would like to see native shrubs and grasses to enhance the area near the two River Red Gum trees. It would be good to see natural areas fenced off around the River Red Gums so that the gums are protected and natural habitat can be protected and enhanced'
+ 'Native vegetation that does not obscure traffic visibility'
+ 'Care and respect paid to these very significant trees'
+ 'Space for people to enjoy the River Gums. A place for people to learn about the history of the area including the development of native gardens to provide habitat for some of our native birds and wildlife'
+ 'Natural landscape with big rocks acknowledging the traditional owners of the land Incorporate and acknowledge the farming in the district'
+ 'A local park or memorial to a significant group of people in out community'
+ 'Great if solar up-lighting could be installed to enhance the trees and highlight them at night'
+ 'This new intersection will form a gateway to entering the urban living areas of Doreen and Mernda - some kind of Welcome Gateway sign could instill pride for local residents'.

Feedback summary

+ The environment is a notable theme arising in the feedback, including reference to the River Red Gums and general concern for the loss of local flora and fauna
+ The River Red Gums were consistently mentioned in reference to the theme of history/heritage due to their presence in the community. The old post office was also raised as being important to the area's history
+ There was a strong preference expressed for native and indigenous plant species to maintain the existing landscape character of the area
+ Cycling and walking pathways were highly valued

+ Mixed opinions were expressed in relation to public art and street furniture. Where a positive sentiment was expressed, several comments raised a desire to match the timber art work and benches of stage 1. Feature lighting was mentioned several times
+ Shading of pathways and seating areas was a key theme
+ Suggested themes for art works/timber reuse included Aboriginal references, local history, heritage, wildlife, defence force personnel and children's art works
+ Several comments expressed a desire for less concrete and barriers within stage 2 compared to the stage 1 upgrade outcome.

Incorporating outcomes into the Landscape strategy

The sentiments expressed within the Online Survey have been incorporated into the Landscape strategy in the following ways:

+ Acknowledgment of the importance of high quality walking and cycling infrastructure
+ Acknowledgment of the desire for a reduction in perceived hard surfaces compared to the stage 1 upgrade
+ Consideration of community responses in the opportunities and constraints mapping
+ Inclusion of art work theme suggestions and community initiatives eg. mulch/timber reuse
+ Acknowledgment of the importance of trees for the local community
+ Focus on indigenous species within the recommended planting selection.

5.1.2 Stakeholder workshop 1

The first workshop was undertaken to bring together key stakeholders to discuss and provide early inputs to guide the direction of the Landscape strategy. The workshop focused on the Project context, refining the vision statement and discussing key constraints and opportunities along the Project corridor. As the COVID-19 situation unfolded during this time, Arup created an online workshop hosted on Zoom.

The workshop was held on Thursday 2 April from 9am to 11am and was attended by 23 participants from:

+ Shire of Nillumbik - 6 attendees
+ City of Whittlesea - 2 attendees
+ Department of Transport (DoT) - 4 attendees
+ Department of Environment, Land, Water and Planning (DELWP) - 3 attendees
+ Office of the Victorian Government Architect (OVGA) - 1 attendee
+ MRPV - 7 attendees

This phase of engagement included:

+ Pre-workshop online survey – the survey was designed to collect responses to a variety of 'thought starter' questions to assist in making the workshop time more productive (refer Figure 5.2)
+ Online workshop – the workshop was hosted via Zoom
+ Online polls – three small polls were run during the online session
+ Follow up email – an email was sent to all participants which included a link to the recording of the workshop and a request to provide any further feedback to MRPV about the workshop.

Pre-workshop survey results

The survey received 7 responses. The intention of the survey was to provide discussion starting points for the workshop, however with such a small number of responses, it was considered unrepresentative and so the results were not used in the workshop. The responses have been reviewed, however, and the feedback provided has been considered as part of the Landscape strategy development.

At a high level, the survey supported the discussion in the workshop with respondents eager to see a well vegetated, native, resilient and readily maintainable approach to the Project's landscape design.

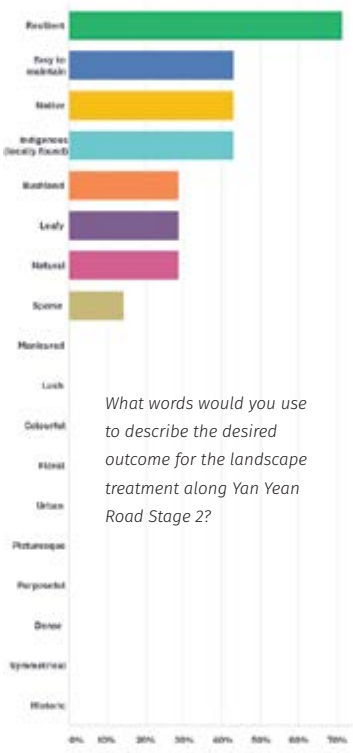


FIGURE 5.2: EXAMPLES OF ANSWERS RECEIVED FROM ONLINE PRE-WORKSHOP SURVEY

Workshop discussion themes

The workshop provided Arup and MRPV with information and resources to use in further developing the Landscape strategy. The session focused on the value assessment work undertaken and the developing landscape vision and key moves. Participants provided links and documents to various masterplans and relevant guidelines.

The key themes to emerge from the workshop discussion included:

Vision statement discussion

Feedback from participants in a Zoom poll during the session indicated that the vision statement was viewed as 'okay' or 'good' (50% for each response).

Comments for adjusting/improving the statement included:

- How does the Nillumbik Green Wedge Management Plan inform the vision?
- Where it says 'respect the cultural values' what about 'respect the environmental and cultural values'? It doesn't include enough about the existing environmental attributes
- Should it use the phrase 'Green Transport Corridor'? It is just a transport corridor as it does not include public or active transport priorities?
- Wording could be 'respect of country' if Aboriginal input sought
- I suspect that successful contractor wouldn't appreciate the broad nature of your verbal definition of 'cultural value'
- Including the word 'protect' might help
- Should part of the vision be to minimise the road footprint to reduce community and environmental impacts?

Learnings from Stage 1

- The group expressed the desire for a less urban characteristic to Stage 2 ('need to reduce the concrete feel')
- Concerns were expressed about the right mix of planting and the sustainability of some of the planting that had been installed in Stage 1.

Maintenance

- The strategy must take into account the need for effective and efficient ongoing maintenance. e.g. plantings in medians may cause safety concerns for maintenance crews
- There is potential tension to be resolved between the desire for a well landscaped environment and the requirements of ongoing maintenance.

Responsiveness to local context

- Participants felt strongly that the landscape should, wherever possible, protect and reinforce existing plantings and trees
- Wildlife needs – corridors of movement, but also safety e.g. prevention of grazing on roadsides
- Need to co-ordinate with Yarrambat Township Plan, including desired corner gateway feature.

Connectivity

- Consider horse riding use near the horse and pony club including existing crossing near Laurie Street
- The needs of on-road cyclists vs shared path users.

Construction

- Potential for staged removal of vegetation to temporarily reduce visual and dust impacts
- How to get the contractor to adhere to Landscape strategy – strategy should form part of contract documents
- Consideration of no go zones for important landscape areas
- Requirement for a tree management plan.

Other specific considerations raised

- Utility offsets and potential for under-grounding electricity lines
- The wall at the archery club - could this be a feature wall?
- Removal of parking along Orchard Road - desire expressed that this would be retained.

Wurundjeri Land Council Discussion

As the workshop did not include all desired stakeholder groups, an individual follow-up session was undertaken with a representative from the Wurundjeri Land Council. The following key points were discussed:

- No specific vegetation along the Project corridor identified as having Aboriginal significance
- Preference for indigenous planting
- Removal of non-native vegetation would be seen as a benefit to landscape character
- Opportunities for reuse of timber removed from site including re-purposing of wood for furniture, art works or other wood working activities
- Opportunities for employment of indigenous staff in seed collection and nursery work
- Opportunities for interpretative signage regarding indigenous landscape or planting such as edible plants.

Incorporating outcomes into the Landscape strategy

- Refinement of the Landscape strategy vision, incorporating stakeholder feedback. The words 'safe', 'protect' and 'enhance' added and the ambiguous term ‘green’ replaced with ‘well vegetated’
- Update of opportunities and constraints mapping incorporating stakeholder feedback on connectivity, ecology and relevant masterplans
- Update of relevant design guidelines to consider concerns raised around maintenance, wildlife, connectivity and Wurundjeri Land Council preferences
- Inclusion of a ‘Landscape strategy implementation’ section to clearly articulate how the strategy would be implemented through the ongoing design and operation stages
- Inclusion of references to relevant Council policies, guidelines and current masterplans.

5.1.3 Stakeholder workshop 2

The second workshop was undertaken on 6th May 2020. The workshop was attended by 28 participants from:

- Shire of Nillumbik - 5 attendees
- City of Whittlesea - 3 attendees
- Department of Transport (DoT) - 5 attendees
- Department of Environment, Land, Water and Planning (DELWP) - 3 attendees
- Office of the Victorian Government Architect (OVGA) - 1 attendee
- Parks Victoria - 1 attendee
- Wurundjeri Land Council - 1 attendee
- MRPV - 6 attendees

Workshop discussion themes

The workshop provided Arup and MRPV with feedback on the developing Landscape strategy, with a focus on key Project elements and their relevant design guidelines. These included:

- Intersection guidelines
- Roundabouts guidelines
- Walking and cycling pathways guidelines
- Retaining wall guidelines
- Earthworks guidelines
- Screening guidelines
- Water-sensitive urban design guidelines

Key themes to emerge from the workshop discussion included:

Planting in medians and behind kerbs

+ Participants felt strongly that where possible, medians should include some kind of planting, but this needed to be easily maintained and fulfill safety requirements
+ It was suggested that minimum widths/areas for planted medians could be included in the guidelines.
+ The use of native grasses to minimise maintenance was proposed.

Tension between 'green wedge' and maintenance requirements

+ As emerged in the first workshop, the guidelines need to walk a careful line between providing an environment in-keeping with the area's well vegetated character while managing the need for safe and efficient maintenance.

Intersections and Roundabouts

+ Key outcome discussed around having an intuitive design for pedestrians at intersections as well as for drivers
+ Where space is available (including roundabouts), trees should be prioritised to strengthen the landscape character
+ Trees also provide a landscape marker function for navigation, if they are different at each roundabout.

Indigenous vs exotic planting

+ A poll was run during the meeting and a preference for indigenous planting was strongly preferred.

Retaining walls

+ There was discussion around the decision to have taller retaining wall panels to avoid the use of a galvanized safety fence to wall tops. It was noted that this needed to be balanced with passive surveillance and visual permeability considerations
+ The group strongly preferred a level or consistent sloping top line to walls and fencing in contrast to stepping
+ Retaining walls will be highly visible and their finish is an important consideration - especially where there is insufficient space for landscape screening.

Earthworks

+ Steeper embankments may be an issue from a maintenance perspective
+ A relatively consistent design strategy needs to be developed that incorporates retaining walls and embankments given both potentially reveal the topography and geology. A combination of batters and retaining walls may be appropriate in some areas where slopes are steep.

Water sensitive urban design

+ A number of topics were raised in the discussion about water-sensitive urban design. These included the option to speak with adjoining landowners about stormwater harvesting (in particular schools), bio-retention treatments in roundabouts and the critical nature of the drainage infrastructure.

Wildlife/fauna

+ The opportunity for rope bridges in roundabouts to improve fauna movements through reduced crossing distances
+ Consideration of fauna movements in culverts (in particular near the Plenty Valley Christian College) e.g. dry shelf.

Public art

+ A public art strategy should form an overall design guideline that aligns with the vision and design intent for the Project.

Incorporating outcomes into the Landscape strategy

+ Update of relevant design guidelines to consider concerns raised around maintenance, flora, fauna, safety and visual amenity
+ Removal of difficult to maintain vegetation within narrow verges and islands
+ Addition of design guidelines to provide more detail on medians, verges and construction activities
+ Modifications to retaining wall guidelines to highlight importance of high quality finish
+ Strengthening guidelines around opportunities to maximise tree planting and locate electrical utilities underground
+ Update of species list to remove exotic planting.

5.2 Cultural value of vegetation

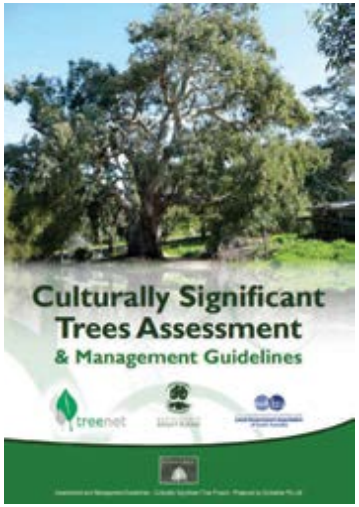


FIGURE 5.3: CULTURALLY SIGNIFICANT TREES ASSESSMENT & MANAGEMENT GUIDELINES (2012) PREPARED BY SYMATREE.

5.2.1 Methodology

Australia's International Council on Monuments and Sites (ICOMOS) defines cultural significance as *'aesthetic, historic, scientific, social or spiritual value for past, present or future generations.' (Australian ICOMOS, Burra Charter Article 1.2, 2013).*

When judged against these criteria, culturally valuable vegetation can be defined as landscape components that contribute to their environment, over and above the accepted values of other vegetation. Culturally valuable vegetation helps us understand the past or enrich the present, while being of value to future generations.

There is no standadised methodology for the assessment of the cultural value of vegetation. The assessment within this report has been undertaken in accordance with the guidance within the following best practice documents (Figure 5.3):

+ *Culturally Significant Trees Assessment & Management Guidelines,* 2012, Symatree
+ *Significant Tree Register Criteria*: National Trust of Australia (Victoria).

Assessment criteria

Arup have used the Australian ICOMOS, Burra Charter's five definition criteria to assess the value of vegetation components within the project area as follows:

Social - Vegetation can play an important role in the community, making valuable contributions to public open such as parks, nature reserves, footpaths, cycleways and playgrounds. Vegetation may also enhance private and semi-private space such as gardens and golf courses. Trees and other plantings may help identify special places or have associations with individual people and communities. Vegetation can provide shade and shelter, as well as helping to screen views from private and public areas.

Aesthetic – Vegetation can make a recognisable contribution to landscape character, visual amenity or placemaking qualities of a particular location. They may be a noticeable feature within their urban or rural setting or make contributions to the overall structure of the landscape. Some vegetation may visually dominate a place by its size, scale or visual interest.

Scientific – Vegetation can be rare, vulnerable, endangered or of a great age. Remnant trees from former natural ecological communities may retain valuable habitat and faunal corridors for other endangered and dependent species.

Historic – Vegetation can be associated with important eras, buildings, events or people. Landscape plantings may reflect specific epochs in garden design, landscape architecture or historical land uses. Historic vegetation protected by planning legislation indicates quantifiable heritage value and may include both Aboriginal and Non-Aboriginal heritage.

Spiritual – Vegetation can have value associated with religion, cultural practices or storytelling. Examples include Aboriginal-scarred trees, ceremonial trees or landscape components associated with Aboriginal Dreamtime stories.

Refer Table 5.1 and Figure 5.5 for further details on how these value criteria have been used within the assessment.

Gathering information

Data has been collected for all vegetation within the project area. Vegetation components assessed include:

+ Individual trees
+ Groups of trees
+ Public open space eg. parks
+ Public/private open space eg. golf course
+ Screening hedges
+ Wetlands
+ Ecologically significant species.

Data was collected across the five value criteria through varied methods, including arboricultural surveys, ecological survey, a site walk through, planning literature reviews and community consultation.

Tree data was taken from:

+ Technical Report B1 - Biodiversity Existing Conditions Report
+ Technical Report C – *Arboriculture Assessment.*

Refer Table 5.1 and Figure 5.5 for further details on assessment methodology for each value criteria.

Assessing cumulative value

A simple scoring system was used to rate vegetation components against the selected value criteria. If the vegetation component was found to have value against one of the five criteria, it was awarded a point. A total was then taken across all criteria and a final score allocated for that vegetation component (Figure 5.4).

Given the subjective nature of an individual's appreciation of any given vegetation component, the cultural value assessment of vegetation is by its nature not an exact science. While the Scientific and Historic values can be easily established through planning data, the qualitative criteria of Aesthetic, Social and Spiritual are more difficult to assess. As a consequence, the key to a robust assessment process is to explain clearly the criteria upon which an assessment is made:

"The outcome of a qualitative assessment would necessarily be subjective. However, although beauty is inevitably in the eye of the beholder, the framework for how an assessment is undertaken must be clearly articulated. While minds may differ on outcomes of such an assessment, there should not be issues arising concerning the rigour of the process." NSW Land and Environment Court

Mapping

GIS software was used to map the outcome of the data assessment under each of the five value criteria, before a cumulative value 'heat map' was produced to highlight where vegetation triggered multiple values. This final heat map gives an indication of where vegetation with the greatest cultural value is concentrated across the project area.

Assumptions

+ Only vegetation that falls within or immediately adjacent to the identified project area has been assessed
+ All vegetation (other than designated weeds) can be considered to have some intrinsic value. The methodology considers vegetation that contributes to the environment, over and above the accepted values of other vegetation as per the definition of the five value criteria
+ Vegetation changes over time and has a finite lifespan. This assessment is a snapshot of the current situation, taken at the time of the arborist survey (2020).

Incorporation into the Landscape strategy

Understanding the distribution of culturally valuable vegetation and its relationship to nearby land use allows the consideration of these values within the design process. The Landscape strategy addresses how this vegetation can be protected (where feasible) and if not, how identified values can be reinforced and rehabilitated within new landscape treatments. The outcome of this vegetation assessment was also used to inform the sensitivity ratings for particular view locations within Section 5.5 - *Visual Impact assessment.*

it should be noted that not all vegetation within the project area would be impacted by the Project. The level of impact would depend on the final Project alignment and location of no-go zones.

FIGURE 5.4: DATA WAS COLLECTED ACROSS THE FIVE VALUE CRITERIA TO ATTAIN A CUMULATIVE VALUE RATING

Value criteria	Assessment method	Data used	Examples of value	Notes
Social 	+ Site walk through + Community consultation + Stakeholder engagement.	+ Site visit 11/03/2020 + Public reserves + Stakeholder workshop held 02/04/2020 + Technical Report C – *Arboriculture Assessment* + Land owner interviews.	+ Provides shade, shelter or visual screening + Enhances private or public open space + Community association with place, people or events.	+ Vegetation within public open space in proximity to the Project has been included in this value criteria + Private property screening vegetation is classified as that which screens views of the existing road corridor from properties in close proximity to the Project works + Specific vegetation mentioned within land owner interviews has been included + Social vegetation can be either indigenous, native or exotic, planted or self seeded.
Aesthetic 	+ Site walk through + Community consultation + Stakeholder engagement.	+ Site visit 11/03/2020 + Stakeholder workshop held 02/04/2020 + Technical Report C – *Arboriculture Assessment* + Land owner interviews.	+ Large dimensions (height, circumference, canopy spread) + Occurs in a unique location or context - landmark/feature/gateway marker/ unique shape + Adds notable structure to the landscape eg. avenue trees or trees that frame a view	+ Aesthetic vegetation can be either indigenous, native or exotic, planted or self seeded + Specific vegetation mentioned within land owner interviews has been included.
Scientific 	+ Arboriculture survey + Ecological survey + Statutory listings.	+ Technical Report B1 - *Biodiversity Existing Conditions Report* + Technical Report C – *Arboriculture Assessment.*	+ Protected species + Ecologically significant flora identified within Technical Report B1 - *Biodiversity Existing Conditions Report* + Key species for Swift Parrot foraging habitat + High or very high retention value within Technical Report C – *Arboriculture Assessment.*	+ Key habitat trees for the Swift Parrot - Spotted Gum (*Corymbia maculata*), Grey Box (*Eucalyptus microcarpa)*, Mugga/Red Ironbark *(Eucalyptus tricarpa)*, Yellow Box *(Eucalyptus melliodora),* Swamp Mahogany (*Eucalyptus robusta),* Red Ironbark *(Eucalyptus sideroxylon),* Forest Red Gum *(Eucalyptus tereticornis)* and Yellow Gum *(Eucalyptus leucoxylon)* + Retention value - Very High - tree is an outstanding example of the species + Retention value - High - tree is a mature specimen with fair to good health/structure and a useful life expectancy of at least 10 year.
Historic 	+ Statutory heritage listings	+ Aboriginal Heritage Act + Planning Scheme Heritage Overlay + Technical Report F – *Aboriginal and Historical Cultural Heritage Impact Assessment*	+ Heritage listed item + Aboriginal heritage item.	+ Vegetation component must be relevant to a statutory listing to trigger this value criteria + Any other historic association is covered within either the Social value criteria as 'Community association with place, people or events' and/or the Asthetic value criteria as adding 'notable structure to the landscape'. Refer Chapter 4.6 - *Historical landscape* for more detail on historical vegetation components across the wider project area.
Spiritual 	+ Community consultation + Stakeholder engagement	+ Discussion with Narrap as a Wurundjeri Land Council representative held 09/04/2020 + Victorian Aboriginal Heritage Register + Technical Report F – *Aboriginal and Historical Cultural Heritage Impact Assessment.*	+ Aboriginal or religious association.	+ Wurundjeri stated that they have no specific oral histories relating to the project area + There are no registered scar trees within the project area, although it should be noted that there are registered scarred trees within the wider geographic region. There is the potential for unregistered scar trees to be present within the project area, as discussed in Technical Report F – *Aboriginal and Historical Cultural Heritage Impact Assessment.*

TABLE 5.1: CULTURAL VALUE OF VEGETATION ASSESSMENT CRITERIA

SOCIAL

'AVENUE OF HONOUR' - YARRAMBAT PRIMARY SCHOOL

AESTHETIC

FEATURE TREE - ORCHARD ROAD

SCIENTIFIC

SWIFT PARROT FORAGING HABITAT

HISTORIC

HERITAGE RIVER RED GUM - DOCTORS GULLY ROAD

SPIRITUAL

POTENTIAL ABORIGINAL ASSOCIATION

FIGURE 5.5: EXAMPLES OF CULTURAL VALUE ACROSS THE PROJECT AREA

5.2.2 Trees within the project area

In accordance with Technical Report C – *Arboriculture Assessment*, there are a total of **7,030** trees within and in close proximity to the project area. These include **3,743** indigenous trees, **1,852** Australian natives and **1,435** exotic specimens.

Approximately 20% of the project area supports native vegetation, which in some areas forms larger contiguous patches of vegetation on adjoining rural blocks, or on public land such as Yarrambat Golf Course.

Technical Report C describes the subject site has having a generally healthy tree population. About 82% of the trees were assessed with fair to good health and 1% (83 trees) were assessed with very good health. More than half of the trees (53%) are indigenous and well adapted to the site. Nearly 67% of the assessed trees are demonstrating fair to good structure. The trees were assessed for their health, structure and useful life expectancy and placed in a retention category:

+ 12 trees have very high retention value
+ 346 trees have high retention value
+ 2,169 trees have moderate retention value
+ 3,533 trees have low retention value
+ 189 trees have no retention value and should be removed for safety concerns
+ 782 trees were assessed Third Party Ownership.

5.2.3 Vegetation - Aboriginal cultural association

Although no significant Aboriginal sites related to vegetation have been recorded across the project area, much of the existing and past native remnant vegetation would have been utilised by Aboriginal people for food and the creation of cultural items such as weapons and vessels. The information below is taken from *Aboriginal Plant Use in South-Eastern Australia*, Nash, D. 2004 and *Aboriginal and Historical Cultural Heritage Impact Assessment*, Ecology and Heritage Partners, 2019.

Native vegetation would have supported a range of game that could be hunted for food. The leaves of some eucalypt species were crushed and soaked in water for medicinal purposes and bowls and dishes were made from the heavy bark. The Kulin people in southern Victoria made bowls called 'tarnuks' from the gnarls on gum trees to carry water. Hard eucalypt wood was also used to make spear-throwers, boomerangs and shields.

Kangaroo Grass seeds ripen in summer and can be ground into a flour for the preparation of damper. Riceflower bark could be made into string and nets. Blackwood (Acacia melanoxylon), common in the riparian zone, is a very hard wood, used for spear-throwers and shields. Other plants and fungi were also valuable food and medicine.

Canoes were made from the bark of gum trees. The removal of bark characteristically results in visible modification of the trees that make them identifiable as scarred or culturally modified trees.

5.2.4 Social value

Vegetation identified within this category plays an important role in the community, contributing to the amenity of public and private spaces along Yan Yean Road. Social vegetation may provide shade, shelter, visual screening or have associations with individual people and communities. The identified vegetation relates to the human use patterns of Yan Yean Road and the surrounding areas.

There were **1,615** trees and **five** areas of open space noted under this value criteria within the project area. The following key vegetation components were identified (Figure 5.6):

- Socially important River Red Gum trees at Doctors Gully Road/Bridge Inn Road intersection
- Visual screening of private dwellings along the entire road corridor
- Visual screening to educational facilities and religious institutions including Plenty Valley Christian College, Butterflies Childcare and St Macarius Coptic Orthodox Church
- Buffer planting to boundary of public open space including Doreen Recreation Reserve, Werther Park, Yarrambat Park and Yarrambat Park Golf Course
- 'Avenue of Honour' WW1 memorial planting to Yarrambat Primary School
- 'Historic Oak' within Yarrambat Township - featured as a point of interest within the Yarrambat community brochure 'Ye Olde Yarrambat Walk'
- Shade provision along footpaths
- Windbreaks along property boundaries
- Grass, shrub and tree planting within public open space including Doreen Recreation Reserve, Orchard Park, Werther Park, Yarrambat Park and Yarrambat Park Golf Course.

FIGURE 5.6: SOCIAL VEGETATION VALUE ACROSS PROJECT AREA


SCREENING
BUFFER
SCREENING
SCREENING
COMMUNITY
COMMUNITY
SCREENING
SCREENING
SCREENING
Bannons Lane
Golf Links Drive
Youngs Road
Ironbark Road
Yan Yean Road
Tieman Road
Heard Avenue
Ashley Road
N Oatlands Road
Worns Lane
Yan Yean Road
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
YARRAMBAT PRIMARY SCHOOL
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK PUBLIC GOLF COURSE
YARRAMBAT PARK
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
N
0
200m

5.2.5 Aesthetic value

Vegetation identified within this category makes a recognisable contribution to the landscape character, visual amenity or placemaking qualities of a particular location. This includes notable individual trees that are prominent visual markers, as well as clusters of trees and other vegetation that provide structure to the landscape.

Aesthetic trees can be either native and exotic. They are often large and include trees planted along driveways, paddock boundaries or close to homestead sites. Feature trees tend to be individual specimens that provide noticeable visual markers in the landscape. Landmark trees are individual trees or groups which contribute to the sense of place of a particular location.

Groups of aesthetic value trees provide provide structure to the landscape and can provide a connection with historical land uses.

There were **130** vegetation components noted under this value criteria within the project area. The following key vegetation components were identified (Figure 5.7):

- Large and old landmark trees at Doctors Gully Road/Bridge Inn Road intersection - River Red Gums (*Eucalyptus camaldulensis)*
- Large native and exotic trees along the road corridor that provide visual features, including at Youngs Road intersection and Orchard Road intersection
- Feature trees including introduced trees planted along original driveways, paddock boundaries or close to homestead sites
- Landmark trees at entrance to Yarrambat Park
- 'Avenue of Honour' WW1 memorial planting to Yarrambat Primary School
- Large old oak tree within Yarrambat Primary School car park, Yarrambat Township.

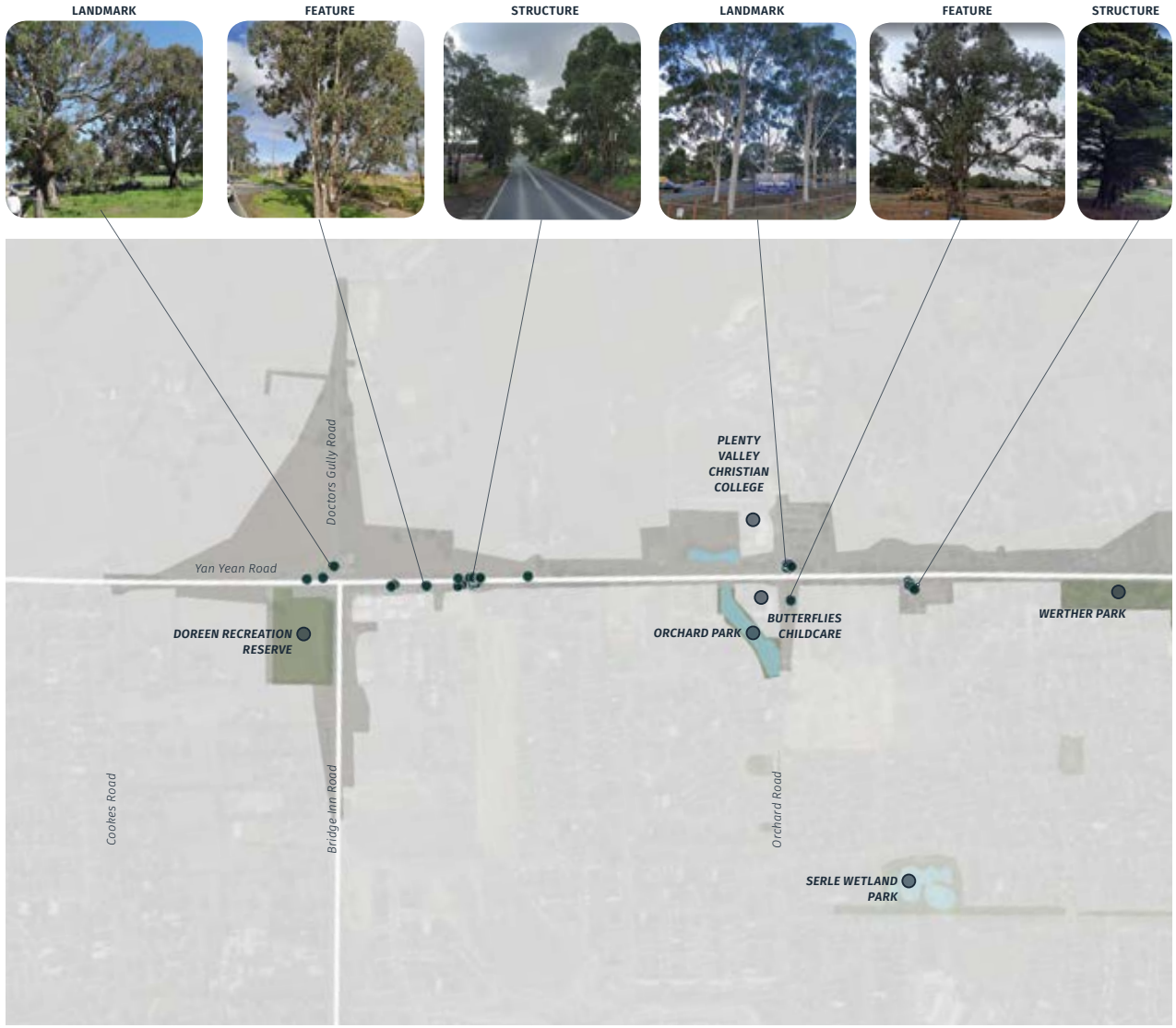


FIGURE 5.7: AESTHETIC VEGETATION VALUE ACROSS PROJECT AREA


LANDMARK AND STRUCTURE
LANDMARK
FEATURE
LANDMARK
FEATURE
FEATURE
FEATURE
FEATURE
Bannons Lane
Golf Links Drive
Youngs Road
Ironbark Road
Yan Yean Road
Tieman Road
Heard Avenue
Ashley Road
N Oatlands Road
Worns Lane
Yan Yean Road
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
YARRAMBAT PRIMARY SCHOOL
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT PARK PUBLIC GOLF COURSE
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK
N
0
200m

5.2.6 Scientific value

Vegetation identified within this category includes high quality flora and fauna habitat. The mapping includes trees identified by the Project arborist as being of 'High' or 'Very High' retention value (based on species and health), vegetation identified as being key Swift Parrot habitat and any ecologically significant flora.

The following locations were noted to support higher quality values within Technical Report B1 - Biodiversity Existing Conditions Report:

- Doreen River Red Gums at the Yan Yean/Bridge Inn/Doctors Gully roads intersection
- Native vegetation within and adjacent Werther Park
- Studley Park Gum and Matted Flax-lily plants adjacent Yarrambat Park
- Native vegetation between Ashley Road to Vista Court and between Laurie Street and Bannons Lane.

There were **1,022** vegetation components noted under this value criteria within the project area.

The following key vegetation components were identified (Figure 5.8).:

- Trees identified by the arborist as Very High (12 trees) and High (346 trees) retention value
- Key habitat trees for the Swift Parrot (660 trees). Spotted Gum (*Corymbia maculata*), Grey Box *(Eucalyptus microcarpa)*, Mugga/Red Ironbark *(Eucalyptus tricarpa)*, Yellow Box *(Eucalyptus melliodora),* Swamp Mahogany (*Eucalyptus robusta),* Red Ironbark *(Eucalyptus sideroxylon),* Forest Red Gum *(Eucalyptus tereticornis)* and Yellow Gum *(Eucalyptus leucoxylon)*
- Ecologically significant flora species including two Matted Flax-lilies *(Dianella amoena)*, one Studley Park Gum *(Eucalyptus x studleyensis)* and a Pale-flowered Crane's Bill Geranium.

PALE-FLOWERED CRANE'S BILL GERANIUM

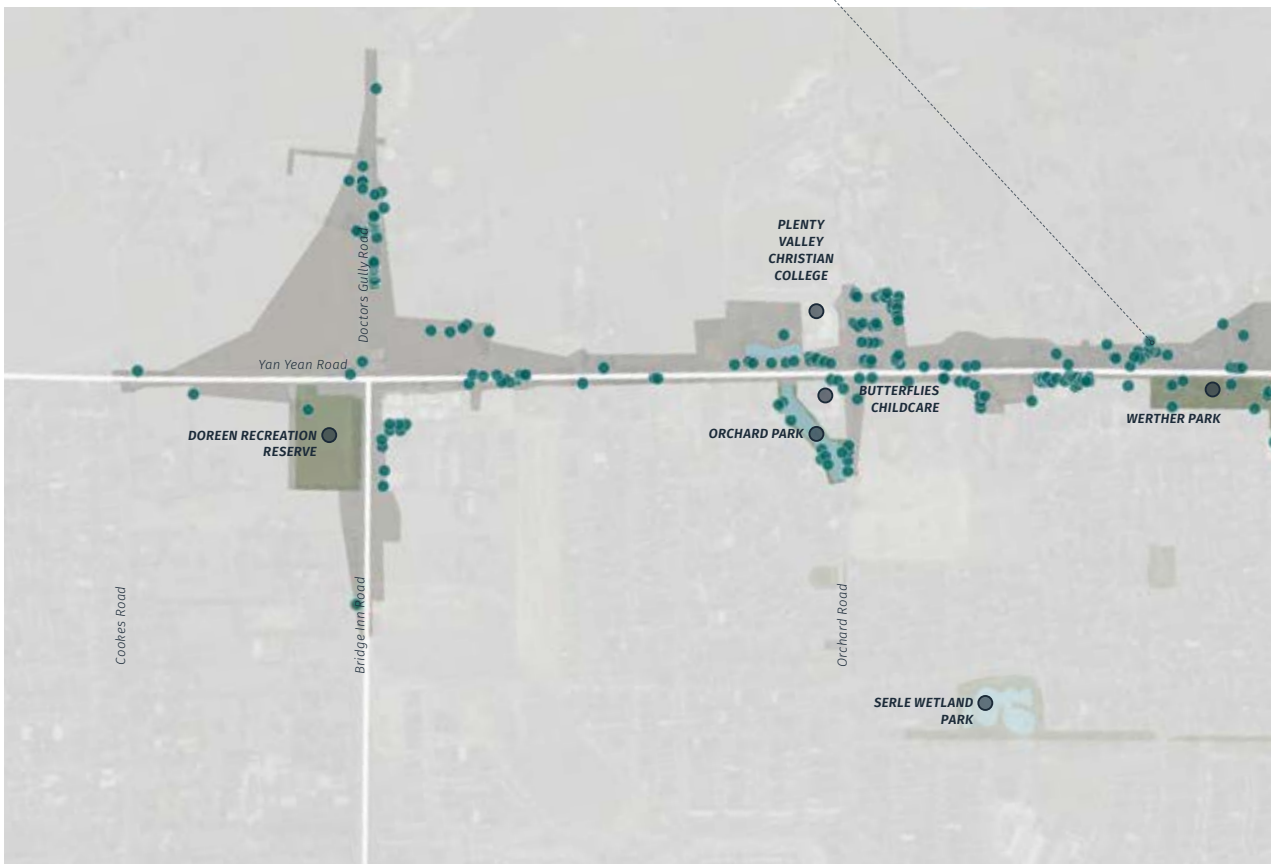


FIGURE 5.8: SCIENTIFIC VEGETATION VALUE ACROSS PROJECT AREA

STUDLEY PARK GUM

MATTED FLAX-LILY

5.2.7 Historic and Spiritual value

Vegetation identified within these two categories includes trees protected by planning legislation and/or associated with Aboriginal or European spirituality. The following key values were identified (Figure 5.9):

Historic

+ HO191 - **Two** River Red Gum Trees - Heritage Overlay under the Nillumbik Planning Scheme. Significant as an *'expression of the indigenous vegetation at European Settlement'* and *'for their relative prominence and maturity, located at the community centre of Doreen'.*

Spiritual

Based on consultation with a representative from the Wurundjeri Land Council and as identified within the *Aboriginal and Historical Cultural Heritage Impact Assessment* by Ecology and Heritage Partners, 2019, no specific oral histories relating to the project area exist.

No Aboriginal scar trees were identified within the project area, although it should be noted that there are registered scarred trees within the geographic region.

FIGURE 5.9: HISTORIC AND SPIRITUAL VEGETATION VALUE ACROSS PROJECT AREA


CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
Bannons Lane
Golf Links Drive
Youngs Road
Ironbark Road
YARRAMBAT PRIMARY SCHOOL
Tieman Road
Heard Avenue
Yan Yean Road
DIAMOND VALLEY ARCHERS
YARRAMBAT HERITAGE MUSEUM
YARRAMBAT HORSE & PONY CLUB
YARRAMBAT PARK PUBLIC GOLF COURSE
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
YARRAMBAT PARK
Ashley Road
N Oatlands Road
Worns Lane
Yan Yean Road
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0
200m

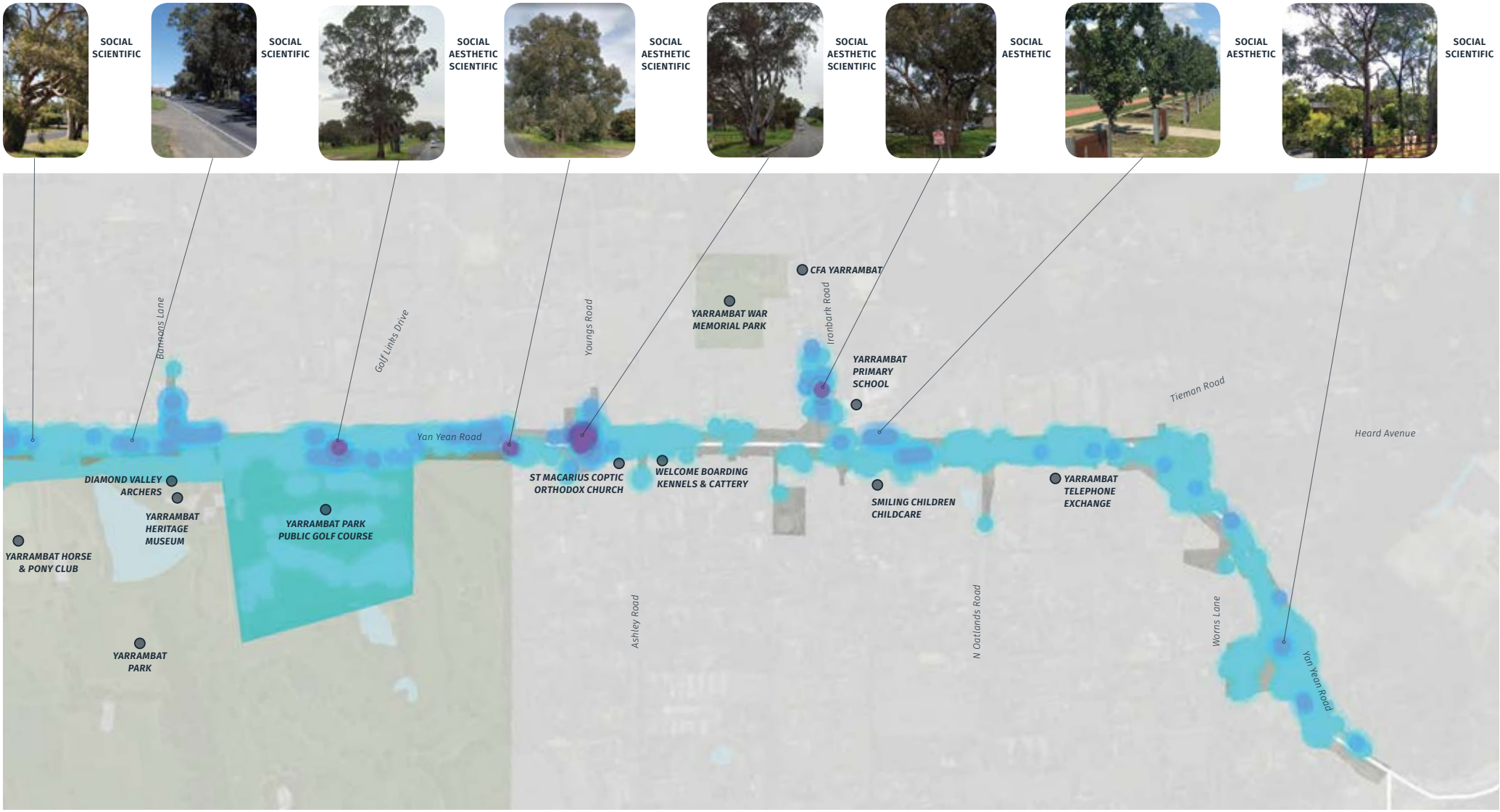
5.2.8 Cumulative value

Figure 5.10 indicates where vegetation components have triggered one or more value criteria. The 'warmer' the colour, the greater the number of value criteria a vegetation component features under.

The following key findings were made across the project area:

- **2,399** out of **7,039** vegetation components analysed within the project area (trees, parkland and significant flora species) were identified as having some form of cultural value
- Of these, **2115** (88%) triggered one value criteria, **272** (11%) triggered two, **10** (0.4%) triggered three and **two** trees (0.08%) triggered four value criteria - the River Red Gums at Bridge Inn Road intersection
- Value hot spots include the River Red Gums at Doctors Gully Road/Bridge Inn Road intersection, 'Avenue of Honour' WW1 memorial plantings at Yarrambat Primary School and important aesthetic/social value trees within Yarrambat Township such as the 'historic oak'
- Cultural value was also elevated at locations along the Project corridor that combined social and scientific value within screen plantings.

FIGURE 5.10: CUMULATIVE VEGETATION VALUE ACROSS PROJECT AREA


SOCIAL
SCIENTIFIC
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Youngs Road
Ironbark Road
Yan Yean Road
Tieman Road
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WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
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5.3 Landscape character and visual impact assessment methodology

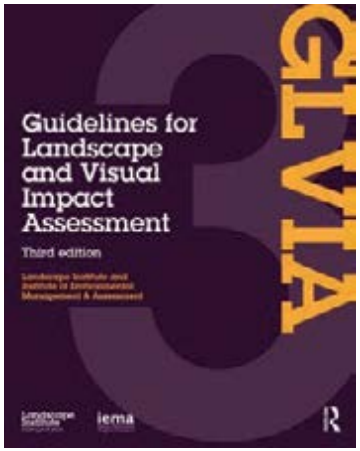


FIGURE 5.11: GUIDELINES FOR LANDSCAPE AND VISUAL IMPACT ASSESSMENT (GLVIA3), UK LANDSCAPE INSTITUTE AND INSTITUTE OF ENVIRONMENTAL MANAGEMENT AND ASSESSMENT, 2013

5.3.1 Methodology

Context

There is no standardised methodology for the assessment of landscape character and visual impacts within Victoria. The assessment within this report has been undertaken in accordance with the following best practice document:

+ *Guidelines for Landscape and Visual Impact Assessment (GLVIA3)*, UK Landscape Institute and Institute of Environmental Management and Assessment, 2013 (Figure 5.11).

Landscape Character

Landscape character can be defined as the aggregate of built, natural and cultural aspects that make up an area and provide a sense of place. It includes all aspects of a tract of land – built, planted, natural topographical and ecological features.

To enable the assessment of landscape character sensitivity and likely impact, Landscape Character Zones (LCZs) have been defined for the wider project area. LCZs are defined as areas having a distinct, recognisable and consistent pattern of elements making one-character zone different from another. This includes broad areas of common physical, environmental, ecological and cultural characteristics.

These may include:

+ Landscape value (e.g. landscapes designated for their scenic or landscape importance or valued recreational function)
+ Landscape elements that contribute to defining character e.g. pasture, crops, drainage channels, river/creek corridors, bushland, mature bushland corridors alongside roads, cultural plantings (e.g. planting along property entrance drives) etc
+ Landscape character attributes (including scale, grain and perceptual characteristics such as the sense of remoteness, tranquility and/or its perceived rural character).

Impact assessment

The expected level of impact of the Project on any given LCZ is based on themes of magnitude and sensitivity.

Sensitivity

The sensitivity of a LCZ is judged based on the extent to which it is considered able to accommodate change of a type and scale of a given proposal without adverse effects on its character. Sensitivity of a LCZ includes:

+ Its inherent landscape value (its condition, perceptual qualities, cultural importance, and any specific values that may apply, such as landscape planning designations)
+ The likely congruency of the proposed change (i.e. the extent to which the proposal may fit into the scale, landform, land use, pattern, texture of the existing landscape).

Refer Table 5.2 for examples of landscape sensitivity levels.

Magnitude

The magnitude of the effects of the development within the landscape. Magnitude refers to the physical scale of the development, how distant it is and the contrast it presents to the existing condition. Consideration is given to:

+ Existing built form in the landscape and how closely the development matches this in mass, scale and form
+ The scale or degree of change to the landscape resource
+ The nature of the effect and its duration including whether it is permanent or temporary.

High sensitivity	Landscapes which by nature of their character would be unable to accommodate change of the proposed type. Typically these would be: + Of high value with distinct elements and features making a positive contribution to character and sense of place + Likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale + Areas of special recognised value, through use, perception or historic and cultural associations + Likely to contain features and elements that are rare and could not be replaced.
Moderate sensitivity	Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically these would be; + Comprised of commonplace elements and features creating generally unremarkable character but with some sense of place + Locally designated, or their value may be expressed through non-statutory local publications + Containing some features of value through use, perception of historic and cultural associations + Likely to contain some features and elements that could not be replaced.
Low sensitivity	Landscapes which by nature of their characteristics would be able to accommodate change of the type proposed. Typically these would be; + Comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place + Not designated + Containing few, if any, features of value through use, perception or historic and cultural associations + Likely to contain few, if any, features and elements that could not be replaced.

TABLE 5.2: EXAMPLES OF LANDSCAPE SENSITIVITY LEVELS

Visual Impact

View location selection

Following a thorough desktop study and site visits, representative view locations with the potential to be visually affected by some element of the Project were identified and selected for further analysis. View locations were selected to illustrate:

+ A range of visual receptor types including public and private domain views (residents, motorists and users of public open space)
+ A range of view types including elevated, panoramic and filtered views
+ A range of viewing distance from the Project
+ Any protected views identified within the planning literature.

Impact assessment

The level of expected impact of the Project on any given view location is based on themes of magnitude and sensitivity.

Sensitivity

The quality of the existing view and how sensitive the view is to the proposed change. Each visual receiver type has an inherent and varied sensitivity to change in the visual scene based on their personal context in which the view is being experienced. Views from public reserves and open space are often given the highest weighting due to the greater number of viewers. Refer to Table 5.3 for examples of visual sensitivity levels.

Magnitude

A measure of the magnitude of the visual effects of the development within their setting. A series of quantitative assessments are studied to give an overall magnitude rating. Consideration is given to:

+ Distance from development
+ Nature of the view - is it open, framed, screened, panoramic or filtered
+ Duration of view - the length of time the viewer is exposed to the view
+ Scale of change - is the proposed development largely similar in nature and scale to that of existing elements or will there be radical changes.

High sensitivity	Examples may include: + Users of public footpaths or other recreational trails (e.g National Trails) + Users of recreational facilities where the purpose of that recreation is the enjoyment of the landscape (e.g. National Parks and designated scenic lookouts) + Users of designated tourist routes + Residential properties with scenic outlooks.
Moderate sensitivity	Examples may include: + Residential properties + Users of scenic roads, railway corridors or waterways + Schools and other institutional buildings and their outdoor areas.
Low sensitivity	Examples may include: + Indoor workers + Users of main roads or arterial roads + Users of recreational facilities where the purpose of that recreation is not related to the views.

TABLE 5.3: EXAMPLES OF VISUAL SENSITIVITY LEVELS

5.3.2 Overall Impact Rating

For both landscape character and visual amenity, the overall impact rating of the Project on any given LCZ or view location is based on the themes of magnitude and sensitivity.

The level of these expected impacts are calculated using matrix Table 5.4, adapted from *Guidelines for Landscape and Visual Impact Assessment (GLVIA3)*, UK Landscape Institute and Institute of Environmental Management and Assessment, 2013.

Assumptions

- The EES design as per the Project description has been used for the landscape character and visual impact assessments
- An expected impact rating has been given for the construction and operational phases of the Project, as well as a residual impact rating once vegetation matures. The operational impact assessment has been undertaken on the expected state of the Project on the day of opening, including immature landscape treatments. The residual impact rating assumes a fully matured landscape - approximately 10-20 years post-construction and that the intent of the Landscape Strategy has been implemented, including adoption of the design guidelines
- It should be noted that the selected view locations are by no means an exhaustive list of all visual receptors or locations that might be impacted by the Project. They have been selected to be representative of the spread and type of views available throughout the wider project area
- For residential properties, access was not made to the property itself and so accordingly a site assessment was made from the closest accessible public location. In these instances, the description of visual impact was estimated from the main dwelling area of the property and/or garden.

Sensitivity \ Magnitude	High	Moderate	Low	Negligible/ Beneficial
High	High Impact	High-Moderate Impact	Moderate Impact	Negligible/ Beneficial Impact
Moderate	High-Moderate impact	Moderate Impact	Moderate - Low Impact	Negligible/ Beneficial Impact
Low	Moderate Impact	Moderate - Low Impact	Low Impact	Negligible/ Beneficial Impact
Negligible/ Beneficial	Negligible/ Beneficial Impact	Negligible/ Beneficial Impact	Negligible/ Beneficial Impact	Negligible/ Beneficial Impact

TABLE 5.4: LANDSCAPE CHARACTER AND VISUAL AMENITY ASSESSMENT MATRIX

5.4 Landscape character assessment

5.4.1 Relevant legislation

The Shire of Nillumbik and City of Whittlesea Planning Schemes provide landscape character definitions. For consistency, the landscape character terminology and geographical extents from these documents have been used where relevant. The following two Council documents have been referenced:

- *Shire of Nillumbik. Landscape Character Assessment for the protection and management of Nillumbik's Green Wedge Landscapes* (December 2009)
- *City of Whittlesea. Green Wedge Management Plan* (June 2016).

Shire of Nillumbik

The Shire of Nillumbik Municipal Strategic Statement states:

"The Shire of Nillumbik has high landscape value and plays a regional role for metropolitan Melbourne as an accessible area of natural landscape beauty. The rural areas provide vistas of agricultural land, treed bushland, hills and watercourses with minimal urban intrusion".

The Shire of Nillumbik's Landscape Character Assessment report found that *"all parts of the Green Wedge area have a high degree of landscape significance within the context of the municipality and the broader region".* Within this assessment, the Shire's non-urban areas were divided into seven 'Landscape Character Areas' based on common physical, environmental and cultural conditions.

Within the Shire of Nillumbik's Landscape Character Assessment report, the landscape to the east of Yan Yean Road and south of Doctors Gully Road to Bannons Road is characterised as **Undulating Agricultural** land. South of Bannons Road, to an undefined location south of Ironbank Road, the characterisation is **Suburban Rural**. Continuing south of Ironbank Road the character of the landscape reverts to **Undulating Agricultural**.

The Shire of Nillumbik Character Areas include a 'Future Character Direction' which has been taken into account in the assessment of landscape sensitivity.

City of Whittlesea

Within the City of Whittlesea, the landscape of Doreen, to the west of Yan Yean Road and south of Bridge Inn Road to Jorgenson Road falls within the Adopted Urban Growth Boundary, consisting of denser residential and commercial land uses.

FIGURE 5.12: COMMERCIAL DEVELOPMENT WITHIN DOREEN ADOPTED URBAN GROWTH BOUNDARY

FIGURE 5.13: MATURE TREE PLANTING AT YOUNGS ROAD INTERSECTION WITHIN SUBURBAN RURAL AREA

5.4.2 Landscape Character Zones

For the great part of its history the Plenty Valley, including Yarrambat and Doreen areas, has been predominantly rural, used for grazing and orchards. The area remains semi-rural, but further subdivision and residential development has continued with increasing population as Melbourne's urban centre continues to expand.

The landscape of the wider project area is consistent with the developing nature of the region, typify the tension between the existing modified rural landscapes and rapidly urbanising growth precincts. Yan Yean Road has become the state arterial travel route for commuters from new housing estates and the city, which has resulted in increased pressure on the roadway.

Historic land uses including agriculture, mining and rural settlement continue to exert subtle influences on the current landscape character of the area, with associated landscape features being a visible reminder of the past (refer Chapter 4.6 - *Historical landscape* for more details*).*

Approximately 20% of the project area supports patches of remnant vegetation. These reflect a pre-European landscape and continue to contribute strongly to the regions character.

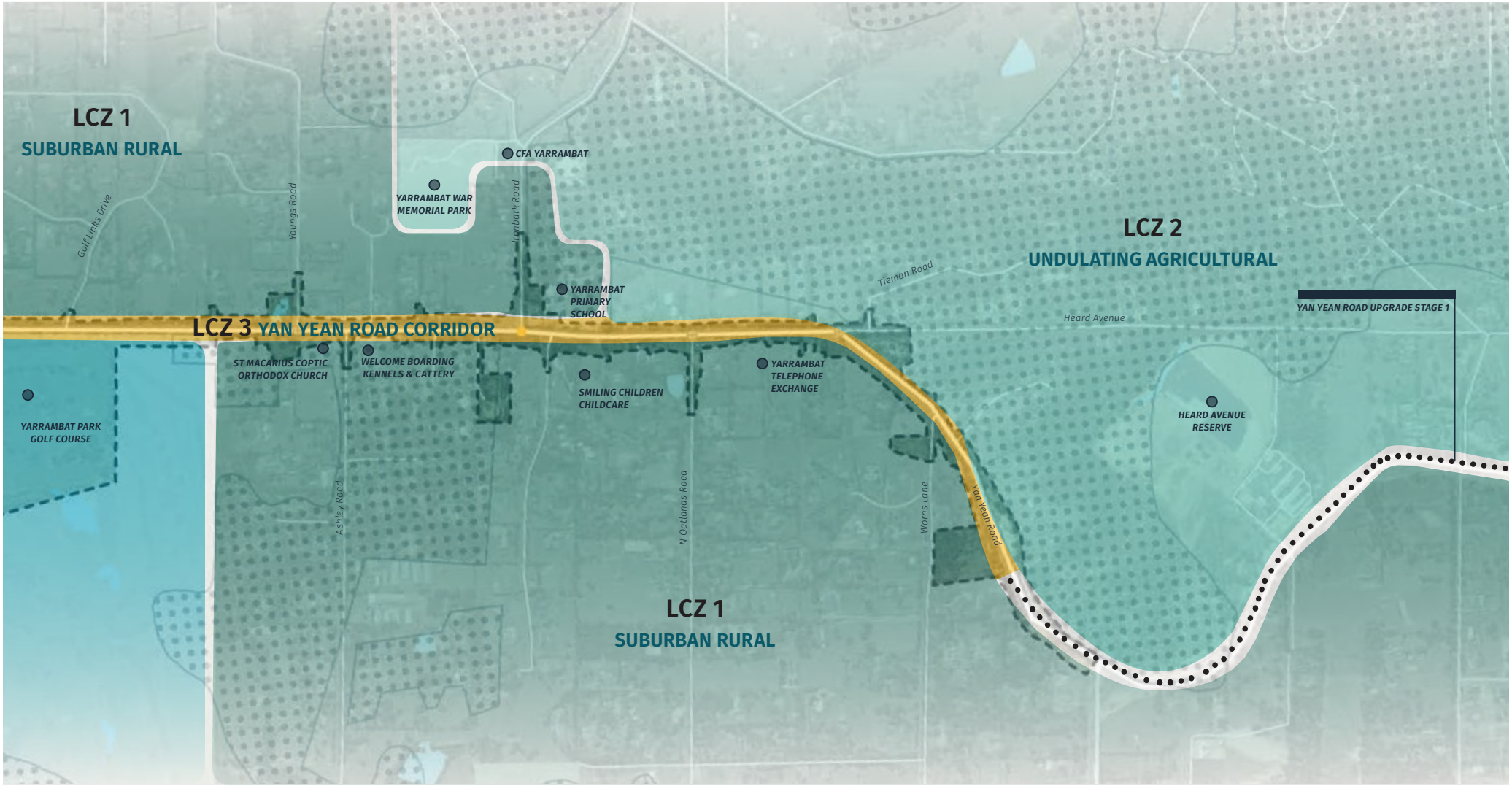
The following LCZs were identified across the wider project area (Figure 5.16):

1. LCZ 1 Suburban Rural (Figure 5.13)
2. LCZ 2 Undulating Agricultural (Figure 5.14)
3. LCZ 3 Yan Yean Road Corridor (Figure 5.15)
4. LCZ 4 Doreen Urban Area (refer Figure 5.12)
5. LCZ 5 Parkland

FIGURE 5.15: VIEW NORTH ALONG YAN YEAN ROAD CORRIDOR

FIGURE 5.14: UNDULATING AGRICULTURAL LAND AS VIEWED FROM YAN YEAN ROAD

FIGURE 5.16: LANDSCAPE CHARACTER ZONES ACROSS THE WIDER PROJECT AREA


LCZ 1
SUBURBAN RURAL
CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
Golf Links Drive
Youngs Road
Lanbark Road
YARRAMBAT PRIMARY SCHOOL
LCZ 2
UNDULATING AGRICULTURAL
Tieman Road
YAN YEAN ROAD UPGRADE STAGE 1
Heard Avenue
LCZ 3 YAN YEAN ROAD CORRIDOR
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
HEARD AVENUE RESERVE
YARRAMBAT PARK GOLF COURSE
Ashley Road
N Oatlands Road
Worns Lane
Yan Yean Road
LCZ 1
SUBURBAN RURAL
N
0
200m

LCZ 1 - Suburban Rural	
Context	Predominantly low density residential land located to the west of Yan Yean Road and on the eastern side of the road corridor, around the Yarrambat township. The LCZ lies outside the North Growth Corridor boundary, located to the north of Jorgensen Avenue.
Land use	+ Small scale commercial along Ironbark Road within Yarrambat township including retail (Figure 5.17) + Low density residential (Figure 5.18) with small scale agricultural activities/hobby farms + Education and religious land uses including Yarrambat Primary School and St Macarius Coptic Orthodox Church.
Historical landscape features	+ Exotic trees planted as windbreaks in long, linear arrangements associated with agricultural field boundaries. Native and exotic feature trees planted along driveways, paddock boundaries or close to homestead sites + Mining dams and historic buildings including old Yarrambat Post Office and St. Michael's Anglican Church.
Built form	+ Dwellings on large lots, generally set back from road frontages on hillsides + Some large utility infrastructure such as transmission lines.
Planning overlays	+ A small portion of the LCZ is subject to the Environmental Significance Overlay (ES01) in recognition of sites of faunal and habitat significance.
Vegetation	+ Roads typically lined by grassed swales and native vegetation located in grassed verges + Remnant native vegetation is scattered throughout the LCZ including several EVCs + Property front gardens often landscaped and contain both native and/or exotic plantings.
Spatial character	+ Spatial character defined by built form and rectilinear field boundaries + Character varies between open and enclosed depending on density of vegetation and built form + Scenic character heightened where views available across undulating rural landscape from elevated locations.
Sensitivity	**Moderate** + This LCZ is valued locally for its scenic undulating topography, patches of remnant vegetation (including EVCs and ESO) and rural vistas + The presence of existing urban built form and the Yan Yean Road corridor enables the zone to absorb some development without detrimental impacts to character.
Magnitude (construction)	**Moderate** + Construction activities and vegetation removal would have a noticeable impact to landscape character in close proximity to the road corridor.
Magnitude (operation)	**Moderate** + Vegetation removal along the road corridor would have a noticeable impact to the LCZ in proximity to the Project, increasing the dominance of built form within the landscape and altering the spatial character of the road boundary with adjacent land uses, including removing some historical landscape features such as old remnant and planted trees.
Impact rating (construction)	Moderate
Impact rating (operation)	Moderate *Limited to areas adjacent to the road corridor*
Residual impact rating (post landscape maturity)	Moderate/Low *Although proposed planting would reduce the expected landscape character impact over time, the overall loss of tree canopy and expanded road footprint would likely have a lasting residual impact.*

FIGURE 5.17: RETAIL STORE OFF IRONBARK ROAD, YARRAMBAT

FIGURE 5.18: LOW DENSITY RESIDENTIAL DWELLINGS NEAR BANNONS LANE

LCZ 2 - Undulating Agricultural	
Context	Found to the to the east of Yan Yean Road and south of Doctors Gully Road to Bannons Road, this landscape zone has a mainly agricultural land use with a strong rural character (Figure 5.19). It comprises a mosaic of agricultural, natural and settled landscapes.
Land use	+ Agricultural with large rural residential homesteads.
Historical landscape features	+ Exotic trees planted as windbreaks in long, linear arrangements associated with agricultural field boundaries + Native and exotic feature trees planted along driveways, paddock boundaries or close to homestead sites.
Built form	+ Dwellings on large lots, generally set back from road + Farm buildings including large sheds.
Planning overlays	+ Many parts of the LCZ are subject to an Environmental Significance Overlay (ES01) in recognition of sites of faunal and habitat significance.
Vegetation	+ Some large areas of dense native vegetation, particularly along creek corridors and local roads. Large native trees can be found in groups or as single features along Yan Yean Road (Figure 5.20). Remnant vegetation includes EVC 22 Grassy Dry Forest, EVC 47 Valley Grassy Forest (Vulnerable) and EVC 55 Plains Grassy Woodland (Endangered).
Spatial character	+ Spatial character defined by large areas of cleared agricultural landscape with pockets of remnant vegetation and occasional linear windbreaks on gently undulating topography + Character varies between open and enclosed with views typically confined to the immediate topography and bands of dense vegetation that occur at the roadsides + Scenic character heightened where views available across undulating rural landscape from elevated locations towards distant mountain slopes.
Sensitivity	**High** + Landscape is valued regionally for scenic undulating topography, distant vistas and patches of remnant vegetation. LCZ is an important scenic transition between suburban and natural bushland areas + Includes sections of Green Wedge Zoning, endangered and vulnerable EVCs and ES0.
Magnitude (construction)	**Moderate** + Construction activities and vegetation removal would have a noticeable impact to landscape character in close proximity to the road corridor.
Magnitude (operation)	**Moderate** + Vegetation removal along the road corridor would reduce the rural nature of the landscape adjacent to the Yan Yean Road, decreasing the physical separation between the road and LCZ. Several histroical landscape features such as planted windbreaks and old remnant trees would be lost. It should be noted that this impact is limited to areas of the LCZ in close proximity to the road corridor boundary.
Impact rating (construction)	Moderate/High
Impact rating (operation)	Moderate/High
Residual impact rating (post landscape maturity)	Moderate/Low *Although proposed planting would reduce the expected landscape character impact over time, the overall loss of tree canopy and expanded road footprint would likely have a lasting residual impact.*

FIGURE 5.19: CLEARED AGRICULTURAL LANDSCAPE WITH PATCHES OF REMNANT VEGETATION

FIGURE 5.20: MATURE RIVER RED GUM TREES ADJACENT TO DOCTORS GULLY ROAD INTERSECTION

LCZ 3 - Yan Yean Road Corridor	
Context	The section of Yan Yean Road between Kurrak Road and Doctors Gully Road is currently a single lane, arterial road with a distinctive, semi-rural character.
Land use	+ Transport infrastructure.
Historical landscape features	+ Exotic trees planted as windbreaks in long, linear arrangements adjacent to road corridor + Historic building - Doreen General Store.
Built form	+ Road carriageway and associated infrastructure including signage, road barriers, light poles and transmission lines + Two existing roundabouts (Figure 5.21) and one signalised intersection + Adjacent built form becomes denser moving north towards the Urban Growth Boundary.
Planning overlays	+ A small portion of the LCZ is subject to the Environmental Significance Overlay (ES01) in recognition of sites of faunal and habitat significance.
Vegetation	+ Mature remnant native vegetation along the road boundary including several EVCs + Landscaped front gardens, screening hedges and wind breaks fronting road.
Spatial character	+ Spatial character defined by linear nature of road corridor, undulating topography and adjacent vegetation (Figure 5.22) + Scenic character is heightened where tree canopies are in proximity to both sides of the road + Character varies between open and enclosed depending on adjacent plantings and built form + Gaps in vegetation, both within road reserves and private properties, afford intermittent views across cleared and vegetated undulating land.
Sensitivity	**Moderate** + Although functional, landscape is valued locally for scenic undulating topography, views to surrounding rural landscape and patches of remnant vegetation + Road identified as a 'Key Viewing Corridor' within the Shire of Nillumbik *Landscape Character Assessment, Yan Yean Road,* December 2009.
Magnitude (construction)	**Moderate** + Construction activities and vegetation removal would have a noticeable impact to the rural character of the existing road.
Magnitude (operation)	**Moderate** + The widening of the road corridor, associated infrastructure and vegetation removal along the edges of the carriageway would have a noticeable impact to the road, reducing its rural character and increasing its dominance in the landscape. Several historical landscape features such as planted windbreaks and old remnant trees would be lost. These currently contribute to the scenic amenity and cultural heritage of the road corridor.
Impact rating (construction)	Moderate
Impact rating (operation)	Moderate
Residual impact rating (post landscape maturity)	Low *New landscape planting is expected to reduce the impact over time.*

FIGURE 5.21: ROUNDABOUT AT ORCHARD ROAD

FIGURE 5.22: TREE LINED SECTION OF YAN YEAN ROAD

LCZ 4 - Doreen Urban Area	
Context	Found to the west of Yan Yean Road in the City of Whittlesea, this character zone comprises the rapidly urbanising residential estates of Doreen within the North Growth Corridor boundary.
Land use	+ Low density residential + Commercial including retail (service station and food outlets- Figure 5.23) and educational + Public open space including Doreen Recreation Reserve, Orchard Park and Werther Park.
Historical landscape features	+ Patches of remnant vegetation and scattered remnant trees + Public recreation area including historic landscape planting - Doreen Recreation Reserve.
Built form	+ Dwellings on relatively large lots with limited set backs (Figure 5.24 and Figure 5.25) + Small scale commercial premises including car parks.
Planning overlays	+ North Growth Corridor boundary and Vegetation Protection Overlay (VP01) - River Red Gum Grassy Woodland.
Vegetation	+ Occasional large remnant trees + Streetscape plantings, water detention wetlands and garden plantings.
Spatial character	+ Spatial character defined by dense and regular pattern of built form and local road network + Gently undulating topography + Character mostly enclosed although more open within areas of public open space.
Sensitivity	**Low** + Mostly urban character with a reduced sensitivity to change due to density of built form and presence of existing road infrastructure.
Magnitude (construction)	**Moderate** + Construction activities and vegetation removal would have a small but noticeable impact to the character of the LCZ adjacent to Yan Yean Road.
Magnitude (operation)	**Low** + Although the scale of the road corridor would increase, the presence of existing urban built form ensures a major impact to the character of this LCZ is not expected.
Impact rating (construction)	Moderate/Low
Impact rating (operation)	Low *It should be noted that there may be some locally increased impacts where mature vegetation is removed within this LCZ.*
Residual impact rating (post landscape maturity)	Negligible *New landscape planting is expected to reduce the impact over time.*

FIGURE 5.23: RECENT COMMERCIAL DEVELOPMENT AT THE BRIDGE INN ROAD INTERSECTION

FIGURE 5.24: TYPICAL RESIDENTIAL CHARACTER NEAR ORCHARD ROAD

FIGURE 5.25: LAND CLEARED FOR RESIDENTIAL SUBDIVISION OFF ORCHARD ROAD

LCZ 5 - Parkland	
Context	This zone comprises Yarrambat Park and associated recreational facilities including Yarrambat Park Golf Course, horse and pony club, pistol club, archery club and model aircraft club.
Land use	+ Public open space and recreation.
Historical landscape features	+ Patches of remnant vegetation and scattered remnant trees + Mining dam - Yarrambat Park lake.
Built form	+ Limited to small amenity buildings and picnic facilities as well as buildings associated with the golf course and Diamond Valley Archers club.
Planning overlays	+ A very small portion of golf course is subject to the Environmental Significance Overlay (ES01) in recognition of sites of faunal and habitat significance.
Vegetation	+ Some mature remnant native vegetation, especially along Yan Yean Road boundary + Planted native and exotic vegetation throughout the golf course (Figure 5.26) + Groups, individual plantings and patches of remnant native trees throughout the parklands including EVC 22 Grassy Dry Forest and EVC 47 Valley Grassy Forest (Vulnerable) + Large areas of mown grass (Figure 5.27).
Spatial character	+ Spatial character defined by patches of tree planting in large expanses of open grassland + The golf course has a linear spatial quality, associated with the layout of the holes + Scenic character is heightened where breaks in the tree canopy allow far reaching views to the west.
Sensitivity	**Moderate** + Landscape is valued locally for scenic undulating topography, views to surrounding rural landscape and patches of remnant vegetation + Parkland has an increased sensitivity due to its use as public open space.
Magnitude (construction)	**Moderate** + Construction activities and vegetation removal would have a small impact to landscape character along the eastern boundary of the parkland.
Magnitude (operation)	**Low** + Vegetation removal along the eastern park boundary and the new golf course safety fence would slightly reduce the rural nature of the landscape, increasing exposure to the widened road corridor. This impact would be limited to parts of the LCZ closest to the Project.
Impact rating (construction)	Moderate
Impact rating (operation)	Moderate/Low *Limited to the eastern boundary of the parkland*
Residual impact rating (post landscape maturity)	Negligible *New landscape planting is expected to reduce the impact over time.*

FIGURE 5.26: UNDULATING MODIFIED LANDSCAPE OF YARRAMBAT PARK GOLF COURSE

FIGURE 5.27: MOWN GRASS WITHIN THE NORTHERN SECTION OF YARRAMBAT PARK

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5.5 Visual impact assessment

5.5.1 Existing visual environment

The visual character of the wider project area is defined by its undulating topography, vegetated nature and varied built form. The region is known for its scenic rural views, with Yan Yean Road being identified as a 'Key Viewing Corridor' within the Shire of Nillumbik 'Landscape Character Assessment' report.

The visual experience while traveling along the Yan Yean Road corridor is dynamic, ranging from occasional panoramic views towards distant mountain ranges from elevated positions to filtered, narrow views, framed by dense roadside tree planting.

The Yan Yean Road corridor itself has a notable visual presence within the immediate landscape, as does other service infrastructure such as transmission and power lines. These elements are visible from adjacent residential, commercial and educational land uses.

One of the key visual characteristics of the wider project area is vegetation. Trees, shrubs and groundcovers provide visual enclosure, frame views and signify focal points. Vegetation types that enhance visual amenity include groups of canopy trees, single feature trees, shrubs, groundcovers and historic plantings such as windbreaks and hedgerows.

Key view types

- Enclosed local views north and south along the road corridor, framed by dense tree planting on either side (Figure 5.28)
- Open views across rural pasture
- Filtered views towards Yan Yean Road from adjacent residential dwellings
- Views towards the built form of developing residential subdivisions and commercial areas within the North Growth Corridor boundary (Figure 5.29)
- Distant views north and east to surrounding mountain ranges including the Kinglake Hills (Figure 5.30)
- Views towards mature trees in prominent positions.

Visual receptors

The following are the key groups of visual receptors within the wider project area:

- Motorists,cyclists, horse riders and pedestrians using the local road and pathway network
- Residents of properties along the road corridor
- Open space and recreational facility users including users of Yarrambat Park, Yarrambat Park Golf Course and Diamond Valley Archers
- Users of the educational and religious institutions within the wider project area including Yarrambat Primary School, several childcare facilities, St Macarius Coptic Orthodox Church and Plenty Valley Christian College
- Users of commercial areas including Doreen business park and Yarrambat township along Ironbark Road.

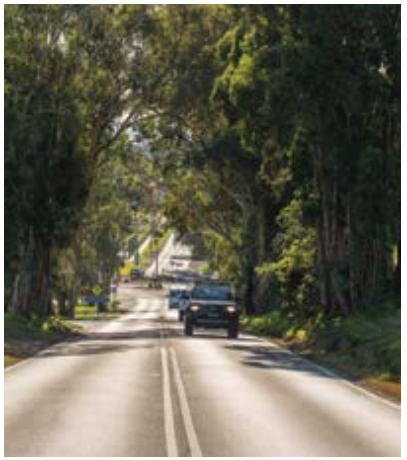


FIGURE 5.28: ENCLOSED VIEW ALONG YAN YEAN ROAD

FIGURE 5.29: VIEWS TOWARDS THE BUILT FORM WITHIN DOREEN

5.5.2 Visibility of the Project

Views towards the existing Yan Yean Road corridor are mostly constrained to the road corridor itself and a relatively small offset either side of the road. Views towards the road and associated infrastructure are often screened or filtered by vegetation within the road corridor or adjacent properties/public open space.

The clearing of vegetation associated with the Project is expected to increase the visibility of the widened road corridor, however the undulating topography, retained vegetation and adjacent built form would limit views of Project elements to an area approximately 100m either side of the road.

5.5.3 Selected view locations

The following key representative view locations were selected for further analysis (Figure 5.31):

1. Doctors Gully/Bridge Inn Road Intersection
2. Yan Yean Road - south of Activity Way
3. Plenty Valley Christian College
4. Werther Park
5. Yarrambat Park
6. Residential dwellings near Bannons Lane
7. Yarrambat Park Golf Course
8. St Macarius Coptic Orthodox Church and nearby residential dwellings
9. Yarrambat Primary School
10. Ironbark Road
11. Residential dwellings between North Oatlands Road and Worns Lane.

FIGURE 5.30: SUBURBAN RURAL LANDSCAPE AND DISTANT HILLS AS VIEWED FROM IRONBARK ROAD, YARRAMBAT TOWNSHIP

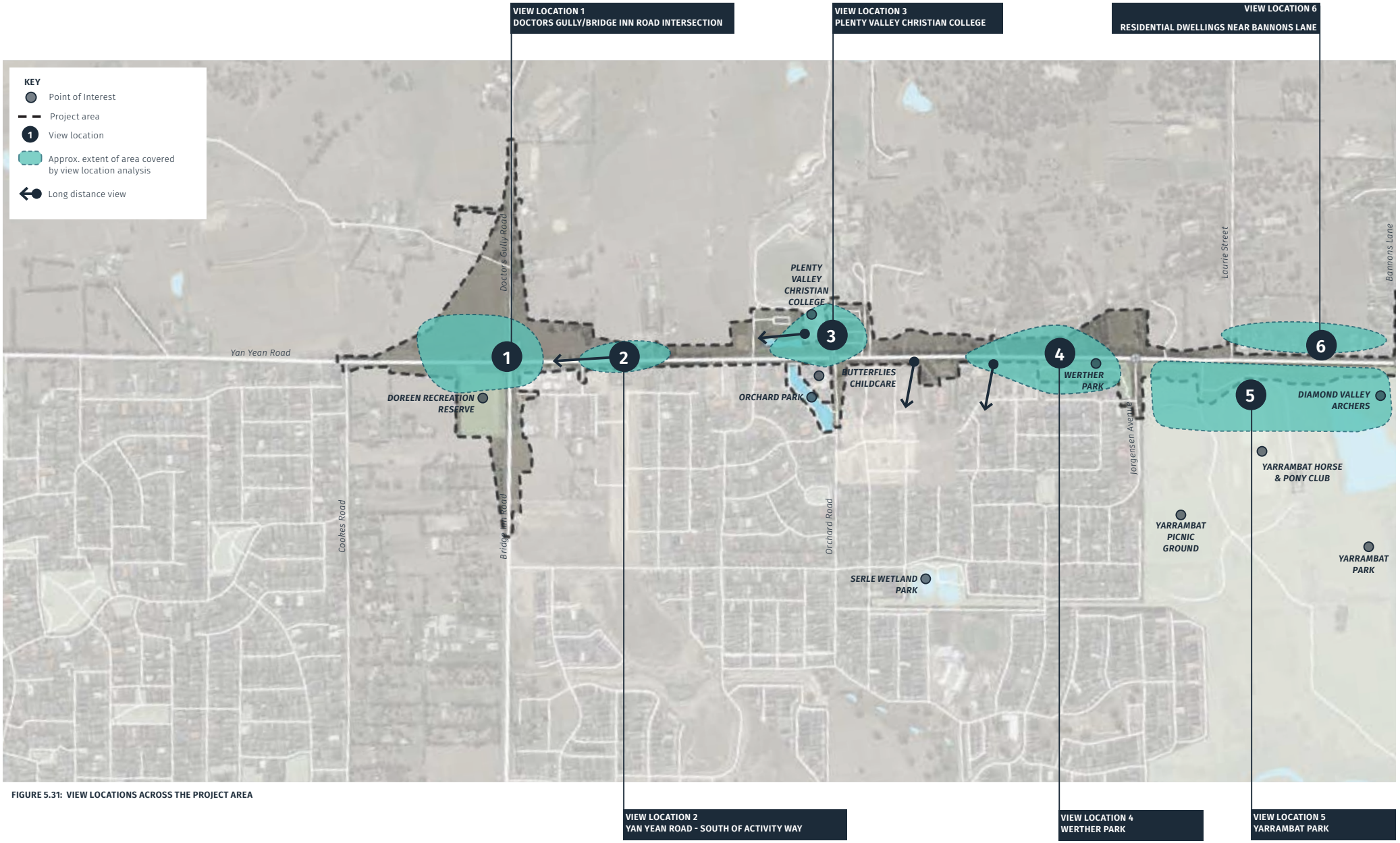
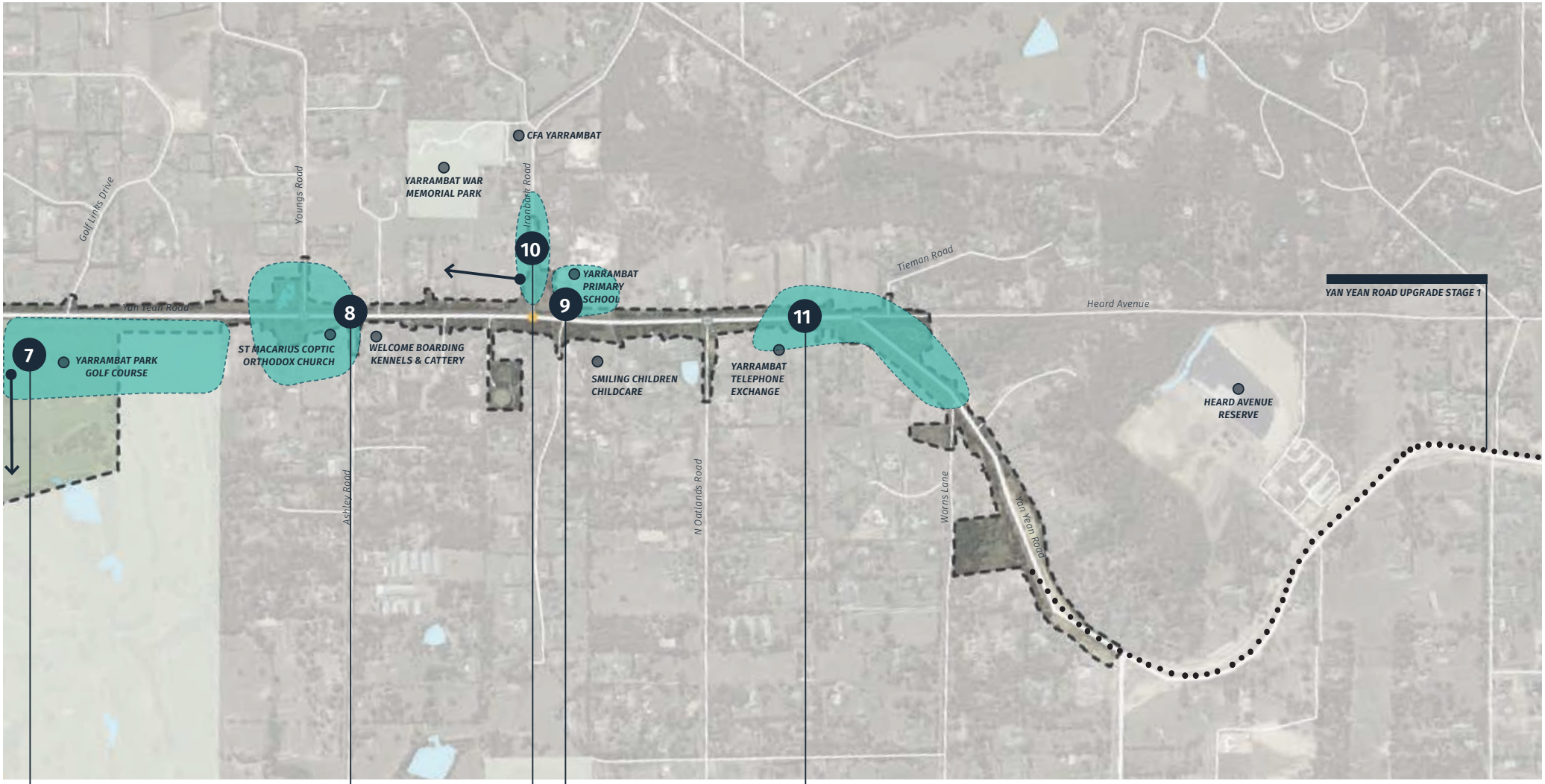


FIGURE 5.31: VIEW LOCATIONS ACROSS THE PROJECT AREA


CFA YARRAMBAT
YARRAMBAT WAR MEMORIAL PARK
Golf Links Drive
Youngs Road
Ironbark Road
10
YARRAMBAT PRIMARY SCHOOL
Tieman Road
Yan Yean Road
8
9
11
7
YARRAMBAT PARK GOLF COURSE
ST MACARIUS COPTIC ORTHODOX CHURCH
WELCOME BOARDING KENNELS & CATTERY
SMILING CHILDREN CHILDCARE
YARRAMBAT TELEPHONE EXCHANGE
Heard Avenue
YAN YEAN ROAD UPGRADE STAGE 1
HEARD AVENUE RESERVE
Ashley Road
N Oatlands Road
Worns Lane
Yan Yean Road
N
0
200m
VIEW LOCATION 7
YARRAMBAT PARK GOLF COURSE
VIEW LOCATION 8
ST MACARIUS COPTIC ORTHODOX CHURCH AND NEARBY RESIDENTIAL
VIEW LOCATION 10
IRONBARK ROAD
VIEW LOCATION 9
YARRAMBAT PRIMARY SCHOOL
VIEW LOCATION 11
RESIDENTIAL DWELLINGS BETWEEN NORTH OATLANDS ROAD AND WORNS LANE

View location 1 - Doctors Gully/Bridge Inn Road Intersection (Figure 5.32)	
Visual receptors	+ Pedestrians, motorists and cyclists + Users of the Doreen commercial area, Doreen General Store and Doreen recreational reserve.
Number of viewers	High.
Existing visual environment	A key node along the Yan Yean Road corridor, the area surrounding the intersection has a varied visual character. Visually open to the east, views extend across rural open pasture to a tree lined ridge. Two large River Red Gums provide a visual focal point and gateway marker at the corner of Doctors Gully Road/Yan Yean Road (viewpoint A). The Doreen general store enhances the scenic visual character along the eastern side of the intersection as a marker of the historic centre of Doreen (viewpoint B). To the west, recently constructed built form associated with the Doreen commercial area is visible with several large remnant trees and more recent landscape plantings. Premises include a garage and several fast food restaurants (viewpoint C). This more urbanised character contrasts strongly with the rural landscape to the east. A major transmission line runs west/east to the north of Doreen recreation reserve. A large row of native trees visually separates the southern edge of the reserve from Bridge Inn Road (viewpoint D).
Sensitivity	**Moderate** + Heritage listed vegetation (River Red Gums) + Visual landmarks (River Red Gums and Doreen general store) + Proximity to public open space (Doreen Recreation Reserve) + Exposure to existing road and service infrastructure.
Magnitude (construction)	**High** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements + Likely vegetation removal on western edge of road corridor.
Magnitude (operation)	**Moderate** + Increase in the scale of the road infrastructure focused around the intersection with an associated reduction in the naturalistic qualities of views east, over the rural landscape + Noticeable reduction in mature tree canopy along the northern edge of Bridge Inn Road, increasing visual exposure of road to adjacent land uses, including Doreen Recreation Reserve + Reduction in the size and visual amenity of Doreen Recreation Reserve + Retention of the River Red Gums and general store, although within a modified visual setting. The trees and general store building are likely to remain a visual gateway to Doreen at the intersection.
Impact rating (construction)	Moderate/High
Impact rating (operation)	Moderate
Residual impact rating (post landscape maturity)	Moderate/Low *New landscape planting expected to reduce visual impact over time, although loss of tree canopy and expanded road footprint may have a lasting residual impact on surrounding land uses, including Doreen Recreation Reserve.*

VIEWPOINT A - VIEW SOUTH ALONG YAN YEAN ROAD

VIEWPOINT B - VIEW SOUTH TOWARDS INTERSECTION AND DOREEN GENERAL STORE

VIEWPOINT C - COMMERCIAL AREA

VIEWPOINT D - VIEW WEST ALONG BRIDGE INN ROAD

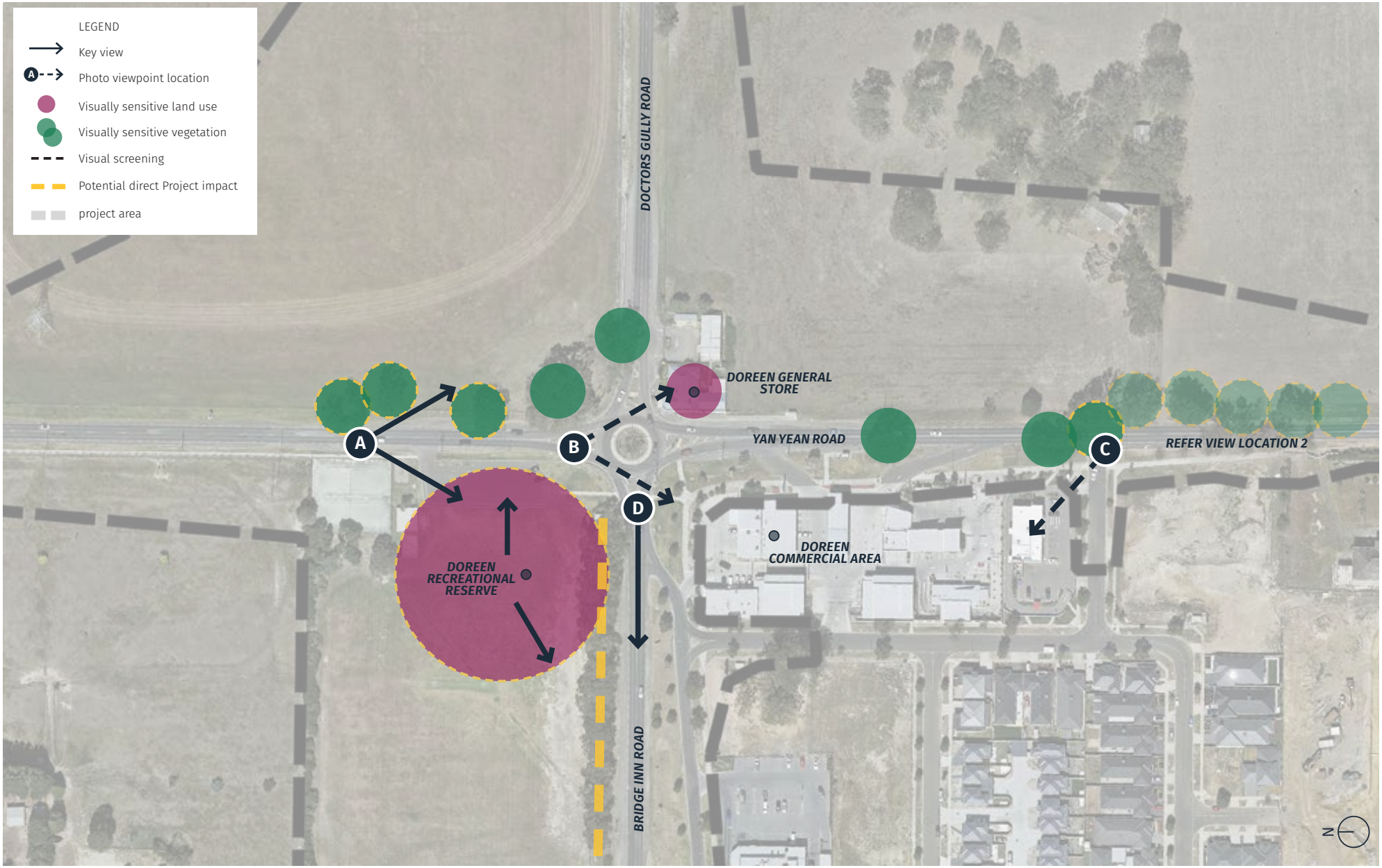


FIGURE 5.32: VIEW LOCATION 1 VISUAL ANALYSIS

View location 2 - Yan Yean Road - south of Activity Way (Figure 5.33)	
Visual receptors	+ Road users.
Number of viewers	High.
Existing visual environment	Traveling north, Yan Yean Road descends steeply from a ridge towards the Doctors Gully Road intersection. The road is flanked by remnant mature native trees on both sides, located in close proximity to the carriageway (viewpoint A). These tree canopies create a green arch over the road, framing a narrow view corridor along the road (viewpoint B). Kinglake Hills can be glimpsed on the horizon.
Sensitivity	**Moderate** + Vegetation along the roadway contributes strongly to the scenic nature of this road section + As part of the Shire of Nillumbik Landscape Character Assessment, the Yan Yean Road corridor is identified as a 'Key Viewing Corridor'.
Magnitude (construction)	**Moderate** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements + Vegetation removal either side of road corridor including some large native feature trees.
Magnitude (operation)	**Moderate** + Increase in the scale of the road infrastructure and a reduction in the naturalistic qualities of views east, over the rural landscape + Noticeable reduction in tree canopy along the road corridor, removing the framed view along the road to Doctors Gully Road intersection.
Impact rating (construction)	**Moderate**
Impact rating (operation)	**Moderate**
Residual impact rating (post landscape maturity)	**Low** *New landscape planting along the corridor is expected to reduce the visual impact over time.*

VIEWPOINT A - VIEW SOUTH ALONG YAN YEAN ROAD

VIEWPOINT B - VIEW NORTH ALONG YAN YEAN ROAD

FIGURE 5.33: VIEW LOCATION 2 VISUAL ANALYSIS

View location 3 - Plenty Valley Christian College (Figure 5.34)	
Visual receptors	+ Users of Plenty Valley Christian College.
Number of viewers	Moderate.
Existing visual environment	Slightly elevated in the landscape, this location is dominated by the large education facility and adjacent car park. The buildings, car park, oval and nearby wetland are attractively landscaped with a well maintained and varied mix of native and exotic trees, shrubs and lawned areas. Views west towards Yan Yean Road are partly filtered/screened by vegetation along the road boundary and within the car park. Scenic views north from the car park and college buildings extend over open pasture towards a tree lined ridge with distant hills visible on the horizon. It should be noted that the nearby Butterflies childcare facility sits at a lower elevation to the road corridor and hence has a reduced visual sensitivity.
Sensitivity	**Moderate** + Scenic landscape with vegetation filtering views of adjacent built form and infrastructure + Extensive view north with glimpses of the horizon + Some exposure to existing road corridor.
Magnitude (construction)	**High** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements + Vegetation removal within the car park, along the road boundary and adjacent to the College.
Magnitude (operation)	**High** + Increase in the scale of the road including views towards the new intersection and associated infrastructure + Noticeable reduction in tree canopy along the road corridor, increasing visual exposure to Yan Yean Road + Reduction in amenity planting adjacent to the college, including wetlands, reducing visual amenity at the College entrance.
Impact rating (construction)	**Moderate/High**
Impact rating (operation)	**Moderate/High**
Residual impact rating (post landscape maturity)	**Moderate** *Although proposed landscape planting would reduce the expected visual impact, the loss of tree canopy and expanded road footprint in close proximity to the College would likely have a lasting residual impact on visual amenity.*

VIEWPOINT A - VIEW NORTH WEST TOWARDS YAN YEAN ROAD FROM COLLEGE CAR PARK

VIEWPOINT B - REPRESENTATIVE VIEW NORTH FROM CHRISTIAN COLLEGE BUILDINGS

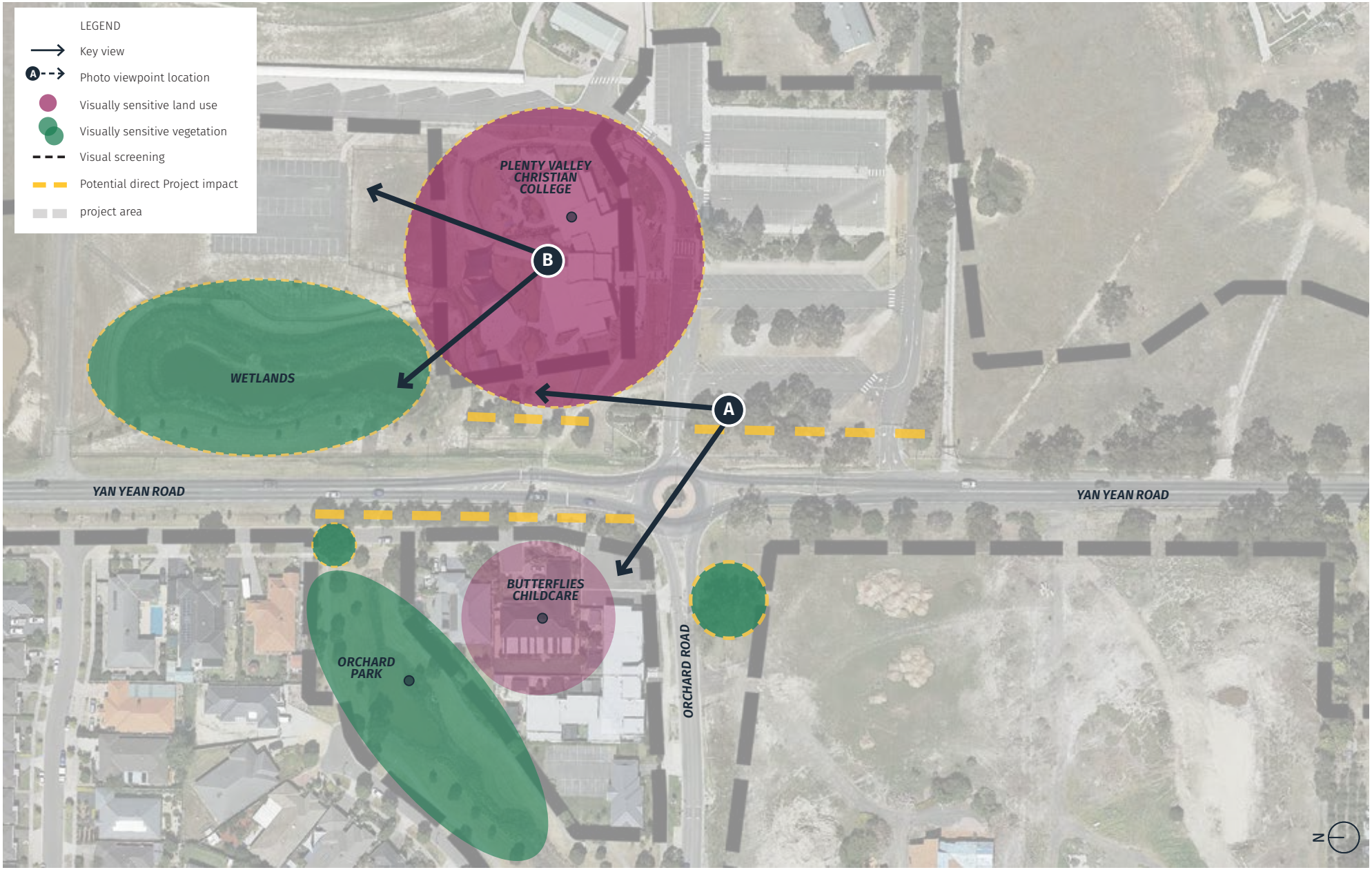


FIGURE 5.34: VIEW LOCATION 3 VISUAL ANALYSIS

View location 4 - Werther Park (Figure 5.35)	
Visual receptors	+ Users of Werther Park.
Number of viewers	Moderate.
Existing visual environment	This sloping area of public open space is bounded by Yan Yean Road to the east and residential dwellings to the west (viewpoint A). The majority of the park is mown grass with several areas of planted native grasses and shrubs. Remnant and planted native trees are spread throughout the park, improving the scenic character of the landscape (viewpoint B). The open ground plane allows filtered views east through to Yan Yean Road. Sweeping views west over the residential subdivision to the horizon are available from more elevated sections of the park (viewpoint C). A meandering footpath passes through the park, connecting Jorgensen Avenue in the south with Yan Yean Road and Werther Way in the north.
Sensitivity	**Moderate** + A scenic landscape with extensive views west, although visual exposure to existing road corridor to the east.
Magnitude (construction)	**High** + Likely vegetation removal within the park and the construction of new earth embankments + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements.
Magnitude (operation)	**Moderate** + Increase in the scale of the road including views towards the widened intersection at Jorgensen Avenue and new earthworks within the southern section of the park. There would be an associated reduction in user amenity in this location + Filtered views towards the proposed retaining wall to eastern side of Yan Yean Road. Noticeable reduction in tree canopy within park, increasing visual exposure to the widened Yan Yean Road + It should be noted that direct impacts are limited to the southern section of the park. The northern section of the park is likely to be protected by a no-go zone.
Impact rating (construction)	**Moderate/High**
Impact rating (operation)	**Moderate*** **Level of impact would depend on the quantity of vegetation removal required within the park*
Residual impact rating (post landscape maturity)	**Moderate/Low** *New landscape planting within the park is expected to reduce the visual impact over time.*

VIEWPOINT A - VIEW WEST OVER WERTHER PARK FROM YAN YEAN ROAD

VIEWPOINT B - VIEW NORTH EAST OVER WERTHER PARK FROM JORGENSEN AVENUE

VIEWPOINT C - VIEW WEST FROM NORTHERN LIMIT OF PARK

FIGURE 5.35: VIEW LOCATION 4 VISUAL ANALYSIS

FIGURE 5.36: VIEWPOINT D - YAN YEAN ROAD, BETWEEN JORGENSEN AVENUE AND ORCHARD ROAD - EXISTING

FIGURE 5.37: VIEWPOINT D - YAN YEAN ROAD, BETWEEN JORGENSEN AVENUE AND ORCHARD ROAD - PROPOSED - YEAR 1
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

FIGURE 5.38: VIEWPOINT D - YAN YEAN ROAD, BETWEEN JORGENSEN AVENUE AND ORCHARD ROAD - PROPOSED - LANDSCAPE MATURITY
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

View location 5 - Yarrambat Park (Figure 5.39)	
Visual receptors	+ Yarrambat Park open space users + Yarrambat Horse and Pony Club + Greensborough Model Aircraft Club + Diamond Valley Archers + Northern Suburbs Fly Fishing Club.
Number of viewers	Moderate.
Existing visual environment	Yarrambat Park covers a large, elevated area to the west of Yan Yean Road. The park consists of open grassland with scattered patches of mature trees. Extensive panoramic views are available to the north west across the Plenty Gorge Parklands towards the distant Macedon Ranges on the horizon (viewpoint A). Views towards Yan Yean Road tend to be partly filtered by vegetation and the topography along the road/park boundary (viewpoint B). Built form includes several sheds/single storey recreational buildings, a picnic area (viewpoint C), toilet block and harness track.
Sensitivity	**Moderate** + Scenic landscape with numerous native mature tree canopies visible + Extensive view north west towards distant hillsides + Exposure to existing road infrastructure at eastern boundary, reducing sensitivity along this edge of the park. Majority of park at a large distant from Yan Yean Road, including the Yarrambat Horse & Pony Club and Greensborough Model Aircraft Club.
Magnitude (construction)	**Low** + Large viewing distance between Project works and majority of park reduces exposure to construction activities.
Magnitude (operation)	**Low** + Large viewing distance between Project works and the majority of the parklands, including Yarrambat Horse & Pony Club, Greensborough Model Aircraft Club and Northern Suburbs Fly Fishing Club + There would be a slight increase in the scale of the road corridor and associated vegetation removal visible from the eastern park boundary + New fencing would likely block views of the road corridor from the Diamond Valley Archers club.
Impact rating (construction)	Moderate/Low
Impact rating (operation)	Moderate/Low
Residual impact rating (post landscape maturity)	Negligible to Beneficial *Proposed landscape planting along the Yan Yean Road corridor may improve the visual amenity of the eastern park boundary.*

VIEWPOINT A - VIEW WEST OVER YARRAMBAT PARK TOWARDS MACEDON RANGES

VIEWPOINT B - VIEW EAST TOWARDS YAN YEAN ROAD FROM YARRAMBAT PARK

VIEWPOINT C -YARRAMBAT PARK PICNIC AREA

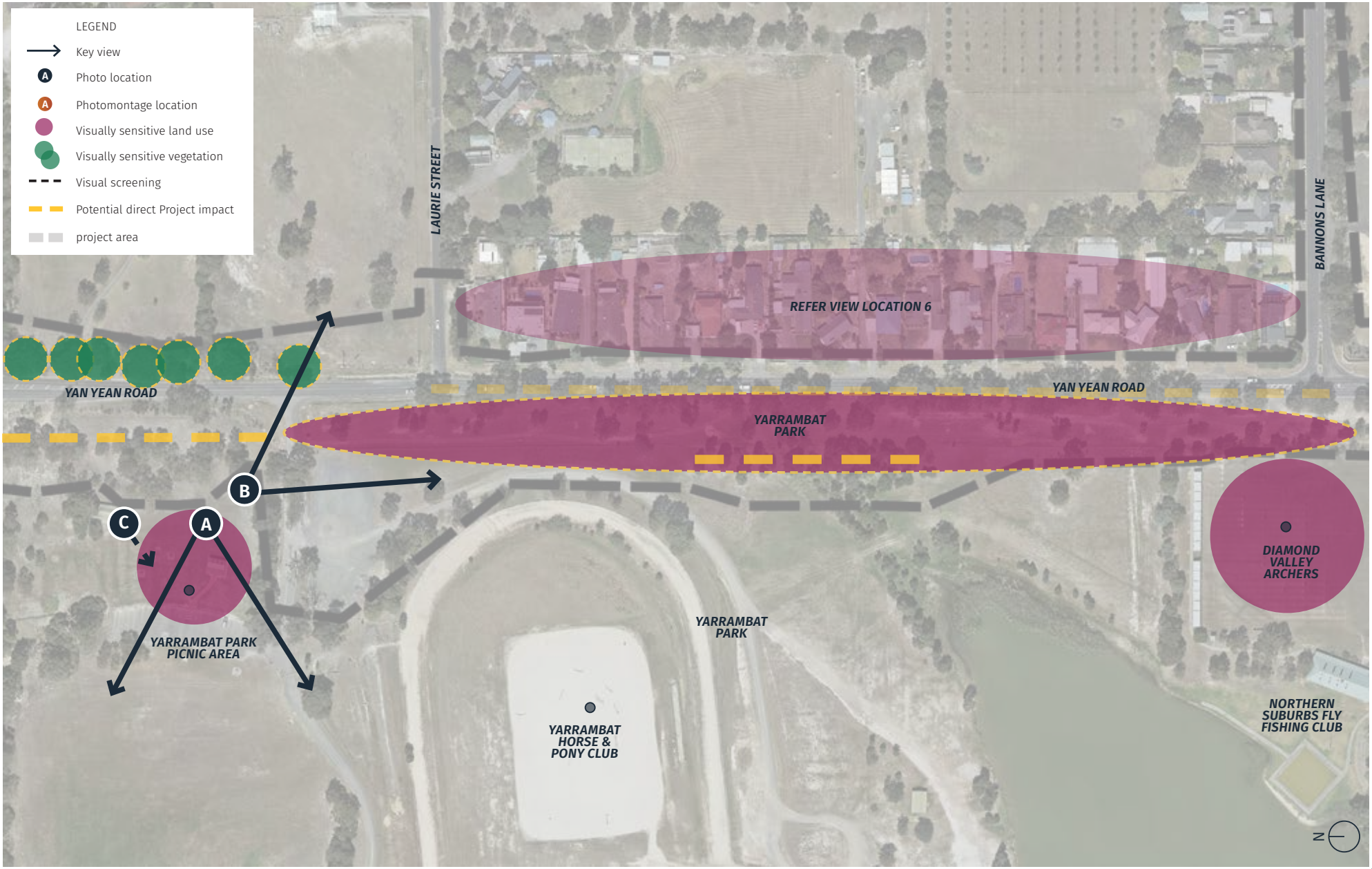


FIGURE 5.39: VIEW LOCATION 5 VISUAL ANALYSIS

View location 6 - Residential dwellings near Bannons Lane (Figure 5.40)	
Visual receptors	+ Residents.
Number of viewers	Low (approximately nineteen dwellings).
Existing visual environment	These properties are located on the eastern side of the Yan Yean Road corridor, opposite Yarrambat Park. There is a moderate set back between the dwellings and the road with a mix of single and double storey houses fronted by varied densities of native and exotic garden plantings (viewpoint A). Where available, views extend west from the dwellings and gardens over Yan Yean Road to a row of mature trees along the road boundary (viewpoint B). Filtered distant views extend into the park and over the lake adjacent to Diamond Valley Archers (viewpoint C).
Sensitivity	**Moderate** + Residential receptors - although current view exposed to existing road infrastructure (including vehicle movements), mature tree planting along western road edge softens hard edge of road corridor + Some scenic filtered distant views available across Yarrambat Park.
Magnitude (construction)	**High** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements + Vegetation removal along the western edge of Yan Yean Road.
Magnitude (operation)	**Moderate** + Increase in the scale of the road adjacent to the properties, including the shared path and formalised footpath (refer viewpoint D photomontage) + There would be the noticeable removal of the mature tree canopy along the western edge of the Yan Yean Road corridor. This would change the character of the view, opening up sightlines over Yarrambat Park.
Impact rating (construction)	Moderate/High
Impact rating (operation)	Moderate
Residual impact rating (post landscape maturity)	Low *New landscape planting along the corridor and within the median is expected to reduce the visual impact over time.*

VIEWPOINT A - TYPICAL CHARACTER OF DWELLINGS IN THIS LOCATION

VIEWPOINT B - VIEW SOUTH ALONG YAN YEAN ROAD

VIEWPOINT C - VIEW WEST OVER YARRAMBAT PARK

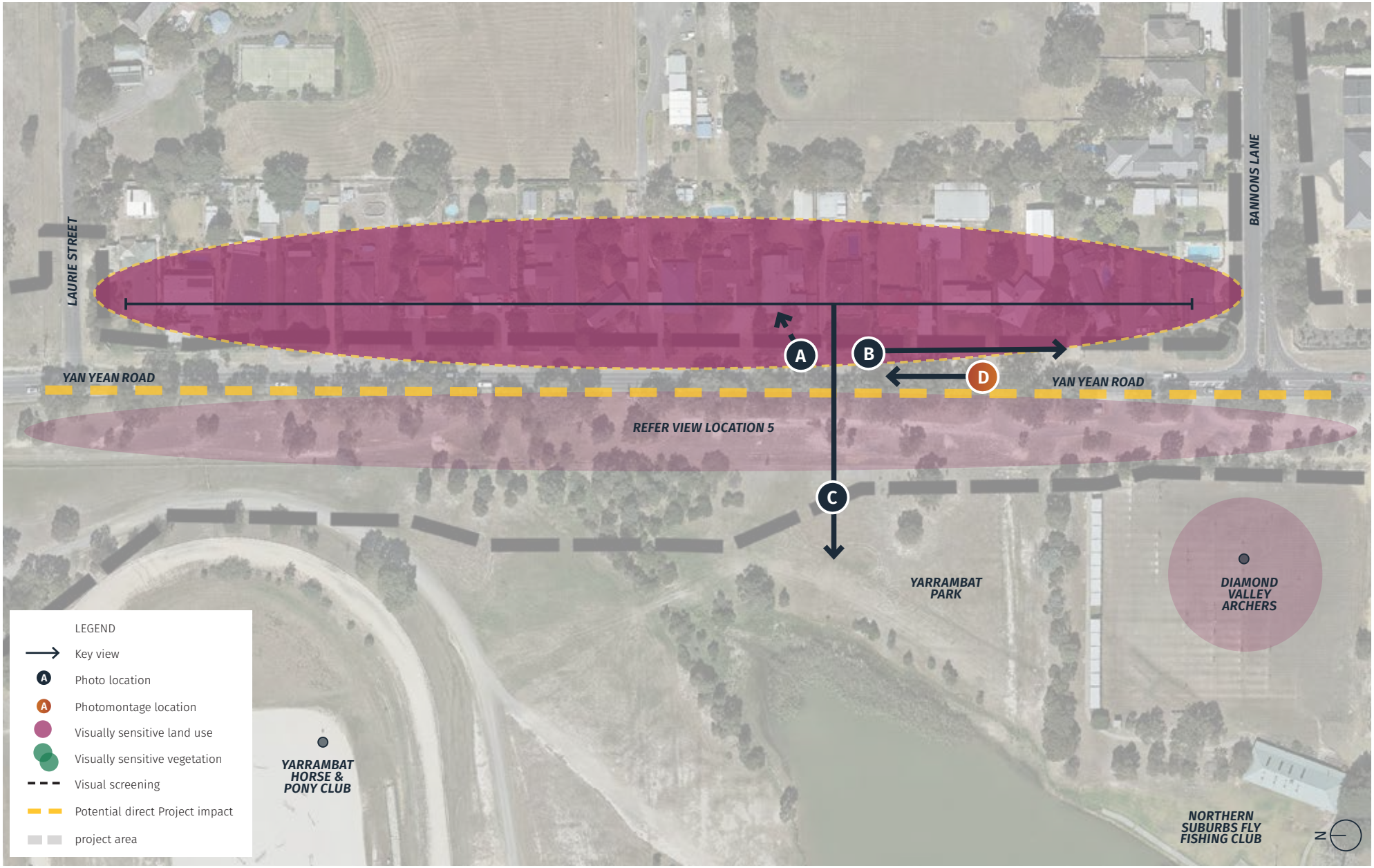


FIGURE 5.40: VIEW LOCATION 6 VISUAL ANALYSIS

FIGURE 5.41: VIEWPOINT D -YAN YEAN ROAD, NEAR BANNONS LANE - EXISTING

FIGURE 5.42: VIEWPOINT D - YAN YEAN ROAD, NEAR BANNONS LANE - PROPOSED - YEAR 1
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

FIGURE 5.43: VIEWPOINT D - YAN YEAN ROAD, NEAR BANNONS LANE - PROPOSED - LANDSCAPE MATURITY
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

View location 7 - Yarrambat Park Golf Course (Figure 5.44)	
Visual receptors	+ Golf course and club house users (including for functions).
Number of viewers	Moderate.
Existing visual environment	The club house sits on an elevated position with sweepings views south over the golf course (viewpoint A). Very little built form is visible. The view is characterised by alternating mown grass and bands of mature trees, forming a distinctive dark contrast to the lighter fairways and greens. Yan Yean Road is visually separated from the golf course by an extensive row of trees along the course's eastern boundary, flanking the 10th hole. Filtered views of Yan Yean Road are available from the golf course car park (viewpoint B).
Sensitivity	**Moderate** + Scenic landscape with mature tree planting contributing strongly to visual character + Limited built form visible + Visual amenity an important factor in the enjoyment of the golf course.
Magnitude (construction)	**Moderate** + Some visual exposure to construction equipment, site hoardings and stockpiles + Some noticeable vegetation removal along the western edge of Yan Yean Road.
Magnitude (operation)	**Moderate** + Installation of a prominent safety fence along eastern course boundary (refer viewpoint C photomontage) + Slight but noticeable Increase in the scale of the road infrastructure adjacent to the golf course - depending on quantity of screening vegetation removed (refer viewpoint D photomontage).
Impact rating (construction)	**Moderate**
Impact rating (operation)	**Moderate*** **Level of impact would depend on the quantity of vegetation removal required*
Residual impact rating (post landscape maturity)	**Low** *New landscape planting along the golf course boundary is expected to reduce the visual impact over time although any safety fencing would remain a discernible visual feature in the landscape.*

VIEWPOINT A - VIEW SOUTH WEST OVER GOLF COURSE FROM CLUB HOUSE

VIEWPOINT B - VIEW SOUTH TOWARDS YAN YEAN ROAD (BEHIND TREES) FROM GOLF COURSE CAR PARK

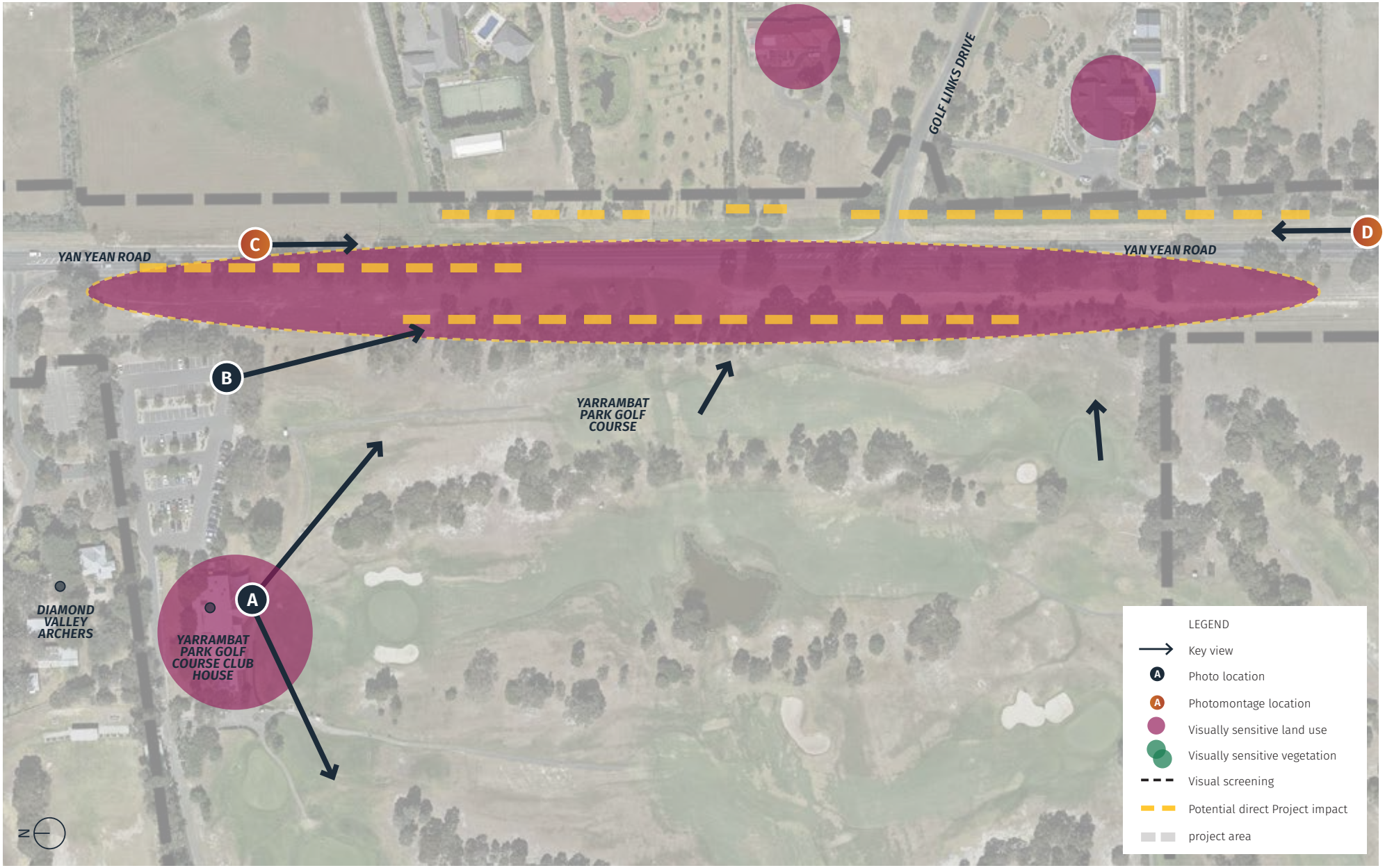


FIGURE 5.44: VIEW LOCATION 7 VISUAL ANALYSIS

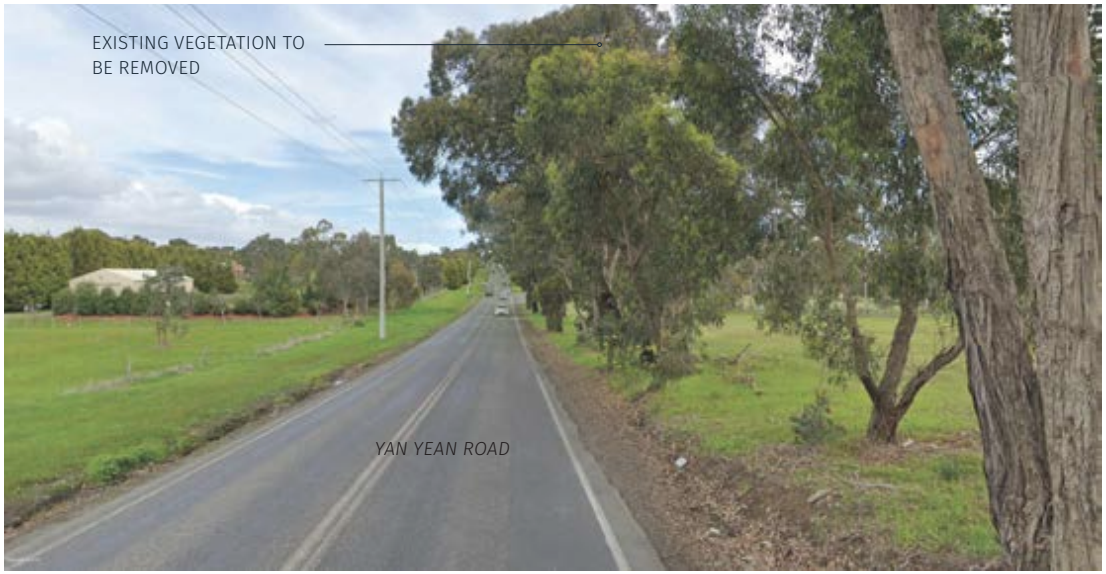


FIGURE 5.45: VIEWPOINT C -YAN YEAN ROAD ALONGSIDE YARRAMBAT GOLF COURSE, LOOKING SOUTH - EXISTING

FIGURE 5.46: VIEWPOINT C - YAN YEAN ROAD ALONGSIDE YARRAMBAT GOLF COURSE, LOOKING SOUTH - PROPOSED - YEAR 1
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

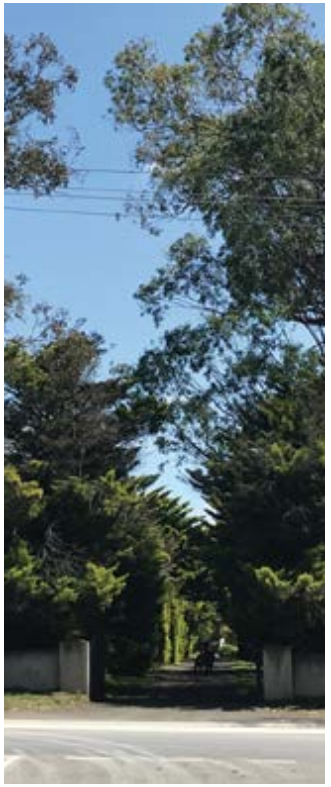
FIGURE 5.47: VIEWPOINT C - YAN YEAN ROAD ALONGSIDE YARRAMBAT GOLF COURSE, LOOKING SOUTH - PROPOSED - LANDSCAPE MATURITY
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

FIGURE 5.48: VIEWPOINT D -YAN YEAN ROAD, BETWEEN YOUNGS ROAD AND GOLF LINKS DRIVE - EXISTING

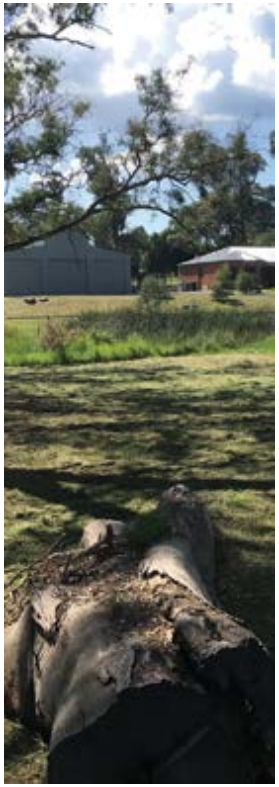
FIGURE 5.49: VIEWPOINT D - YAN YEAN ROAD, BETWEEN YOUNGS ROAD AND GOLF LINKS DRIVE - PROPOSED - YEAR 1
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

FIGURE 5.50: VIEWPOINT D - YAN YEAN ROAD, BETWEEN YOUNGS ROAD AND GOLF LINKS DRIVE- PROPOSED - LANDSCAPE MATURITY
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

View location 8 - St Macarius Coptic Orthodox Church and nearby residential dwellings (Figure 5.51)	
Visual receptors	+ Church users + Residents (approximately seven properties).
Number of viewers	Moderate.
Existing visual environment	The church and nearby properties sit at the intersection of Yan Yean Road and Youngs Road. The location is well vegetated with a mix of large specimen native trees, open pasture and screening hedges along property boundaries (viewpoint A and C). There is a man made wetland to the eastern corner of the intersection (viewpoint B). Views from the church to Yan Yean road are partly filtered by a row of large native trees along the road boundary (viewpoint C). The church has a playground to the rear which has limited views towards the road. It should be noted that the church has limited windows facing the road corridor. Existing views from the nearby dwellings to the road are either totally screened by hedges or filtered through mature tree planting. The lot sizes are large, allowing some large set backs from the dwelling to the road corridor.
Sensitivity	**High** + Residential receptors with elevated visual sensitivity due to scenic outlook + Despite the presence of the road infrastructure, the area has a pleasant rural character, enhanced by specimen trees, large boundary hedges, historic driveway planting and the wetland.
Magnitude (construction)	**High** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements + Extensive vegetation removal along Yan Yean Road including adjacent to properties and Church boundary.
Magnitude (operation)	**High** + Increase in the scale of the road infrastructure including views towards the new roundabout leading to a reduction in the naturalistic qualities of local views (refer viewpoint D photomontage) + Noticeable reduction in mature tree canopy, screening vegetation and driveway planting along the road corridor, increasing visual exposure to Yan Yean Road from the Church and nearby dwellings (refer viewpoint D photomontage) + Magnitude of impact would depend on the orientation of the dwelling and amount of screening vegetation retained.
Impact rating (construction)	High
Impact rating (operation)	High
Residual impact rating (post landscape maturity)	Moderate *Although proposed landscape planting would reduce the expected visual impact, the loss of tree canopy and increased scale of the road footprint in close proximity to the Church and nearby properties would likely have a lasting residual impact on visual amenity (refer viewpoint D photomontage).*



VIEWPOINT A - DRIVEWAY TO RURAL PROPERTY



VIEWPOINT B - MAN MADE WETLAND

VIEWPOINT C - VIEW NORTH ALONG YAN YEAN ROAD TAKING IN CHURCH AND SCREENING VEGETATION TO ROAD BOUNDARY

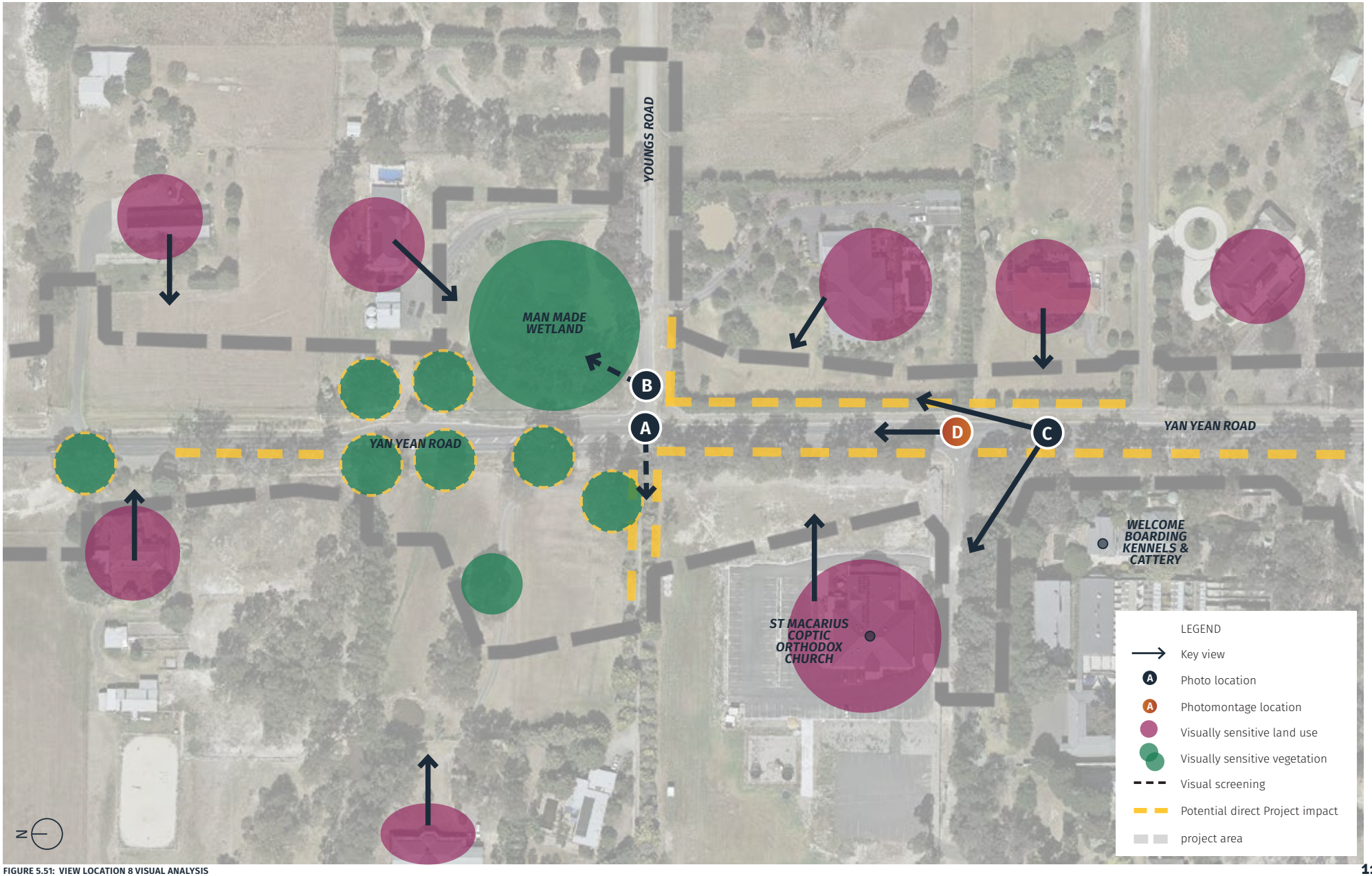


FIGURE 5.51: VIEW LOCATION 8 VISUAL ANALYSIS

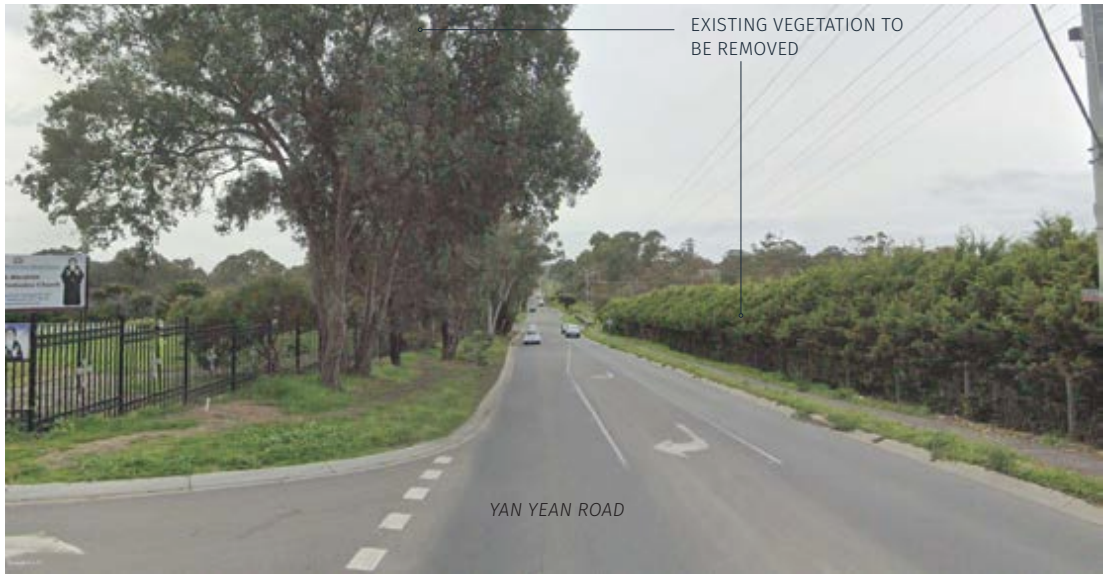


FIGURE 5.52: VIEWPOINT D -YAN YEAN ROAD ALONGSIDE ST MACARIUS COPTIC ORTHODOX CHURCH, LOOKING NORTH - EXISTING

FIGURE 5.53: VIEWPOINT D - YAN YEAN ROAD ALONGSIDE ST MACARIUS COPTIC ORTHODOX CHURCH, LOOKING NORTH - PROPOSED - YEAR 1
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBIECT TO CHANGE

FIGURE 5.54: VIEWPOINT D - YAN YEAN ROAD ALONGSIDE ST MACARIUS COPTIC ORTHODOX CHURCH, LOOKING NORTH - PROPOSED - LANDSCAPE MATURITY
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

View location 9 - Yarrambat Primary School (Figure 5.52)	
Visual receptors	+ School users.
Number of viewers	Moderate.
Existing visual environment	The school sits in a visually prominent position on the south eastern corner of the Yan Yean Road and Ironbark Road intersection. The visual character of the school adjacent to Yan Yean Road is open with a large sports pitch and running track dominating the foreground, with school buildings behind (viewpoint A). A drop off parking zone is located on the western boundary, flanked by a footpath on either side (viewpoint B). A linear row of pear trees adjacent to the sports pitch forms an 'Avenue of Honour' (viewpoint C). Planted in 2015, they commemorate the 100th anniversary of the Gallipoli Landing and pay tribute to 11 men from the Yarrambat Primary community who served in World War 1. The plantings provide visual interest and a buffer to the road. Nearby, a descendent of the original Lone Pine tree and flag pole provide an entry feature to the school.
Sensitivity	**Moderate** + Visual amenity an important factor in the enjoyment of the school grounds although some visual exposure to existing road infrastructure, especially from sports pitch and drop off car park.
Magnitude (construction)	**High** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements + Vegetation removal within the school car park and along western edge of Yan Yean Road.
Magnitude (operation)	**Moderate** + Limited changes to views east over the school grounds + Views west would notice an increase in the scale of the road corridor including views towards the upgrade intersection at Ironbark Road, associated infrastructure and retaining walls + Noticeable reduction in large mature tree canopy along the western edge of Yan Yean Road although this would be partly mitigated by retained existing vegetation behind + Reduction in amenity planting adjacent to the school sports facilities, potentially increasing visual exposure to the road + It should be noted that the majority of school buildings are a considerable distance from the Project footprint and the 'Avenue of Honour' is not expected to be directly impacted.
Impact rating (construction)	Moderate/High
Impact rating (operation)	Moderate
Residual impact rating (post landscape maturity)	Moderate/Low *Although proposed landscape planting would reduce the expected visual impact, the loss of tree canopy and increased scale of road footprint in close proximity to the school sports pitches would likely have a lasting residual impact on visual amenity.*

VIEWPOINT A - VIEW EAST OVER YARRAMBAT PRIMARY SCHOOL SPORTS PITCH

VIEWPOINT B - VIEW TOWARDS YAN YEAN ROAD AND DROP OFF PARKING ALONG WESTERN SCHOOL BOUNDARY

VIEWPOINT C - 'AVENUE OF HONOUR' WAR MEMORIAL

FIGURE 5.55: VIEW LOCATION 9 VISUAL ANALYSIS

View location 10 - Ironbark Road (Figure 5.53)	
Visual receptors	+ Users of commercial, residential and religious premises along the road.
Number of viewers	High.
Existing visual environment	The western end of Ironbark Road forms the community heart of Yarrambat. The street comprises a mixture of residential, retail and religious land uses including a cafe, shop, heritage listed St Michael's Anglican Church and the main entry to Yarrambat Primary School. The visual character of the streetscape is varied and inconsistent with unsealed verges, mixed fencing types and the large school car park detracting from general visual amenity. Several large exotic and native tree plantings, the heritage church and other characterful buildings provide visual interest (viewpoint A). Views uphill towards the Yan Yean Road intersection are generally linear in nature and restricted to the road corridor and footpaths. Yan Yean Road and associated infrastructure is visible, backed by a dense stand of mature trees (viewpoint B). In proximity to the intersection, far reaching views extend north over undulating rural terrain towards Kinglake Hills on the horizon (viewpoint C).
Sensitivity	**Moderate** + This section of Ironbark Road is a community hub and as such, visual amenity an important factor in the enjoyment of visitors and residents. Yarrambat is named from a Woiwurrung word meaning 'high hills' or 'pleasant views'. St Michael's Anglican church is locally heritage listed + This intersection represents the gateway to the settlement and is therefor of elevated visual importance compared to a purely movement focused road corridor. There is, however, visual exposure to the existing road infrastructure of Yan Yean Road and Ironbark Road.
Magnitude (construction)	**High** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements + Vegetation removal within the school car park and along western edge of Yan Yean Road.
Magnitude (operation)	**Moderate** + Slight increase in the scale of the Ironbark Road corridor and views towards the upgraded intersection with Yan Yean Road (refer viewpoint D photomontage) + Noticeable reduction in large mature tree canopy along the western edge of Yan Yean Road, although this would be partly mitigated by retained vegetation behind + Views towards an approx. 3m high retaining wall along Yan Yean Road separating Yan Yean Road and a proposed service road + Removal of some vegetation within the school car park at the intersection + Likely improvement to appearance of existing Ironbark Road road verges and pathways with formalised edges, rationalised path network and undergrounded electricity infrastructure. Scenic rural views north would not be impacted.
Impact rating (construction)	Moderate/High
Impact rating (operation)	Moderate
Residual impact rating (post landscape maturity)	Low *Although proposed landscape planting would reduce the expected visual impact, the increased scale of the intersection (including large retaining wall) is likely to remain a prominent new visual elements within the scene.*

VIEWPOINT A - 476 IRONBARK ROAD

VIEWPOINT C - VIEW NORTH OVER UNDULATING LANDSCAPE

VIEWPOINT B - VIEW WEST ALONG IRONBARK ROAD TOWARDS YAN YEAN ROAD

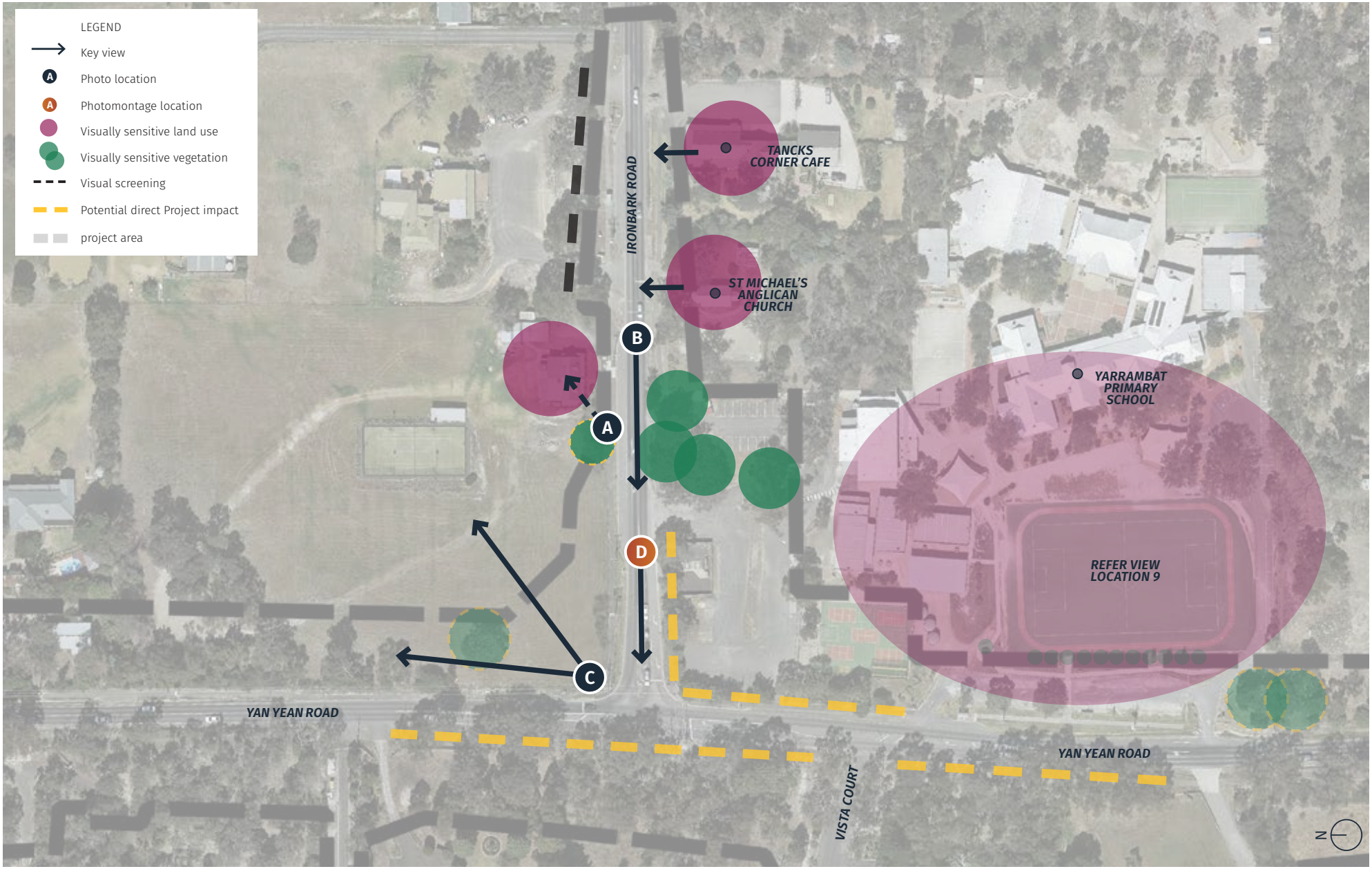


FIGURE 5.56: VIEW LOCATION 10 VISUAL ANALYSIS

FIGURE 5.57: VIEWPOINT D - IRONBARK ROAD/YAN YEAN ROAD INTERSECTION - EXISTING ***(NOTE: IMAGE TAKEN IN 2019, SOME TREES ALONG YAN YEAN ROAD HAVE SINCE BEEN REMOVED)***

FIGURE 5.58: VIEWPOINT D - IRONBARK ROAD/YAN YEAN ROAD INTERSECTION - PROPOSED - YEAR 1
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

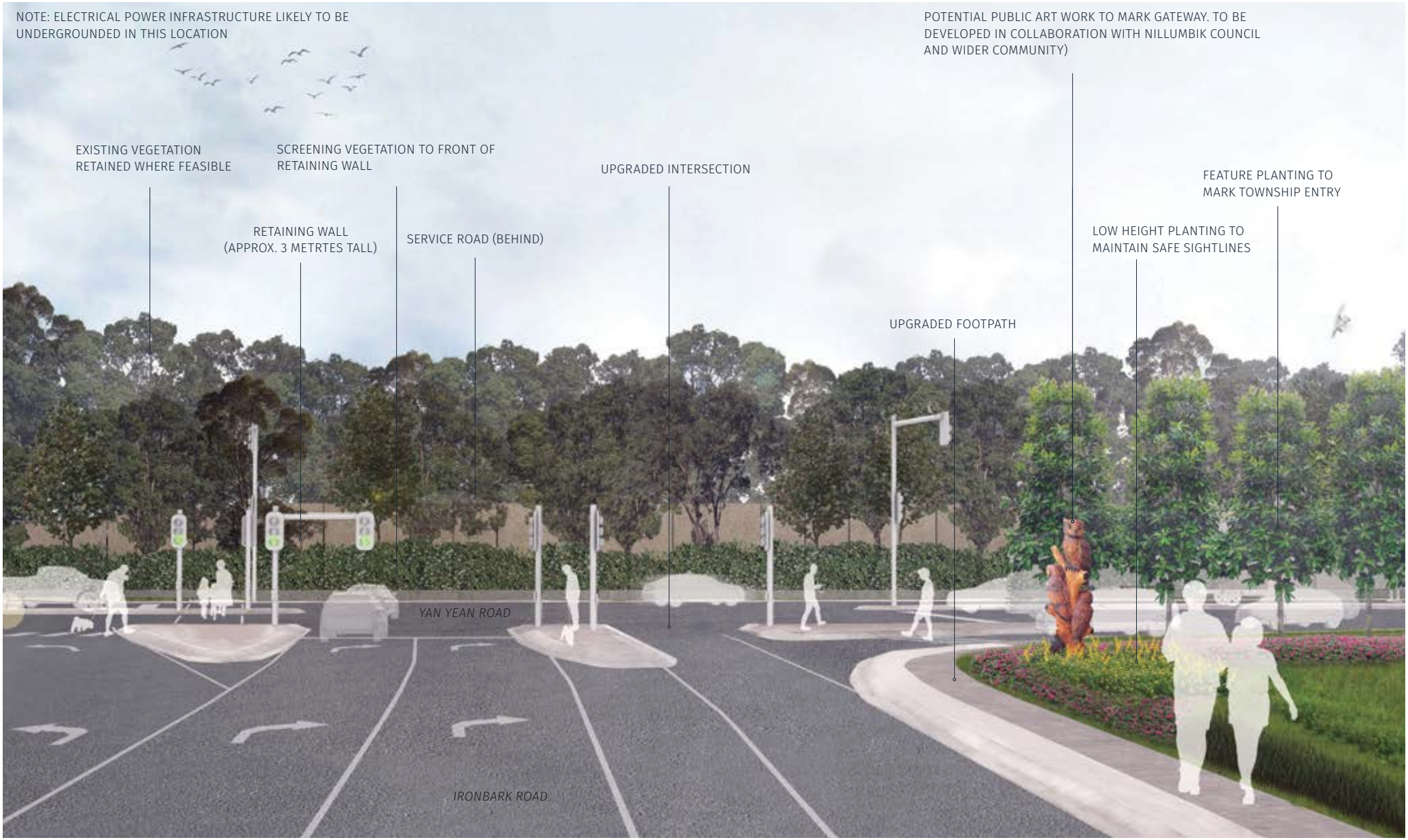


FIGURE 5.59: VIEWPOINT D - IRONBARK ROAD/YAN YEAN ROAD INTERSECTION - PROPOSED - LANDSCAPE MATURITY
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

View location 11 - Residential dwellings between North Oatlands Road and Worns Lane (Figure 5.57)	
Visual receptors	+ Residents (approximately thirteen properties).
Number of viewers	Low.
Existing visual environment	Large residential lots flank both sides of Yan Yean Road with a distinct suburban rural character. Dwellings are generally large and often set back a large distance from the road boundary. The topography rises to the west. Dwellings are interspersed by paddocks - some used for livestock grazing or running horses. Fencing tends to be post and wire with gravel driveways. Vegetation is a mix between native and exotic with several tall coniferous windbreaks flanking the road (viewpoint A). The availability of views from dwellings to the Yan Yean Road corridor varies depending on the offset of the building and the density of planting. In some locations the road is totally screened by hedges while in others, direct views are available over open grass land, or partly filtered by vegetation (viewpoint B).
Sensitivity	**High** + The rural character and associated visual amenity of these dwellings is an important factor in the enjoyment of the residents and often a motivation for residing here + Planting along the property and road corridor boundary is a key component in the visual character of the landscape (including large windbreaks) and references historic agricultural land use + There is limited visual exposure to the existing road infrastructure from many dwellings.
Magnitude (construction)	**High** + Visual exposure to construction equipment, site hoardings, stockpiles and heavy vehicle movements depending on screening vegetation + Large quantity of vegetation removal along both edges of Yan Yean Road, including mature trees.
Magnitude (operation)	**Moderate** + Increase in the scale of the road corridor, including the shared path and formalised footpath, bringing the road corridor closer to dwellings (refer viewpoint C photomontage) + Noticeable removal of the mature vegetation and tree canopy along both sides of Yan Yean Road corridor, including historic windbreak planting. This would change the character of the view and increase the properties exposure to the road where screening vegetation is removed + Magnitude of change would depend on the level of screening vegetation retained within property boundary.
Impact rating (construction)	**High**
Impact rating (operation)	**Moderate/High*** **Level of impact would depend on the orientation of a particular dwelling and amount of screening vegetation retained.*
Residual impact rating (post landscape maturity)	**Moderate** *Although proposed landscape planting along the road corridor would reduce the expected visual impact, the increased scale of the road footprint in proximity to some dwellings would likely have a lasting residual impact on visual amenity.*

VIEWPOINT A - VIEW NORTH ALONG YAN YEAN ROAD FROM HEARD AVENUE

VIEWPOINT B - TYPICAL VISUAL CHARACTER OF PROPERTY LOT ALONG THIS SECTION OF YAN YEAN ROAD

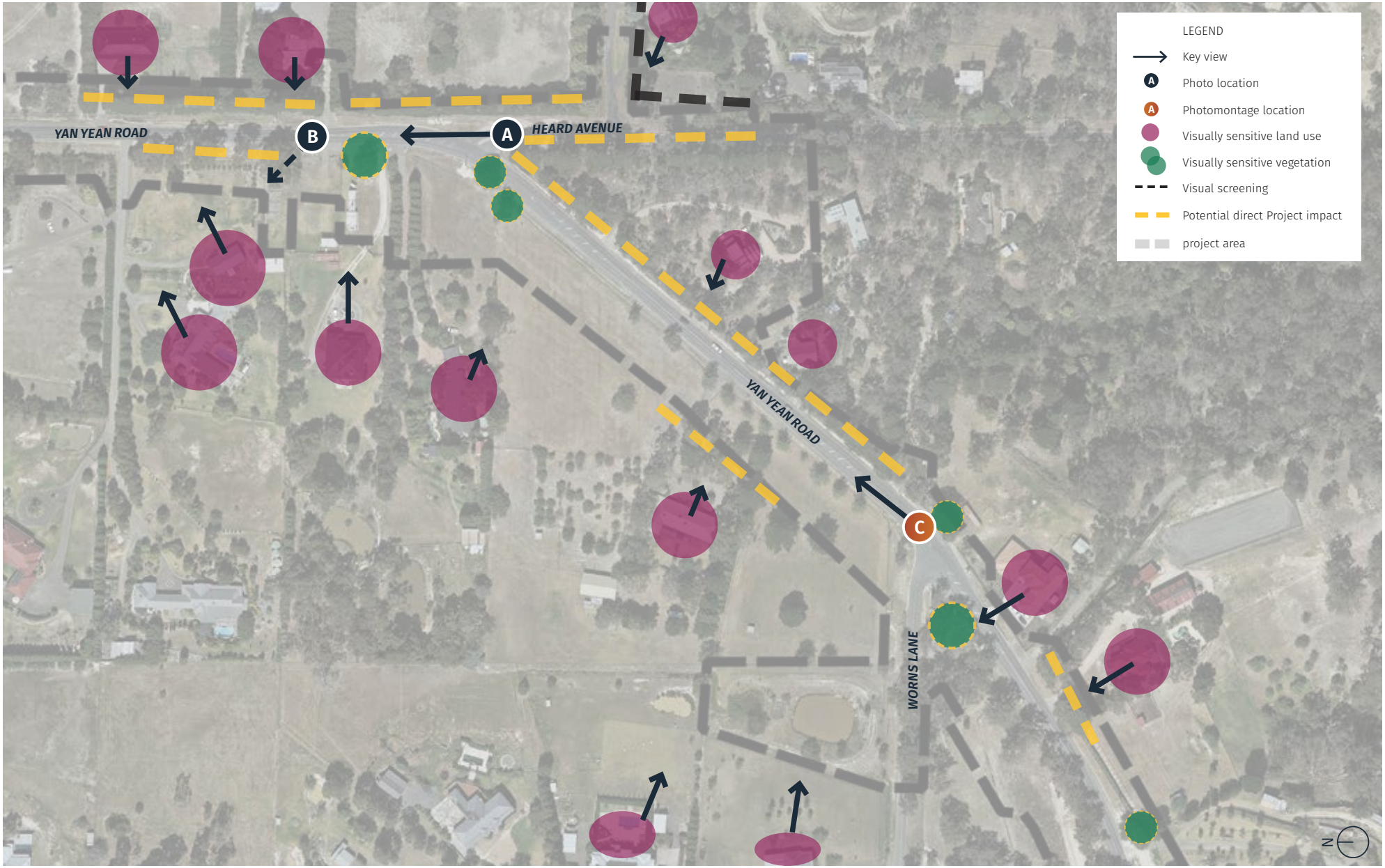


FIGURE 5.60: VIEW LOCATION 11 VISUAL ANALYSIS

FIGURE 5.62: VIEWPOINT C - YAN YEAN ROAD, NEAR WORNS LANE - EXISTING

FIGURE 5.61: VIEWPOINT C - YAN YEAN ROAD, NEAR WORNS LANE - PROPOSED - YEAR 1
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

FIGURE 5.63: VIEWPOINT C - YAN YEAN ROAD, NEAR WORNS LANE - PROPOSED - LANDSCAPE MATURITY
NOTE: DESIGN IS FOR ILLUSTRATIVE PURPOSES ONLY AND SUBJECT TO CHANGE

5.6 Value assessment summary

5.6.1 Cultural value of vegetation

The following key findings have been made:

- **2,399** out of **7,039** vegetation components analysed within the project area (trees, parkland and significant flora species) were identified as having some form of cultural value
- Of these, **2115** (88%) triggered one value criteria, **272** (11%) triggered two, **10** (0.4%) triggered three and **two** trees (0.08%) triggered four value criteria - the River Red Gums at Bridge Inn Road intersection
- Social value was the most common criteria triggered (23% of all vegetation components). Five areas of public open space (including Doreen Recreation Reserve, Orchard Park, Werther Park and Yarrambat Park) recorded social value for their contribution to public amenity
- Trees with aesthetic value (1.8% of all vegetation components) are found across the Project alignment and include large and old landmark trees as well as trees planted along original driveways and paddock boundaries. These provide structure to the landscape and a connection with historical land uses
- Trees with scientific value (14% of all vegetation components) are spread throughout the project area and often appear as clusters of native trees that provide Swift Parrot foraging habitat
- Value hot spots include the River Red Gums at Doctors Gully Road/Bridge Inn Road intersection, 'Avenue of Honour' WW1 memorial plantings at Yarrambat Primary School and important aesthetic/social value trees within Yarrambat Township such as the 'historic oak'.

5.6.2 Landscape Character

The following key findings have been made (Table 5.5):

- The landscape character of the wider project area includes a mix of existing modified rural landscapes and rapidly urbanising growth precincts. Historic land uses such as agriculture, mining and rural settlement continue to exert subtle influences on the current landscape of the project area. Associated landscape features including tree plantings, buildings, dams and field patterns are a visible reminder of the past and contribute to the existing landscape character
- Approximately 20% of the project area supports patches of remnant vegetation which reflect a pre-European landscape and contribute strongly to the area's current character
- Landscape sensitivity varies between High (LCZ 2 - *Undulating Agricultural*) and Low (LCZ 4 - *Doreen Urban Area*). The LCZ 2 is valued regionally for its scenic undulating topography, distant vistas and patches of remnant vegetation
- The presence of ESO 1 and endangered EVCs have increased the sensitivity of several LCZs
- The greatest operation phase landscape character impacts are expected on LCZ 1 - *Suburban Rural* (Moderate), LCZ 2 - *Undulating Agricultural* (Moderate/High) and LCZ 3 - *Yan Yean Road Corridor* (Moderate) where the removal of vegetation and increase in road footprint would reduce the naturalistic/rural qualities of the existing landscape and increase the dominance of road infrastructure
- Direct landscape character impacts are limited to the edges of these LCZs, in close proximity to the project area, with impacts reducing as distance from the project area increases
- Moderate/Low impacts are expected on LCZ 5 - *Parkland* due to their existing exposure to built form
- Moderate/Low to Low residual impacts are expected on LCZ 1 - *Suburban Rural*, LCZ 2 - *Undulating Agricultural* and LCZ 3 - *Yan Yean Road Corridor* where there would be a permanent reduction in tree canopy extent and an increase in the road corridor footprint
- Several historical landscape features such as planted windbreaks and old remnant trees would be lost across LCZ 1 - *Suburban Rural*, LCZ 2 - *Undulating Agricultural* and LCZ 3 - *Yan Yean Road Corridor*. These features currently contribute to the scenic amenity and cultural heritage of the Project corridor and their removal will negatively impact landscape character.
- Project landscape treatments are expected to reduce impacts for all LCZs as they mature over time.

5.6.3 Visual Impact

The following key findings have been made (Table 5.6):

- The visual character of the project area is defined by its undulating topography, vegetated nature and varied built form. Yan Yean Road is identified as a 'Key Viewing Corridor' within the Shire of Nillumbik '*Landscape Character Assessment*' report
- The visual experience along Yan Yean Road is varied, ranging from panoramic views towards distant mountain ranges from elevated positions to filtered, narrow views, framed by dense roadside tree planting. Visual exposure to existing road infrastructure has reduced the sensitivity of a number of view locations in close proximity to Yan Yean Road, including Werther Park *(view location 4)* and residential dwellings in proximity to Bannons Lane (*view location 6*)
- The clearing of vegetation and the increase of the road corridor footprint in proximity to sensitive receptors has the greatest potential to cause visual impacts. It should be noted that topography and existing vegetation would limit the majority of views of the Project to an area approximately 100m either side of the road corridor
- Temporary construction phase visual impacts would be Moderate/High for the majority of view locations assessed. The removal of vegetation during the construction phase would likely increase visibility of both existing and proposed infrastructure
- The greatest operational phase visual impacts (High and Moderate/High) are expected on sensitive residential receptors in close proximity to the road corridor where existing screening vegetation is likely to be removed. This includes properties near Youngs Road intersection (*view location 7*) and south of North Oatlands Road (*view location 11*)
- The Doctors Gully Road/Bridge Road Intersection (*view location 1*) has elevated visual sensitivity due to the presence of the Doreen General Store and heritage listed River Red Gums which form distinctive local landmarks. The large mature trees alongside Doreen Recreation Reserve also provide structure to the landscape. A Moderate impact rating assumes retention of the River Red Gums and Doreen General Store which would continue to provide a visual landmark as the historical centre of Doreen
- Moderate operation phase visual impacts are expected at the northern end of Ironbark Road within Yarrambat township (*view location 10*) where there would be a noticeable increase in the scale of the intersection, including a new retaining wall
- Operation phase visual impacts on Yarrambat Park (*view location 5*) and Yarrambat Park Golf Course (*view location 7*) are expected to be relatively minor and limited to their eastern boundaries, adjacent to Yan Yean Road
- Project landscape treatments are expected to reduce visual impacts for all view locations as they mature over time
- Residual impacts are expected on receptors in close proximity to the road where there would be a permanent reduction in tree canopy extent and an increase in the road corridor footprint such as Plenty Valley Christian College (*view location 3*), land uses near Youngs Road intersection (*view location 8*) and residential dwellings in close proximity to the road corridor between North Oatlands Road and south of Worns Lane (*view location 11*).

Landscape Character Zone	Sensitivity	Magnitude (construction)	Magnitude (operation)	Landscape Character Impact Construction	Landscape Character Impact Operation	Residual Impact (Post landscape maturity)
LCZ 1 - Suburban Rural	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate/Low
LCZ 2 - Undulating Agricultural	High	Moderate	Moderate	Moderate/High	Moderate/High	Moderate/Low
LCZ 3 - Yan Yean Road Corridor	Moderate	Moderate	Moderate	Moderate	Moderate	Low
LCZ 4 - Doreen Urban Area	Low	Moderate	Low	Moderate/Low	Low	Negligible
LCZ 5 - Parkland	Moderate	Moderate	Low	Moderate	Moderate/Low	Negligible

TABLE 5.5: LANDSCAPE CHARACTER IMPACT SUMMARY TABLE

View location	Sensitivity	Magnitude (construction)	Magnitude (operation)	Visual Impact Construction	Visual Impact Operation	Residual Impact (Post landscape maturity)
1 - Doctors Gully/Bridge Inn Road Intersection	Moderate	High	Moderate	Moderate/High	Moderate	Moderate/Low
2 - Yan Yean Road - south of Activity Way	Moderate	Moderate	Moderate	Moderate	Moderate	Low
3 - Plenty Valley Christian College	Moderate	High	High	Moderate/High	Moderate/High	Moderate
4 - Werther Park	Moderate	High	Moderate	Moderate/High	Moderate*	Moderate/Low
5 - Yarrambat Park	Moderate	Low	Low	Moderate/Low	Moderate/Low	Negligible/Beneficial
6 - Residential dwellings near Bannons Lane	Moderate	High	Moderate	Moderate/High	Moderate	Low
7 - Yarrambat Park Golf Course	Moderate	Moderate	Moderate	Moderate	Moderate*	Low
8 - St Macarius Coptic Orthodox Church and nearby residential dwellings	High	High	High	High	High	Moderate
9 - Yarrambat Primary School	Moderate	High	Moderate	Moderate/High	Moderate	Moderate/Low
10 - Ironbark Road	Moderate	High	Moderate	Moderate/High	Moderate	Low
11 - Residential dwellings between North Oatlands Road and Worns Lane	High	High	Moderate	High	Moderate/High*	Moderate

TABLE 5.6: VISUAL IMPACT SUMMARY TABLE

* Level of visual impact would depend on the quantity of vegetation removed.

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6. Landscape strategy

The Landscape strategy has been developed to ensure that the planning, design and management of the Project responds effectively to the local context of Yan Yean Road, community interests and environmental sensitivities.

The strategy seeks to limit the identified potential impacts of the Project and enhance existing values where feasible.

An overarching landscape vision for the Project is supported by key moves and design guidelines that seek to ensure the landscape works and Project elements exhibit quality in design, material and finish.

The findings from Chapter 5 - *Value assessment* have been incorporated into the guidelines, including the outcomes of the community and stakeholder feedback, landscape character and visual impact assessment findings and the output of the vegetation cultural value assessment.

6.1 Strategy structure

The **vision** statement describes the landscape ambition for the Yan Yean Road Stage 2 Upgrade. It is specific to this section of the road and has been shaped based on the information collected during the value assessment of the wider project area, including stakeholder workshops.

The **key moves** support the vision and serve as a framework for the design guidelines. They provide a hierarchy of actions that underpin the strategy's approach to first prevent and reduce impacts to the existing area's values, before rehabilitating the site and enhancing identified values where feasible.

The **design guidelines** describe how the Project response should achieve the stated landscape vision. The guidelines seek to ensure that the Project works contribute to creating a high quality, safe experience for all users based on a contextually responsive and ecologically sound landscape approach. The guidelines adopt consistent and robust design principles for all Project elements.

6.2 Landscape vision

Yan Yean Road Stage 2 will act as a **safe,** well **vegetated** transport corridor, **stitching** together the urbanising suburbs to the west with the existing rural landscape to the east.

The road will provide a **climate resilient** landscape approach that delivers a legacy of **environmental benefits**, improved **amenity** for users and the wider community, while respecting, **protecting** and **enhancing** the **cultural values** of the existing landscape.

6.3 Key moves

The design process should first seek to **avoid** impacts on the existing landscape by protecting the identified values of the project area where possible.

Protection through design includes future changes to the road and path alignments, modifying associated elements to reduce the Project footprint and creating no-go zones for valuable landscape areas.

Reduction of impacts through design development seeks to **minimise** Project impacts, with a focus on sensitive landscape locations and areas of important user amenity such as open space and road crossings.

Reduction of impacts is associated with refinements and modifications that address vegetation removal and the siting and scale of infrastructure elements. It also covers maintenance, safety and aesthetic considerations.

Reinforcing the identified values of the project area ensures a landscape design that respects the **local context** and provides ongoing benefits during the operational phase of the Project. It is also concerned with a **consistent** treatment along the entire Yan Yean Road corridor.

Reinforcing values may include the appropriate use of resilient indigenous planting, referencing local materials in retaining wall and public art design, retaining key views to the surrounding landscape or strengthening wildlife connectivity.

Rehabilitation of the Project corridor ensures that sensitive landscape zones and environmental areas are **repaired** to their existing condition.

Rehabilitation would support a high quality ecological outcome that is climate resilient while bolstering native flora and fauna. Rehabilitation would also consider offset planting for removed vegetation.

Enhancing the identified values of the project area ensures a lasting **legacy** for road users and the local community, contributing to the overall **quality** of the public domain.

Opportunities include improvements to pedestrian and cycle infrastructure, upgrades to public open space, art installations, water sensitive urban design treatments and the provision of new and upgraded street furniture.

6.4 Constraints

Figure 6.1 and Figure 6.2 summarise the main constraints along and adjacent to the project area that would need to be considered as part of the Landscape strategy.

Key types of constraints identified include:

- Sensitive land uses - including recreational facilities, education, public open space and private properties
- Undulating topography
- Existing desirable views
- Existing vegetation including that with elevated social, aesthetic, scientific and historic value as identified within Chapter 5.2 - *Cultural value of vegetation*
- Existing pedestrian/horse crossings
- Existing overhead power lines
- Bushfire Management Overlay areas
- Predicted Kangaroo crossing hot spots (Technical Report B1 - Biodiversity Existing Conditions Report)
- Fauna Connectivity (Technical Report B1 - Biodiversity Existing Conditions Report).

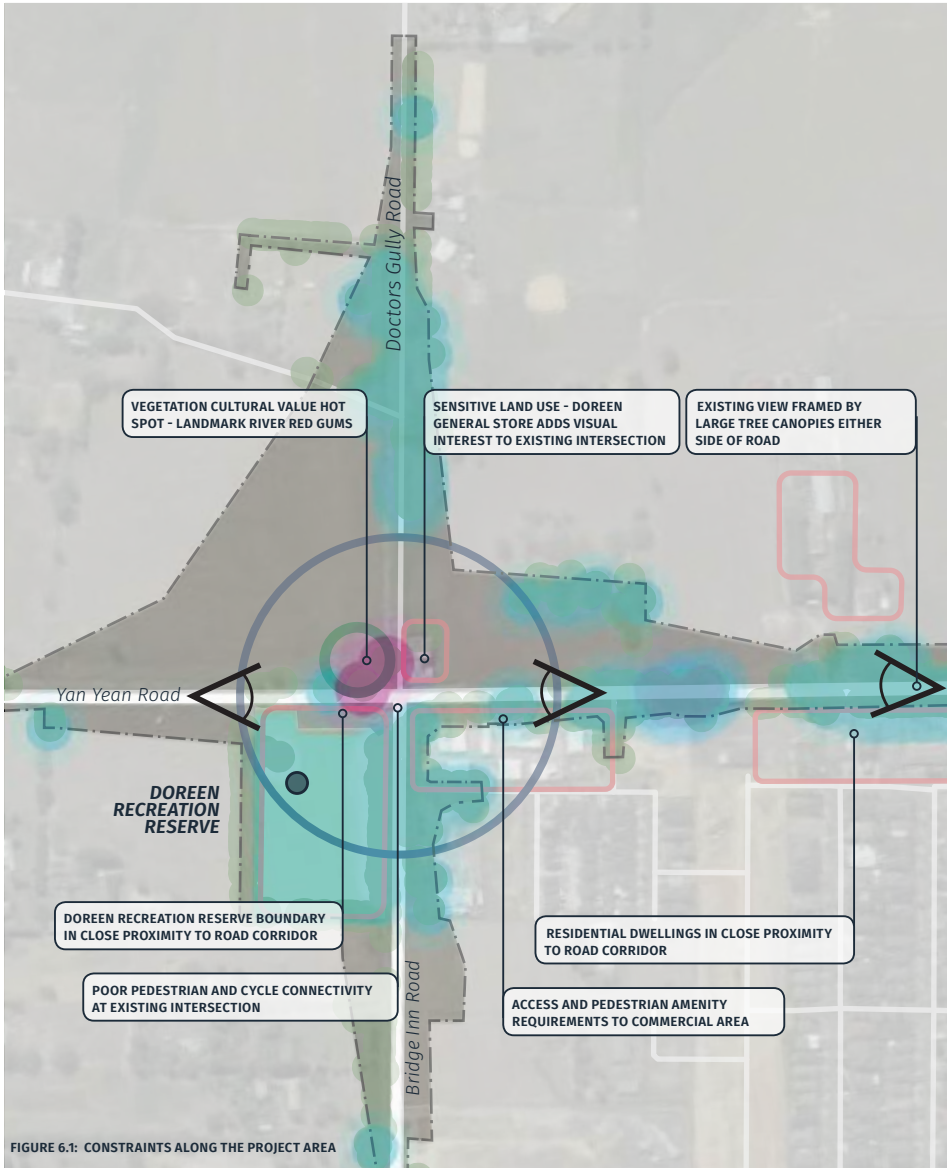
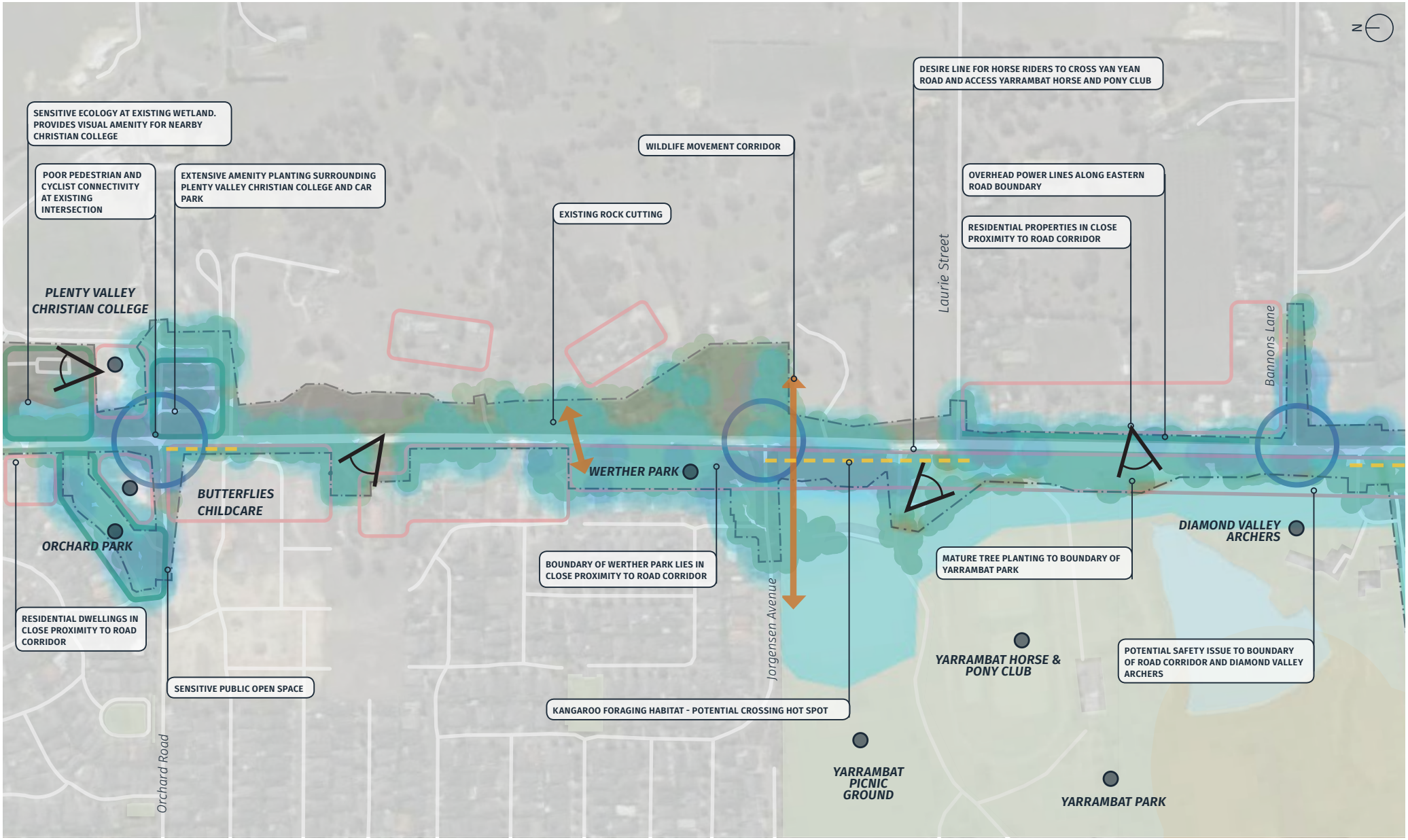


FIGURE 6.1: CONSTRAINTS ALONG THE PROJECT AREA


SENSITIVE ECOLOGY AT EXISTING WETLAND. PROVIDES VISUAL AMENITY FOR NEARBY CHRISTIAN COLLEGE
POOR PEDESTRIAN AND CYCLIST CONNECTIVITY AT EXISTING INTERSECTION
EXTENSIVE AMENITY PLANTING SURROUNDING PLENTY VALLEY CHRISTIAN COLLEGE AND CAR PARK
WILDLIFE MOVEMENT CORRIDOR
EXISTING ROCK CUTTING
DESIRE LINE FOR HORSE RIDERS TO CROSS YAN YEAN ROAD AND ACCESS YARRAMBAT HORSE AND PONY CLUB
OVERHEAD POWER LINES ALONG EASTERN ROAD BOUNDARY
RESIDENTIAL PROPERTIES IN CLOSE PROXIMITY TO ROAD CORRIDOR
PLENTY VALLEY CHRISTIAN COLLEGE
Laurie Street
Bannons Lane
N
BUTTERFLIES CHILDCARE
WERTHER PARK
ORCHARD PARK
DIAMOND VALLEY ARCHERS
BOUNDARY OF WERTHER PARK LIES IN CLOSE PROXIMITY TO ROAD CORRIDOR
MATURE TREE PLANTING TO BOUNDARY OF YARRAMBAT PARK
Jorgensen Avenue
RESIDENTIAL DWELLINGS IN CLOSE PROXIMITY TO ROAD CORRIDOR
YARRAMBAT HORSE & PONY CLUB
POTENTIAL SAFETY ISSUE TO BOUNDARY OF ROAD CORRIDOR AND DIAMOND VALLEY ARCHERS
SENSITIVE PUBLIC OPEN SPACE
KANGAROO FORAGING HABITAT - POTENTIAL CROSSING HOT SPOT
Orchard Road
YARRAMBAT PICNIC GROUND
YARRAMBAT PARK

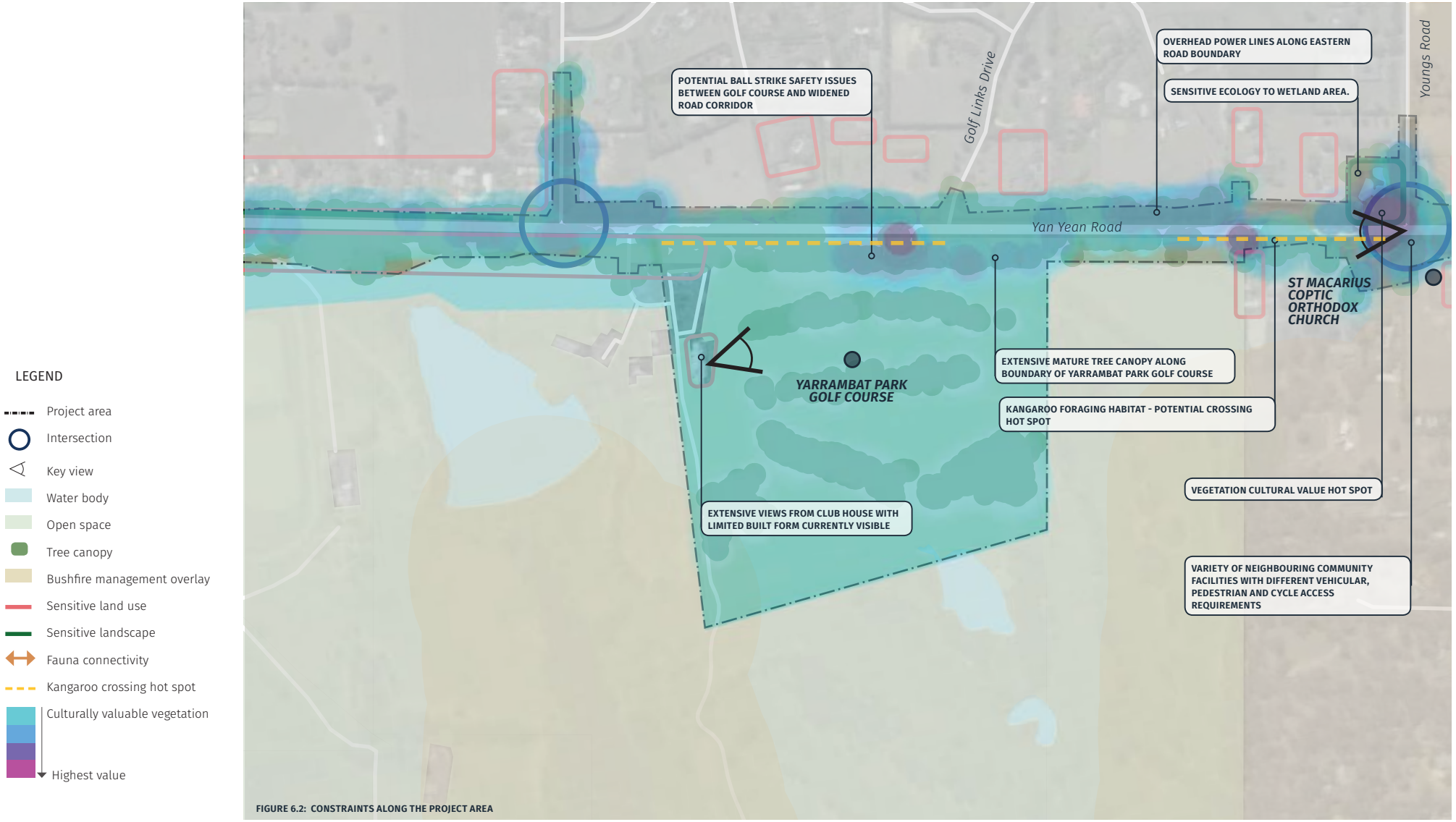
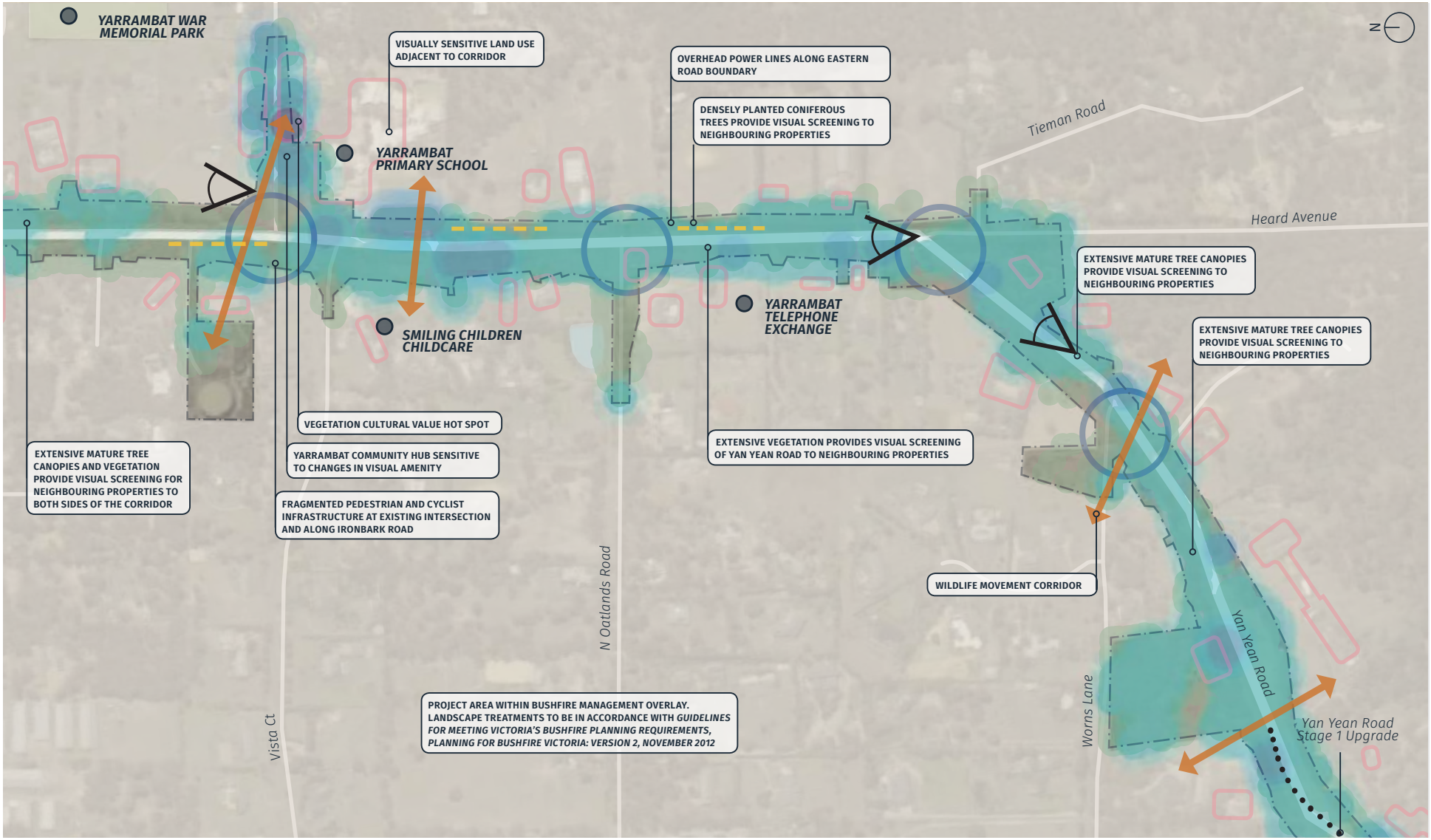


FIGURE 6.2: CONSTRAINTS ALONG THE PROJECT AREA


YARRAMBAT WAR MEMORIAL PARK
VISUALLY SENSITIVE LAND USE ADJACENT TO CORRIDOR
OVERHEAD POWER LINES ALONG EASTERN ROAD BOUNDARY
DENSELY PLANTED CONIFEROUS TREES PROVIDE VISUAL SCREENING TO NEIGHBOURING PROPERTIES
YARRAMBAT PRIMARY SCHOOL
Tieman Road
Heard Avenue
EXTENSIVE MATURE TREE CANOPIES PROVIDE VISUAL SCREENING TO NEIGHBOURING PROPERTIES
YARRAMBAT TELEPHONE EXCHANGE
SMILING CHILDREN CHILDCARE
EXTENSIVE MATURE TREE CANOPIES PROVIDE VISUAL SCREENING TO NEIGHBOURING PROPERTIES
VEGETATION CULTURAL VALUE HOT SPOT
EXTENSIVE MATURE TREE CANOPIES AND VEGETATION PROVIDE VISUAL SCREENING FOR NEIGHBOURING PROPERTIES TO BOTH SIDES OF THE CORRIDOR
YARRAMBAT COMMUNITY HUB SENSITIVE TO CHANGES IN VISUAL AMENITY
EXTENSIVE VEGETATION PROVIDES VISUAL SCREENING OF YAN YEAN ROAD TO NEIGHBOURING PROPERTIES
FRAGMENTED PEDESTRIAN AND CYCLIST INFRASTRUCTURE AT EXISTING INTERSECTION AND ALONG IRONBARK ROAD
WILDLIFE MOVEMENT CORRIDOR
N Oatlands Road
Yan Yean Road
Worns Lane
Vista Ct
Yan Yean Road Stage 1 Upgrade
PROJECT AREA WITHIN BUSHFIRE MANAGEMENT OVERLAY. LANDSCAPE TREATMENTS TO BE IN ACCORDANCE WITH GUIDELINES FOR MEETING VICTORIA'S BUSHFIRE PLANNING REQUIREMENTS, PLANNING FOR BUSHFIRE VICTORIA: VERSION 2, NOVEMBER 2012
N

6.5 Opportunities

Figure 6.3 and Figure 6.4 indicate the key Project opportunities that have been identified along the road corridor. The opportunities have been framed using the Landscape strategy's five key moves.

It should be noted that opportunities to protect the area and reduce impacts have already been undertaken during the current Project design, including:

- Incorporation of a walking and cycling path on the western boundary with only a footpath on the eastern side to minimise the width of the project area
- Utilisation of steeper batters than usual for arterial roads to minimise the project area width
- Reduction of median width from the standard 6 metres, down to 2.2 metres, using a wire rope between the carriageways to minimise the project area.

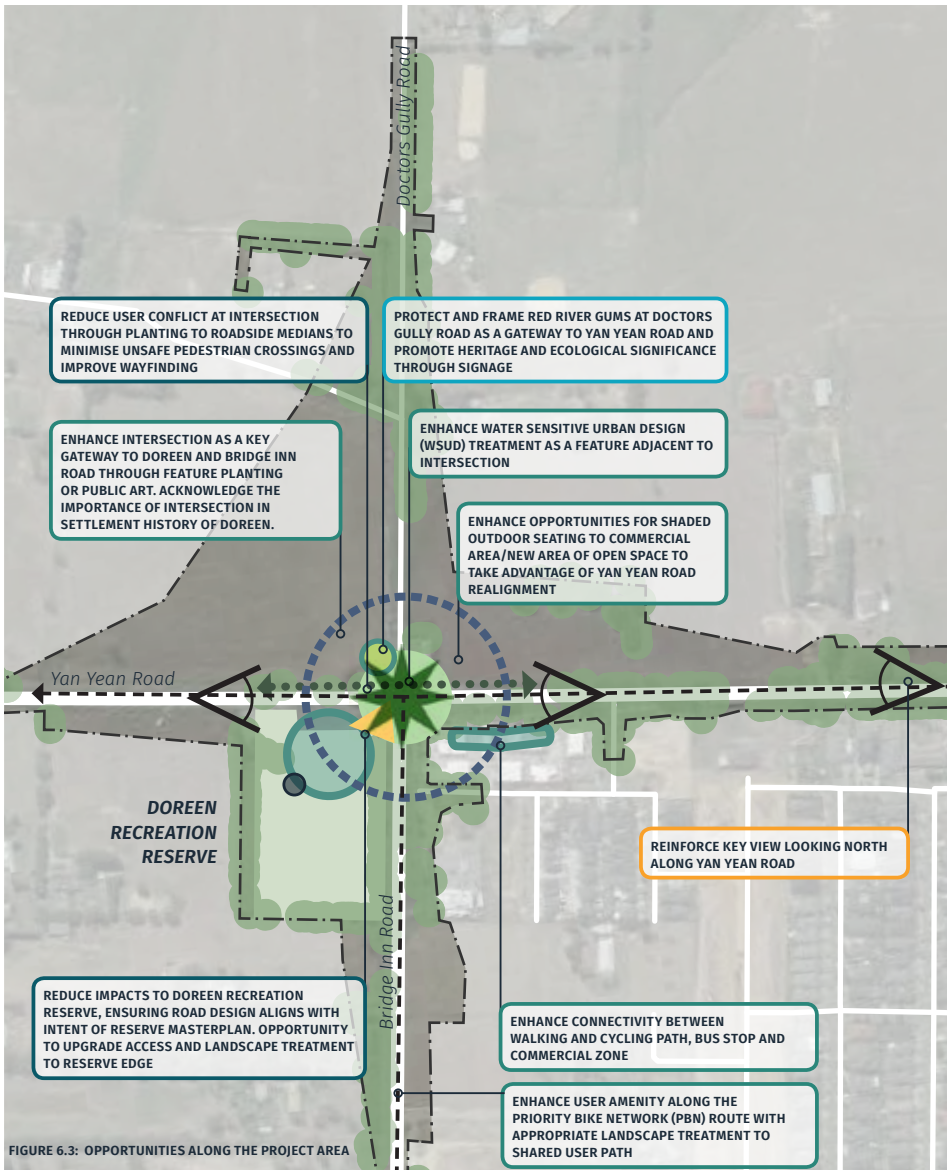
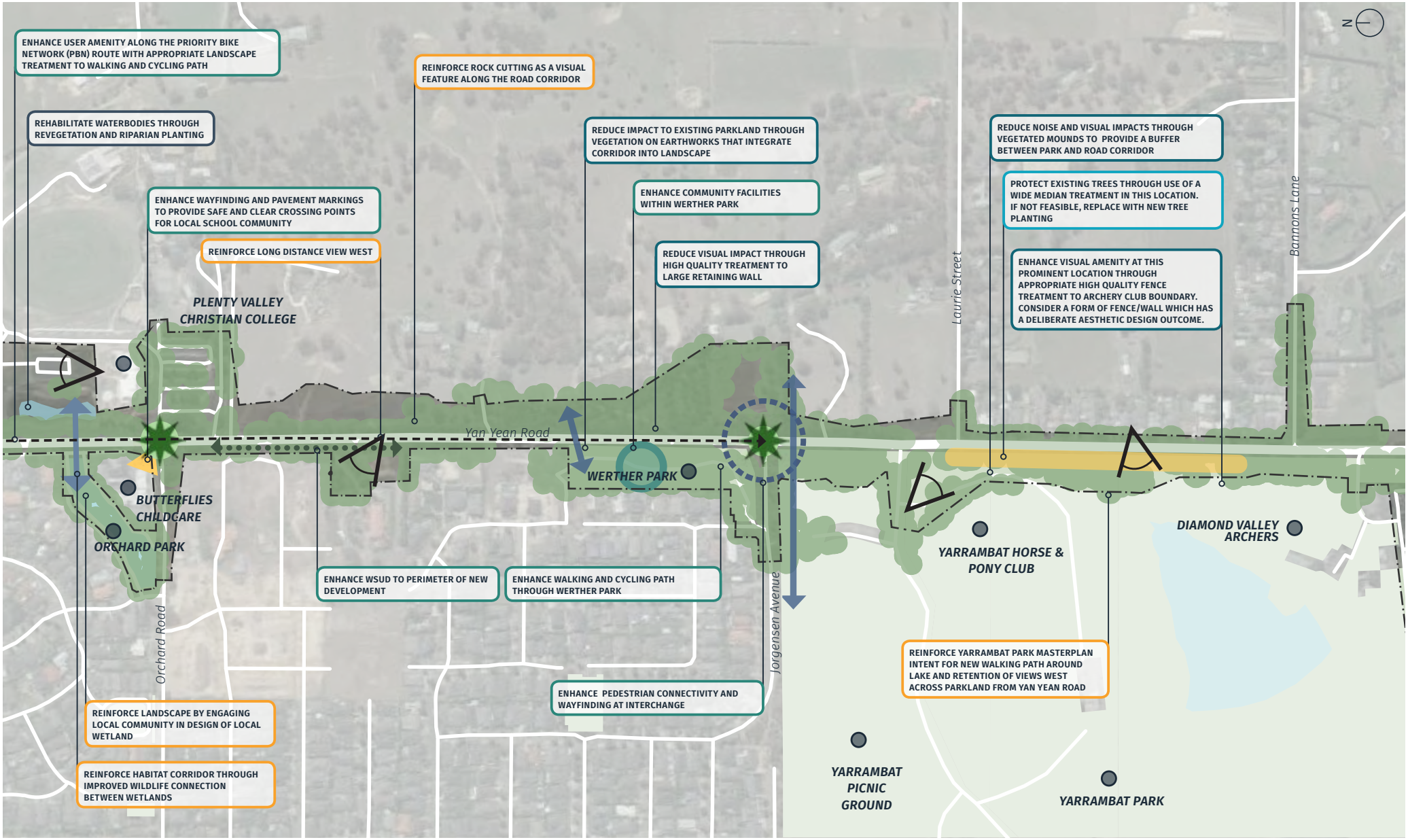


FIGURE 6.3: OPPORTUNITIES ALONG THE PROJECT AREA


ENHANCE USER AMENITY ALONG THE PRIORITY BIKE NETWORK (PBN) ROUTE WITH APPROPRIATE LANDSCAPE TREATMENT TO WALKING AND CYCLING PATH
REHABILITATE WATERBODIES THROUGH REVEGETATION AND RIPARIAN PLANTING
ENHANCE WAYFINDING AND PAVEMENT MARKINGS TO PROVIDE SAFE AND CLEAR CROSSING POINTS FOR LOCAL SCHOOL COMMUNITY
REINFORCE LONG DISTANCE VIEW WEST
REINFORCE ROCK CUTTING AS A VISUAL FEATURE ALONG THE ROAD CORRIDOR
REDUCE IMPACT TO EXISTING PARKLAND THROUGH VEGETATION ON EARTHWORKS THAT INTEGRATE CORRIDOR INTO LANDSCAPE
ENHANCE COMMUNITY FACILITIES WITHIN WERTHER PARK
REDUCE VISUAL IMPACT THROUGH HIGH QUALITY TREATMENT TO LARGE RETAINING WALL
REDUCE NOISE AND VISUAL IMPACTS THROUGH VEGETATED MOUNDS TO PROVIDE A BUFFER BETWEEN PARK AND ROAD CORRIDOR
PROTECT EXISTING TREES THROUGH USE OF A WIDE MEDIAN TREATMENT IN THIS LOCATION. IF NOT FEASIBLE, REPLACE WITH NEW TREE PLANTING
ENHANCE VISUAL AMENITY AT THIS PROMINENT LOCATION THROUGH APPROPRIATE HIGH QUALITY FENCE TREATMENT TO ARCHERY CLUB BOUNDARY. CONSIDER A FORM OF FENCE/WALL WHICH HAS A DELIBERATE AESTHETIC DESIGN OUTCOME.
N
PLENTY VALLEY CHRISTIAN COLLEGE
Yan Yean Road
Laurie Street
Bannons Lane
WERTHER PARK
BUTTERFLIES CHILDCARE
ORCHARD PARK
Orchard Road
Jorgensen Avenue
YARRAMBAT HORSE & PONY CLUB
DIAMOND VALLEY ARCHERS
ENHANCE WSUD TO PERIMETER OF NEW DEVELOPMENT
ENHANCE WALKING AND CYCLING PATH THROUGH WERTHER PARK
ENHANCE PEDESTRIAN CONNECTIVITY AND WAYFINDING AT INTERCHANGE
REINFORCE YARRAMBAT PARK MASTERPLAN INTENT FOR NEW WALKING PATH AROUND LAKE AND RETENTION OF VIEWS WEST ACROSS PARKLAND FROM YAN YEAN ROAD
REINFORCE LANDSCAPE BY ENGAGING LOCAL COMMUNITY IN DESIGN OF LOCAL WETLAND
REINFORCE HABITAT CORRIDOR THROUGH IMPROVED WILDLIFE CONNECTION BETWEEN WETLANDS
YARRAMBAT PICNIC GROUND
YARRAMBAT PARK

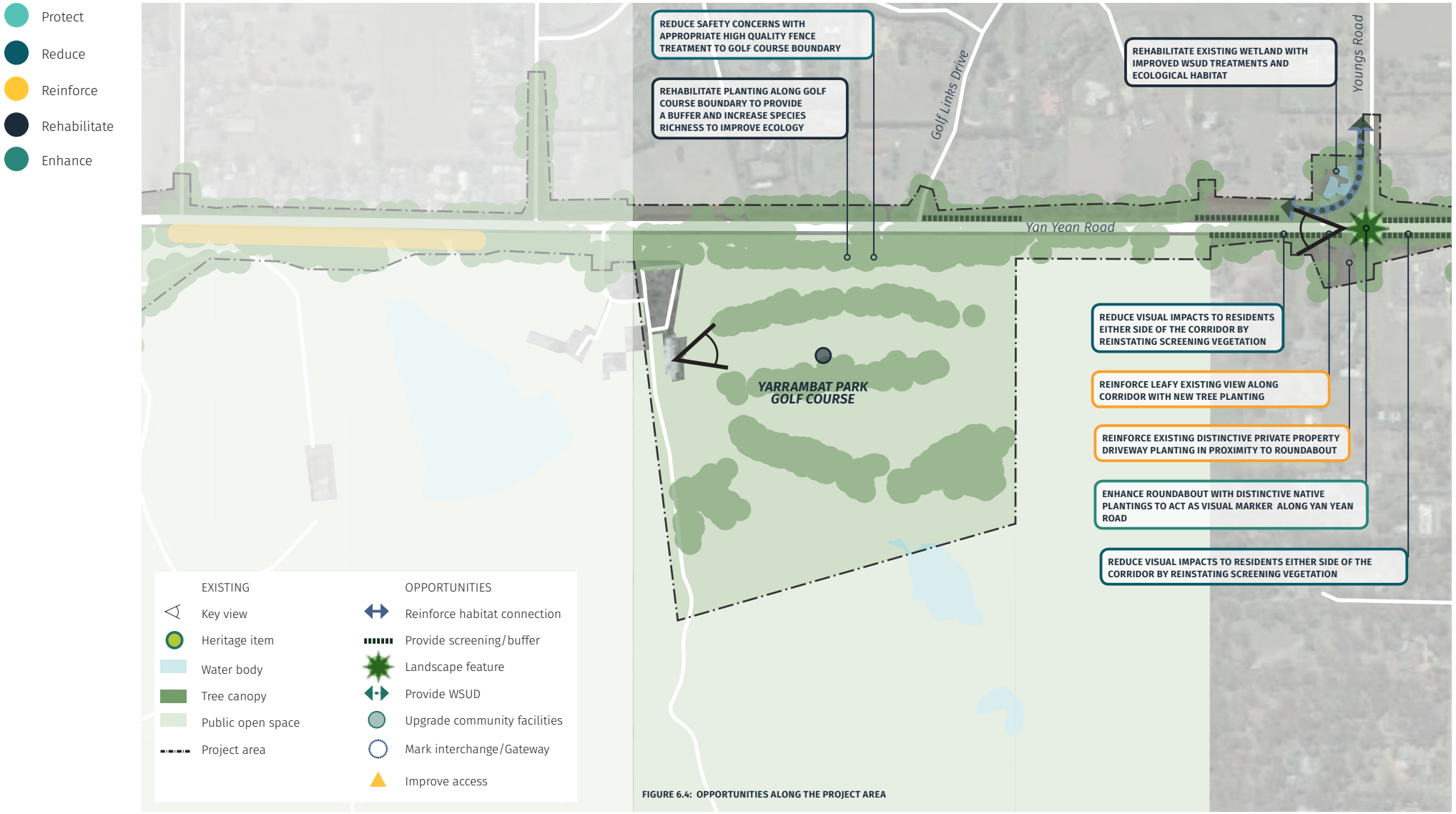
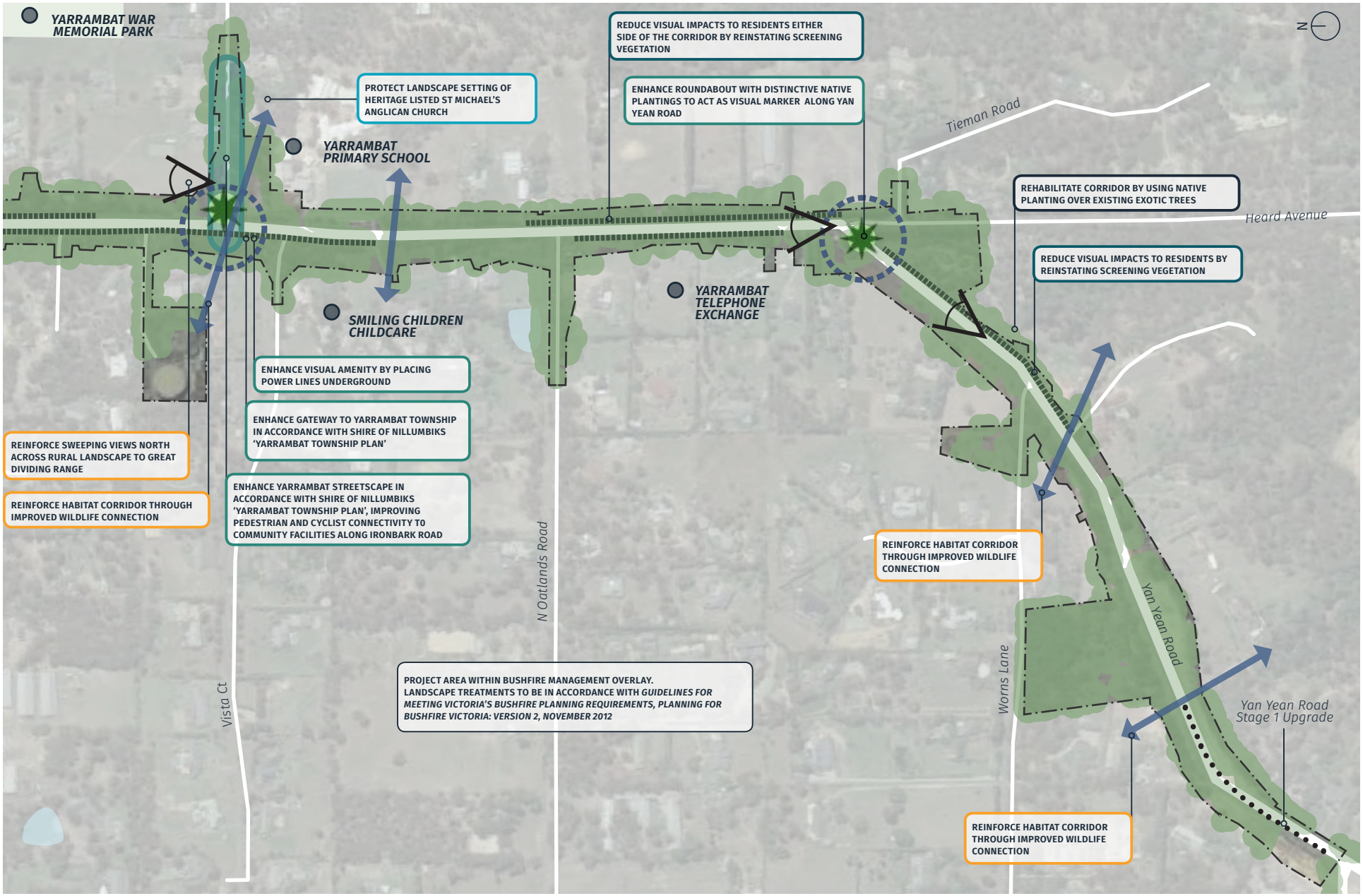


FIGURE 6.4: OPPORTUNITIES ALONG THE PROJECT AREA


YARRAMBAT WAR MEMORIAL PARK
PROTECT LANDSCAPE SETTING OF HERITAGE LISTED ST MICHAEL'S ANGLICAN CHURCH
YARRAMBAT PRIMARY SCHOOL
REDUCE VISUAL IMPACTS TO RESIDENTS EITHER SIDE OF THE CORRIDOR BY REINSTATING SCREENING VEGETATION
ENHANCE ROUNDABOUT WITH DISTINCTIVE NATIVE PLANTINGS TO ACT AS VISUAL MARKER ALONG YAN YEAN ROAD
Tieman Road
REHABILITATE CORRIDOR BY USING NATIVE PLANTING OVER EXISTING EXOTIC TREES
Heard Avenue
REDUCE VISUAL IMPACTS TO RESIDENTS BY REINSTATING SCREENING VEGETATION
YARRAMBAT TELEPHONE EXCHANGE
SMILING CHILDREN CHILDCARE
ENHANCE VISUAL AMENITY BY PLACING POWER LINES UNDERGROUND
ENHANCE GATEWAY TO YARRAMBAT TOWNSHIP IN ACCORDANCE WITH SHIRE OF NILLUMBIKS 'YARRAMBAT TOWNSHIP PLAN'
REINFORCE SWEEPING VIEWS NORTH ACROSS RURAL LANDSCAPE TO GREAT DIVIDING RANGE
REINFORCE HABITAT CORRIDOR THROUGH IMPROVED WILDLIFE CONNECTION
ENHANCE YARRAMBAT STREETSCAPE IN ACCORDANCE WITH SHIRE OF NILLUMBIKS 'YARRAMBAT TOWNSHIP PLAN', IMPROVING PEDESTRIAN AND CYCLIST CONNECTIVITY TO COMMUNITY FACILITIES ALONG IRONBARK ROAD
N Oatlands Road
REINFORCE HABITAT CORRIDOR THROUGH IMPROVED WILDLIFE CONNECTION
Yan Yean Road
Worns Lane
Yan Yean Road Stage 1 Upgrade
PROJECT AREA WITHIN BUSHFIRE MANAGEMENT OVERLAY. LANDSCAPE TREATMENTS TO BE IN ACCORDANCE WITH GUIDELINES FOR MEETING VICTORIA'S BUSHFIRE PLANNING REQUIREMENTS, PLANNING FOR BUSHFIRE VICTORIA: VERSION 2, NOVEMBER 2012
Vista Ct
REINFORCE HABITAT CORRIDOR THROUGH IMPROVED WILDLIFE CONNECTION
N

6.6 Design guidelines

FIGURE 6.5: ILLUSTRATIVE EXAMPLE OF DESIGN GUIDELINES

6.6.1 Introduction

The following design guidelines indicate how the Project response should achieve the stated landscape vision.

The guidelines provide high level requirements as to how Project elements should be designed, constructed and maintained across the Project life cycle. The guidelines are not intended to provide detailed design information or drawings; rather they introduce the concepts and key considerations for successful delivery of the landscape vision.

The guidelines seek to ensure that the Project works contribute to creating a high quality, safe experience for all users based on a contextually responsive and ecologically sound landscape approach to the Yan Yean Road corridor. The guidelines adopt consistent and robust design principles for all Project elements.

Each guideline includes the following:

Outcome - desired final characteristics for that Project element

Description - context of the element

Key Project locations - specific areas of the Project relevant to each element

Guidelines - best practice design responses that must be achieved during design development for each element, framed around the strategy's five key moves

Examples – examples of the intended guideline using precedent images and renderings of typical Project locations and situations (Figure 6.5).

The following guidelines are covered within this Section of the report:

- 6.6.2 - Intersections
- 6.6.3 - Roundabouts
- 6.6.4 - Walking and cycling pathways
- 6.6.5 - Retaining walls
- 6.6.6 - Earthworks
- 6.6.7 - Existing vegetation
- 6.6.8 - Tree planting
- 6.6.9 - Screening
- 6.6.10 - Water sensitive urban design
- 6.6.11 - Native flora and fauna habitat
- 6.6.12 - Median and verge planting
- 6.6.13 - Fencing and barriers
- 6.6.14 - Lighting, street furniture and public art
- 6.6.15 - Construction activities.

All guidelines should be read in conjunction with Chapter 7 - *Planting selection*.

Policy and Guidelines

All landscape treatments must comply with the following policy documents and guidelines:

State

- Bushfire Management overlay requirements detailed in CFA's Guidelines for meeting Victoria's Bushfire Planning Requirements, *Planning for Bushfire Victoria: Version 2*, November 2012 and *Landscaping for Bushfire: Garden Design and Plant Selection*
- *'Your guide to planting near electricity lines'*, Ausnet Services (Figure 6.6)
- *Tree Planting Policy, DoT, Revision 2, 2016*
- *Guidelines for the removal, destruction or lopping of native vegetation,* DELWP, 2017
- *Integrated Water Management Guidelines*, DoT, 2013
- *Roadside Conservation Management Plans Guidelines,* DoT, 2006
- *Environment Strategy (2005-2015),* DoT, 2005
- *Roadside Management Strategy,* DoT, 2011
- *Roadside Handbook: An Environmental Guide for Road Construction and Maintenance,* DoT, 2006
- *Roadside Conservation Management Plans Guidelines,* DoT, 2006
- *Melbourne Water's Planting Guideline's*, 2019.

Note: All landscape treatments should be developed in conjunction with other infrastructure including lighting, signage, safety barriers and above/underground utilities to ensure a well vegetated corridor while also maintaining clear sight lines where required and complying with safe stopping distances, safety barrier deflection zones and bushfire management overlays.

City of Whittlesea

- *Environmental Sustainability Strategy, 2012-2022*
- *Biodiversity Strategy, 2019-2029*
- *Open Space Strategy, 2016*
- *Climate Ready Whittlesea*
- *Road Management Plan, 2017*
- *Doreen Hall and Recreation Reserve Master Plan.*

Shire of Nillumbik

- *Tree Management Policy, 2018*
- *Tree Management Guidelines, 2018*
- *Open Space Strategy, 2005*
- *Recreation Strategy, 2011-2019*
- *Bushfire Mitigation Strategy, 2019 – 2023*
- *Biodiversity Strategy, 2012*
- *Invasive Species Action Plan, 2015*
- *Integrated Water Management Strategy, 2013*
- *Climate Change Action Plan, 2016-2020*
- *Roadside Management Plan, 2012*
- *Invasive Species Action Plan, 2015*
- *Live Local, Plant Local - A guide to planting in Nillumbik, 6th Edition*
- *Yarrambat Park Master Plan and Golf Course Master Plan*
- *Yarrambat Township Plan.*

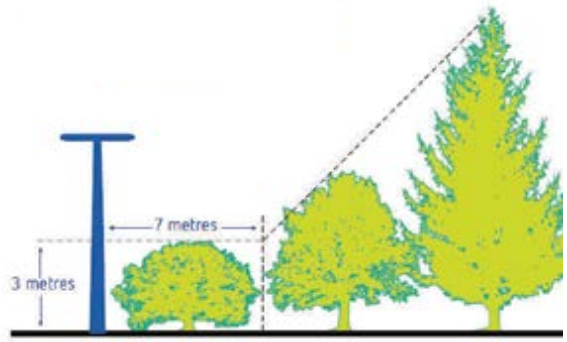


FIGURE 6.6: DESIGN LANDSCAPE TO ENSURE FUNCTIONALITY OF OTHER INFRASTRUCTURE INCLUDING ABOVE GROUND UTILITIES (SOURCE: AUSNET SERVICES 'YOUR GUIDE TO PLANTING NEAR ELECTRICITY LINES')

PROVIDE SAFE PEDESTRIAN AND CYCLE CROSSINGS

ENSURE PLANTING ALLOWS FOR APPROPRIATE SIGHTLINES

6.6.2 Intersections

Outcome

Legible, safe and uncluttered intersections that provide intuitive pedestrian, cycle and vehicle movement while creating memorable places.

Description

Intersections are important elements within the Project corridor with high visibility from the road and surrounding landscape. Intersections act as key decision points with a need for clear wayfinding to ensure safe operation and the avoidance of user conflict.

Intersections also offer the opportunity to provide a memorable user experience along the road journey, identifying and highlighting a location such as a town gateway by adding visual interest through public art or planting.

The Project includes new signalised intersections as well as upgrades to an existing signalised intersection at Ironbark Road. This includes an additional right hand turning lane, slip lane and traffic island, as well as new street lighting at all intersections, road signage and landscape treatments.

A contextual balance should be sought between widening some areas of the road cross section to allow planting within the road corridor, with reducing impacts to existing vegetation either side of the road.

Key Project locations

+ Bridge Inn Road/Doctors Gully Road (new intersection)
+ Orchard Road (new intersection)
+ Jorgensen Road (new intersection)
+ Bannons Lane (new intersection)
+ Ironbark Road (upgraded intersection)
+ North Oatlands Road (new intersection).

Guidelines (Figure 6.7)

Protect

1. Reduce intersection footprint where feasible by reducing the number and width of traffic/turning lanes

Reduce

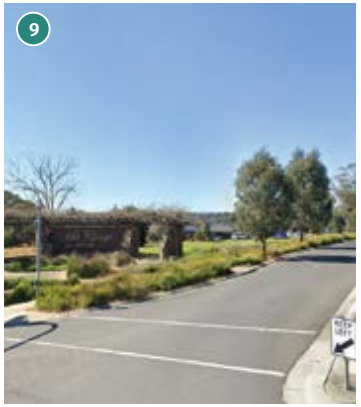
2. Reduce conflicts between pedestrians and cyclists by providing safe pedestrian and cycle priority crossings
3. Ensure all connecting pathways provide clear, direct and safe crossing points
4. Provide a clutter free public realm, minimising and combining sign and light poles where feasible
5. Ensure landscape planting at intersection approaches has low maintenance requirements and allows for appropriate sightlines, such as native grasses
6. Provide pathways with a consistent palette of materials, surfaces and arrangements across all intersections
7. Provide buffer planting to adjacent land uses

Reinforce

8. Use predominantly resilient indigenous species for intersection planting

Enhance

9. Use feature landscape design at key intersections and entry/exit points to create an intuitive road environment that highlights important locations or gateways
10. Install feature lighting or public art at key intersections to provide visual interest and aid wayfinding
11. Provide low maintenance plantings within medians where feasible that improve visual amenity
12. Provide low maintenance planting to back of kerbs where space allows to separate pathways from road corridor and improve user amenity.



USE FEATURE LANDSCAPE AT INTERSECTIONS TO MARK IMPORTANT GATEWAYS

INSTALL PUBLIC ART AT KEY INTERSECTIONS TO PROVIDE VISUAL INTEREST

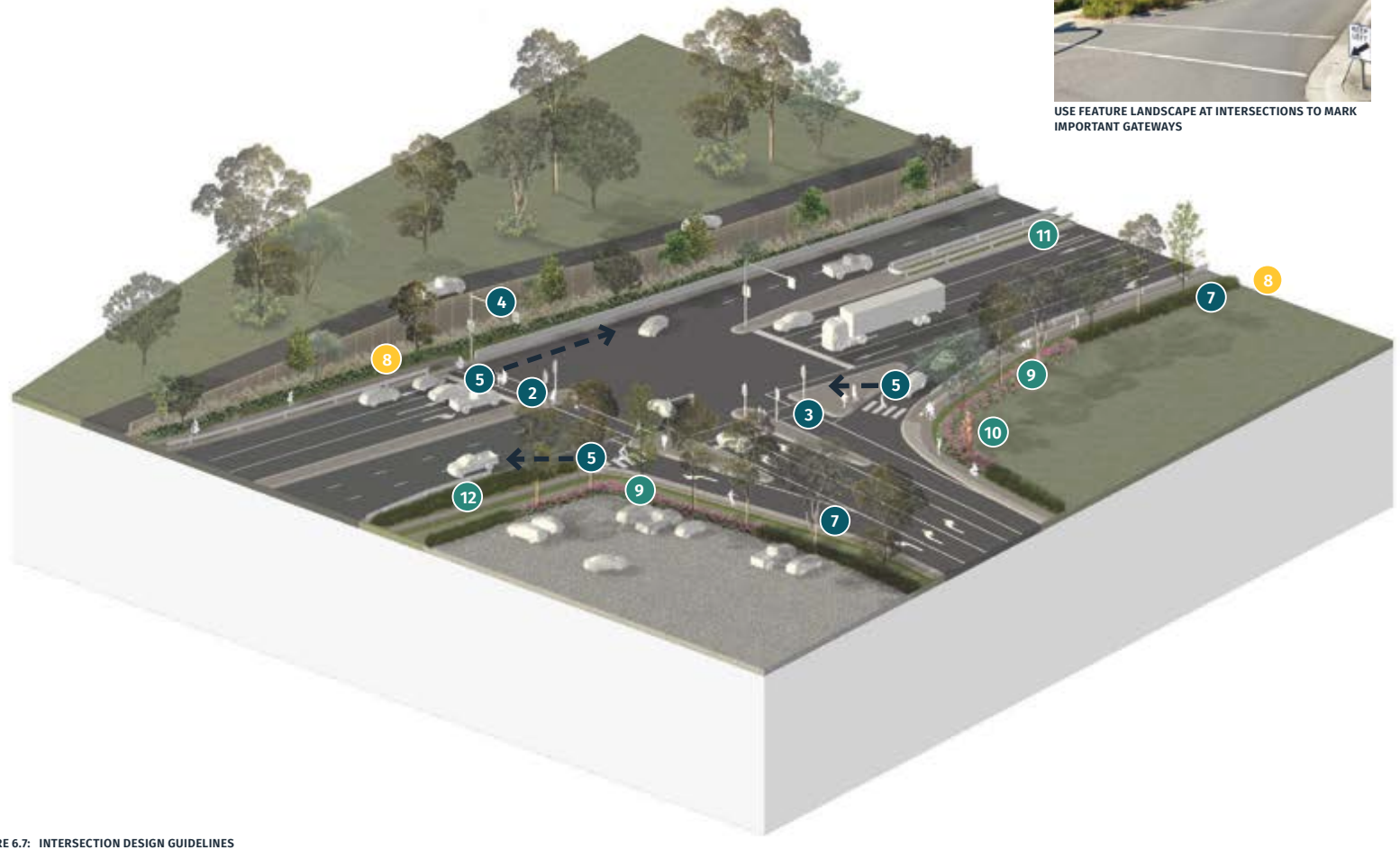


FIGURE 6.7: INTERSECTION DESIGN GUIDELINES

INCORPORATE LANDSCAPED REFUGES WITHIN SPLITTER ISLANDS (SOURCE: OZBREEDS)

USE LOW PLANTING ON APPROACHES TO ALLOW CLEAR SIGHTLINES (SOURCE: GOOGLE STREETVIEW)

6.6.3 Roundabouts

Outcome

Safe and uncluttered roundabouts that are well integrated into the surrounding landscape context and enhance the aesthetic experience along the corridor.

Description

Roundabouts are highly visible elements within the Project corridor, marking a pause in the road user's journey. Roundabouts act as key decision points, requiring clear wayfinding to ensure safe operation and the avoidance of user conflict.

The large central area of roundabouts provides opportunity for features that improve legibility and enhance local identity. This may take the form of distinctive public art or feature landscape treatments.

Key Project locations

+ Youngs Road
+ Heard Avenue.

Guidelines (Figure 6.8)

Protect

1. Reduce roundabout footprint where feasible or consider an alternate intersection design

Reduce

2. Ensure all connecting pathways provide clear, direct and safe crossing points
3. Incorporate landscaped pedestrian refuges within splitter islands between approaching and exiting traffic lanes where feasible
4. Provide a clutter free public realm, minimising and combining sign and light poles where feasible
5. Ensure a wide hard stand area around the edge of the central island to provide safe space for maintenance and minimise the need for weed spraying
6. Ensure landscape planting at roundabout approaches or on central island has low maintenance requirements and allows for appropriate sightlines

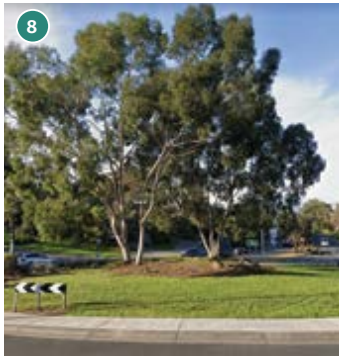
Reinforce

7. Use resilient indigenous species for planting in and around roundabouts to compliment local landscape character, maximising the planting of new trees where space allows
8. Reinforce existing historic plantings to adjacent driveways and/or windbreaks

Enhance

9. Install a structured landscape treatment of low maintenance groundcovers and native grasses, as well as clear stem trees to the central island to add visual interest, assist with wayfinding and reduce storm water runoff.

MAXIMISE THE PLANTING OF NEW TREES WHERE SPACE ALLOWS



INSTALL CLEAR STEMMED TREES TO ROUNDABOUT MEDIAN TO PROVIDE A VISUAL FEATURE AND REINFORC LANDSCAPE CHARACTER (SOURCE: GOOGLE STREETVIE

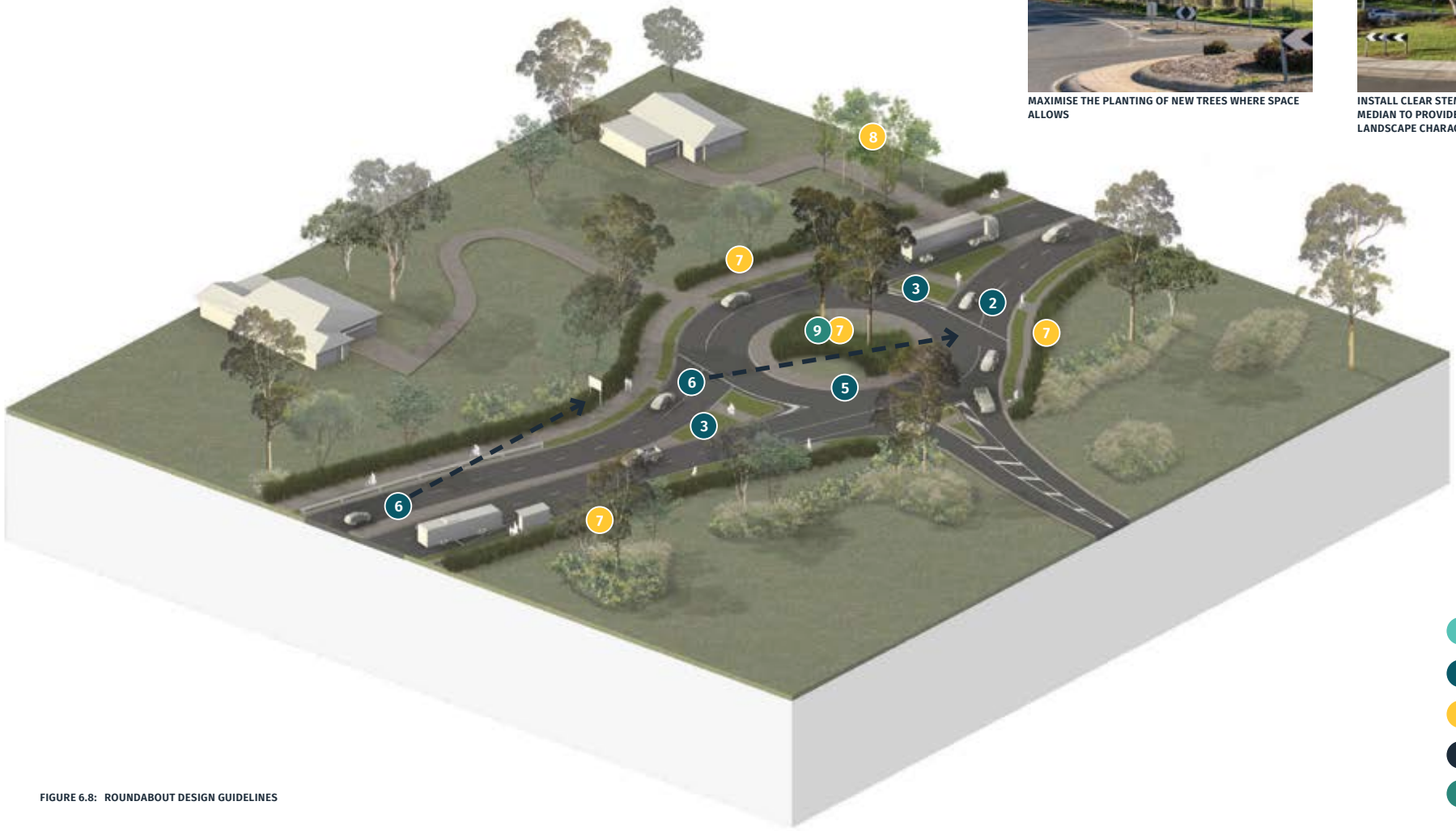


FIGURE 6.8: ROUNDABOUT DESIGN GUIDELINES

MAINTAIN CLEAR SIGHTLINES ALONG PATHS

ENSURE CLEAR SIGNAGE TO REDUCE USER CONFLICT

6.6.4 Walking and cycling pathways

Outcome

A safe, intuitive and comfortable path network that provides connectivity along and across the Project corridor.

Description

A well connected network allows pedestrians and cyclists to access local amenities, existing open space and recreational facilities in a safe and efficient manner. Permeability across the Project corridor, through safe crossing points, would ensure that the widening of Yan Yean Road does not inhibit pedestrian movement.

Existing pedestrian, cyclist and horse rider amenity across the project area is generally poor with a fragmented and inconsistent path network. The Project offers substantial opportunities for improved connectivity and accessibility.

The northern section of Yan Yean Road between Jorgesen Avenue and Bridge Inn Road forms part of the Principle Bike Network (PBN). The DoT's *Tree Policy Revision 2.0, 2016* includes the following relevant guidance:

"Where a proposal is on a road which forms part of the PBN, 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."

Key Project locations

+ Walking and cycling path proposed on the western side of Yan Yean Road
+ 1.2 metre wide footpath proposed on the eastern side of Yan Yean Road
+ Intersection crossings and roundabouts
+ Horse crossing near Laurie Street to access Yarrambat Park
+ Walking and cycling path through Werther Park and Yarrambat Park.

Guidelines (Figure 6.9)

Protect

1. Align pathways away from road corridor where space allows to avoid existing trees and improve user amenity

Reduce

2. Provide Disability Discrimination Act (DDA) compliant paths that support equitable access
3. Maintain clear sightlines along paths and remove obstructions from areas adjacent to walking and cycling paths
4. Ensure pedestrian and bicycle crossings are intuitive with clear sightlines and sigange
5. Ensure appropriate offsets for landscape planting from path edges

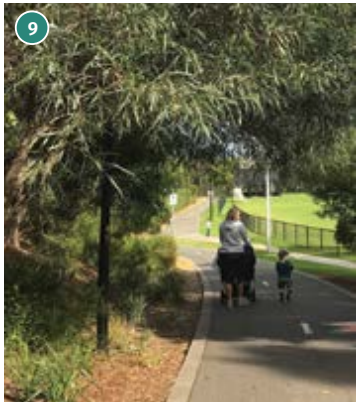
Reinforce

6. Ensure walking and cycling paths connect to planned future and existing path network (including Yan Yean Road Stage 1)
7. Ensure pathway material, finish and signage is consistent across the Project and reflects Council design guidelines
8. Ensure pedestrian and cycle routes match desire lines as closely as possible

Enhance

9. Provide a continuous tree canopy adjacent to pathways for shade, improved user amenity and as a buffer to adjacent land uses
10. Provide a planted buffer of low maintenance groundcovers or grasses between pathways and road edge where feasible
11. Upgrade existing horse crossing near Laurie Street with improved signage and access.

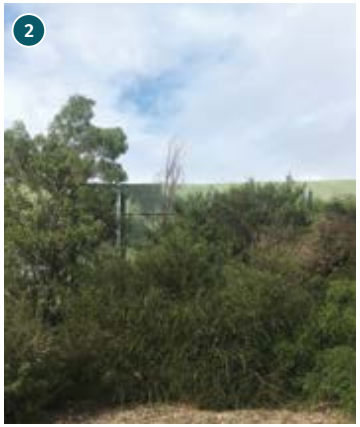
OFFSET PLANTING AN APPROPRIATE DISTANCE FROM PATHWAY EDGES



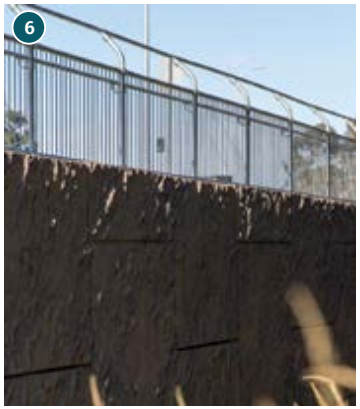
PROVIDE TREE PLANTING TO PATHWAYS FOR SHADE

Protect
Reduce
Reinforce
Rehabilitate
Enhance

FIGURE 6.9: WALKING AND CYCLING PATHWAYS GUIDELINES



ALLOW ADEQUATE SPACE FOR SCREEN PLANTING



DESIGN TOPS OF WALLS TO BE CONSISTENTLY HORIZONTAL

6.6.5 Retaining walls

Outcome

Retaining walls are visually integrated into the road corridor and adjacent setting as part of a coordinated 'whole of Project' design.

Description

Retaining walls are proposed at selected locations along Yan Yean Road to minimise the extent of land acquisition, provide access to properties, maximise the retention of existing trees and reduce the extent of cut earthworks.

The design of retaining structures should be carried out in consideration of the landscape works to provide a cohesive and visually appealing design outcome. Retaining walls should attempt to knit into adjacent landscape formations and infrastructure elements, reducing their visual prominence for road users, neighboring properties and public open space.

Key Project locations

+ Between Service Road A and Yan Yean Road: a 270 metre long wall with an approximate maximum height of 3.6 metres
+ At the north east corner of Ironbark Road: a 230 metre long wall with an approximate maximum height of 2.4 metres
+ North of North Oatlands Road along the western verge of Yan Yean Road: a 50 metre long wall with a maximum height of 1.1 metres
+ North of Jorgensen Avenue along the eastern verge of Yan Yean Road: a 220 metre long wall with an approximate maximum height of 8 metres.

Guidelines (Figure 6.10)

Reduce

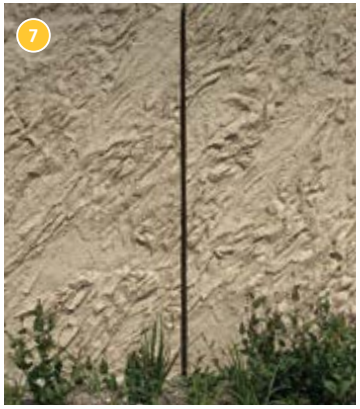
1. Design retaining walls to be simple structures that are robust and vandal resistant
2. Accommodate adequate space for landscape planting to front of walls to assist visual integration where feasible. Avoid tree planting to tops of walls to reduce root damage
3. Fully coordinate retaining structures with other structural elements, barriers, lighting, landscape, drainage and fencing. For example, cladding systems and/or form work should match the panel size, proportions and joint set out of associated wall and fence systems.
4. Use temporary and permanent safety fencing that is unobtrusive, discrete and integrates into the landscape setting, avoiding stepping where feasible
5. Consider extending retaining wall panels above the ground level to avoid use of safety fencing where visually permeability is not required
6. Design tops of walls to be consistently horizontal and true. If they cannot be horizontal, the top of each wall in elevation should be finished to a long, gradual, consistent horizontal curve rather than sudden steps or changes in level

Reinforce

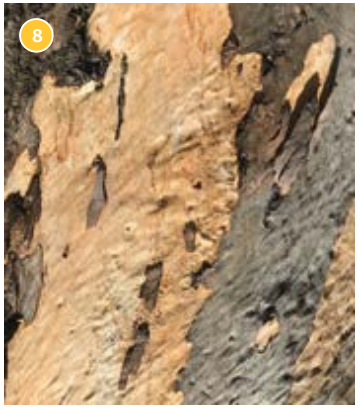
7. Design retaining walls to be part of a 'whole of Project' aesthetic strategy while also responding to their local context. Consider matching Yan Yean Road Stage 1 Upgrade wall design or using a complimentary design
8. Reference local materials, textures and muted colours where feasible to reinforce the local sense of place. For example, local aggregates could be used in pre-cast concrete panels

Enhance

9. Use high quality pre-cast panels or cladding systems to increase the aesthetic appeal of retaining walls, especially where space for screen planting is not available. Seek input from urban design specialist or artist to introduce pattern and rhythm to reduce the wall's apparent scale and visual impact.



REFERENCE EXISTING WALL TYPES ALONG THE CORRIDOR (YAN YEAN ROAD UPGRADE STAGE 1)



REFERENCE LOCAL MATERIALS, TEXTURES AND COLOURS

Protect

Reduce

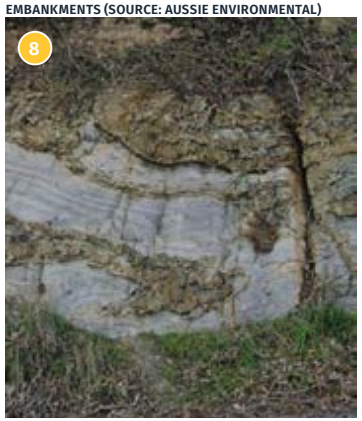
Reinforce

Rehabilitate

Enhance

FIGURE 6.10: RETAINING WALL DESIGN GUIDELINES

INTEGRATE STABILISATION SOLUTIONS TO STEEP EMBANKMENTS (SOURCE: AUSSIE ENVIRONMENTAL)



USE UNDERLYING ROCK STRATA FOR CUTTINGS (EXISTING ROCK CUTTING ALONG YAN YEAN ROAD)

6.6.6 Earthworks

Outcome

Cuttings and embankments are visually integrated into the landscape setting and contribute to the character of the road corridor.

Description

Earthworks consist of embankments (fill and cut) and rock cuttings. These elements should be recessive and blend into the areas either side of the road corridor, minimising landscape and visual impacts. Embankments located in close proximity to sensitive residential and open space receivers should be given careful consideration.

The form and visual appearance of all earthworks is critical to successfully integrating the widened road into the surrounding landscape and urban form.

The large rock cutting north of Jorgensen Avenue would be a highly visible feature along the road corridor and an opportunity to provide an attractive journey marker.

Key Project locations

+ Large rock cutting to the north of Jorgensen Avenue
+ Fill and cut embankments along the Project corridor including at Werther Park, Ironbark Road and Heard Avenue.

Guidelines (Figure 6.11)

Protect

1. Use retaining walls, steeper embankments or a combination of both to reduce the Project footprint where feasible. Ensure the maximum batter gradient is 2h:1v. Preference for 3h:1v or shallower in all other areas to assist vegetation establishment
2. Avoid the use of shotcrete to rock cuttings where feasible. If necessary, ensure shotcrete finish is of a high quality and colour pigment matched to the existing rock

Reduce

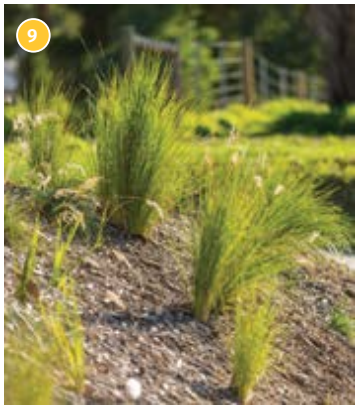
3. Adopt earthworks grades to visually tie into the surrounding topography. For example, round off the tops, bottoms and ends of cuttings and embankments to avoid sharp angles and integrate the slope with the surrounding landform. Slopes to be designed to eliminate the need for compliance fencing
4. Utilise Project fill for embankments where feasible to minimise imported fill material
5. Ensure planting to embankments considers maintenance access and requirements
6. Position any tree planting towards base of embankments to improve batter stability and water availability for vegetation
7. Integrate temporary and permanent landscape stabilisation solutions to embankments, including jute matting on batters steeper than 3h:1v

Reinforce

8. Consider underlying rock strata in design of cuttings. Rock should be cut back as near as possible to a clean uniform face as directed by the geotechnical engineer
9. Use low maintenance, resilient indigenous species for embankment planting

Rehabilitate

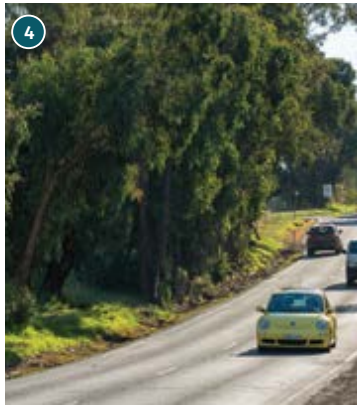
10. Revegetate beyond the top/bottom of slopes to help integrate the Project into the surrounding landscape
11. Use tubestock planting over seeding in visible areas of the landscape
12. Use shallower batters on west and north facing slopes to improve vegetation establishment.



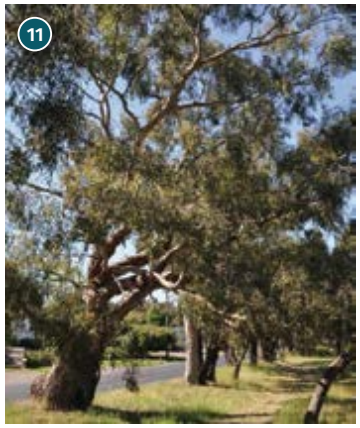
USE LOW MAINTENANCE, INDIGENOUS NATIVE SPECIES

REVEGETATE BEYOND SLOPE TOP/BOTTOM TO HELP INTEGRATE WORKS

FIGURE 6.11: EARTHWORKS DESIGN GUIDELINES



WIDEN THE CENTRAL MEDIAN TO RETAIN EXISTING TREES WHERE FEASIBLE (NEAR BANNONS LANE)



COLLECT SEEDS FROM THE ENDANGERED STUDELY PARK GUM TO PROPAGATE AND USE IN LANDSCAPE WORKS

6.6.7 Existing vegetation

Outcome

Retained vegetation continues to provide a distinctive vegetated character to the Project corridor while supporting local flora and fauna habitats and reducing visual impacts for adjacent land uses.

Description

The Project corridor has a unique vegetated character with many large mature trees lining the road. Protection and retention of this existing vegetation is the most efficient way of achieving the Landscape strategy's vision of a *'well vegetated corridor'* that delivers *'a legacy of environmental benefits'* while *'respecting the cultural values of the existing landscape'.*

Opportunities to protect existing vegetation are being investigated through the ongoing road design process, including at the Bridge Inn Road/Doctors Gully Road intersection and the implementation of a wide median between Bannons Lane and Laurie Street.

Key Project locations

+ Length of Project corridor with a particular focus on vegetation identified as having elevated value within Chapter 5.2 - *Cultural value of vegetation assessment,* areas containing remnant EVCs and ecologically significant flora species (refer Section 4.5 - *Vegetation*)
+ Any landscape works undertaken within private properties
+ On-site or off-site biodiversity offset locations.

Guidelines

Protect

1. Protect and retain existing vegetation where feasible, prioritising vegetation identified as having elevated value within Chapter 5.2 - *Cultural value of vegetation assessment*
2. Establish no-go zones to protect any native vegetation and habitat that does not need to be impacted by the Project, prioritising vegetation identified as having elevated value within Chapter 5.2 - *Cultural value of vegetation assessment*
3. Protect all trees identified to be retained in accordance with AS4970-2009 *Protection of Trees on Development Sites*
4. Widen the central median to retain existing trees where appropriate
5. Protect and conserve buffer areas around ecologically sensitive locations, such as identified EVCs
6. Ensure a Tree Management Plan is developed and approved during future design stages in accordance with AS4970-2009 *Protection of Trees on Development Sites*
7. Ensure planting within existing Tree Protection Zones (TPZs) is undertaken by hand
8. Protect landscape setting of heritage listed St Michael's Anglican church within Yarrambat Township

Reduce

9. Prune rather than remove trees where feasible in accordance with AS 4373-2007 *Pruning of Amenity Trees*
10. Translocate impacted ecologically significant flora species where feasible, such as the Matted Flax-lilies near Yarrambat Park
11. Collect seeds from the endangered Studley Park Gum to propagate and utilise during landscape works

Reinforce

12. Ensure new landscape planting compliments existing EVCs where appropriate
13. Reinforce existing historic plantings such as along driveways and windbreaks adjacent to the Project corridor

Enhance

14. Remove existing weed species along the corridor where appropriate
15. Use felled timber for creation of landscape mulch, wildlife habitats and re-purposing of wood for furniture, art works or other wood working activities, including Aboriginal use. Consider donation of mulch and timber to local community organisations.

6.6.8 Tree planting

Outcome

A tree lined corridor that reinforces landscape character, provides visual amenity and environmental benefits, whilst facilitating the safe movement of people.

Description

New tree planting would be critical to the success of the Landscape strategy's vision to provide *'a green corridor that stitches together the urbanising suburbs to the west with the existing rural landscape to the east'.*

Trees provide a diverse range of environmental, social and economic benefits. Their canopy cover would support active movement along the corridor through comfortable, shaded pedestrian and cycle paths. Careful selection and placement would be critical to the safe functioning of the road infrastructure.

Given the constrained nature of the road corridor, space for tree planting is limited. Power infrastructure alignment should be carefully considered along with path, verge and landscape locations to maximise opportunities to provide large canopy trees.

The DoT's *Tree Policy Revision 2.0, 2016* is the most relevant policy document in regards to trees within the road reserve. 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
+ Support the safety of all road users while promoting trees.

Key Project locations

+ Length of Project corridor
+ Any landscape works undertaken within private properties
+ On-site or off-site biodiversity offset locations.

Guidelines

Reduce

1. Ensure all tree planting conforms with DoT tree planting policy on offsets, sightlines and deflection zones of safety barriers
2. Ensure tree planting is fully co-ordinated with services, easements and utilities including required height limits and offsets
3. Ensure tree planting complies with Bushfire Management overlay requirements detailed in CFA's Guidelines

Reinforce

4. Maximise tree canopy where feasible, including tree planting within road medians and behind safety barriers where appropriate
5. Ensure tree planting reinforces desirable views as identified within *Chapter 5.6 - Visual impact assessment*
6. Reinforce existing historic tree plantings along driveways and windbreaks

Rehabilitate

7. Prioritise replacement of removed trees identified as having elevated value within Chapter 5.2 - *Cultural value of vegetation assessment* such as screening, amenity and habitat trees
8. Specify trees in accordance with AS 2303-2018 *Tree Stock for Landscape Use*
9. Ensure tree selection compliments existing EVCs and fauna habitat where appropriate
10. Select tree species in consultation with relevant stakeholders including Shire of Nillumbik, City of Whittlesea, DoT and CFA. Refer Chapter 7 - *Planting selection* and Appendix A for recommended species

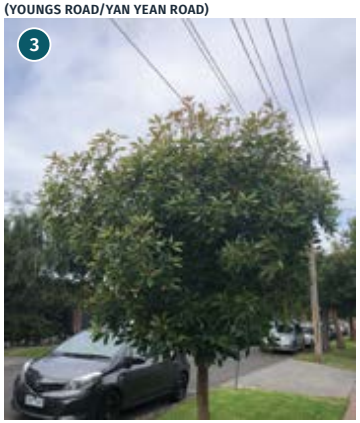
Enhance

11. Use feature trees to highlight important journey markers such as roundabouts, intersections and gateways
12. Underground power infrastructure where feasible to allow improved opportunities for canopy tree planting along road corridor.

ENSURE TREE PLANTING REINFORCES DESIRABLE VIEWS (YARRAMBAT TOWNSHIP)

USE FEATURE TREES TO HIGHLIGHT IMPORTANT JOURNEY MARKERS

RETAIN EXISTING SCREEN PLANTING WHERE FEASIBLE (YOUNGS ROAD/YAN YEAN ROAD)



COMPLY WITH RELEVANT UTILITY OFFSET REQUIREMENTS (PLANTING UNDER POWERLINES LIMITED TO 3M HIGH)

6.6.9 Screening

Outcome

Structured planting that reduces the visual impact of the Project and assists in the integration of retaining structures within the surrounding landscape.

Description

Screening vegetation plays an important function in reducing exposure to undesirable visual and wind impacts for adjacent properties and public open space. Screening may include trees and/or shrubs, either planted as a hedge or in groups to allow filtered views. Screen planting to the front of retaining walls assists in integrating them into the surrounding context and reduces the risk of graffiti and climbing.

It should be noted that visual amenity is subjective and some property owners may prefer an open view to a screened one, even if Project elements are visible. This should be considered during the design of planting layouts.

The location for screen planting would be influenced by offset requirements for above and below ground utilities. High voltage electricity lines are proposed predominately on the eastern side of the road corridor, as per the existing electricity alignment. The offsets would limit the space available for planting and so there would need to be consideration of planting within private property to achieve the desired screening outcome.

Key Project locations

+ Length of Project corridor with a focus on replacing existing screening adjacent to residential properties as identified in Chapter 5.2 - *Cultural value of vegetation assessment* and 5.5 - *Visual impact assessment*
+ Any landscape works undertaken within private properties
+ To the front of large retaining wall along Ironbark Road and to the north of Jorgensen Avenue.

Guidelines (Figure 6.12)

Protect

1. Avoid the removal of existing screening vegetation where feasible

Reduce

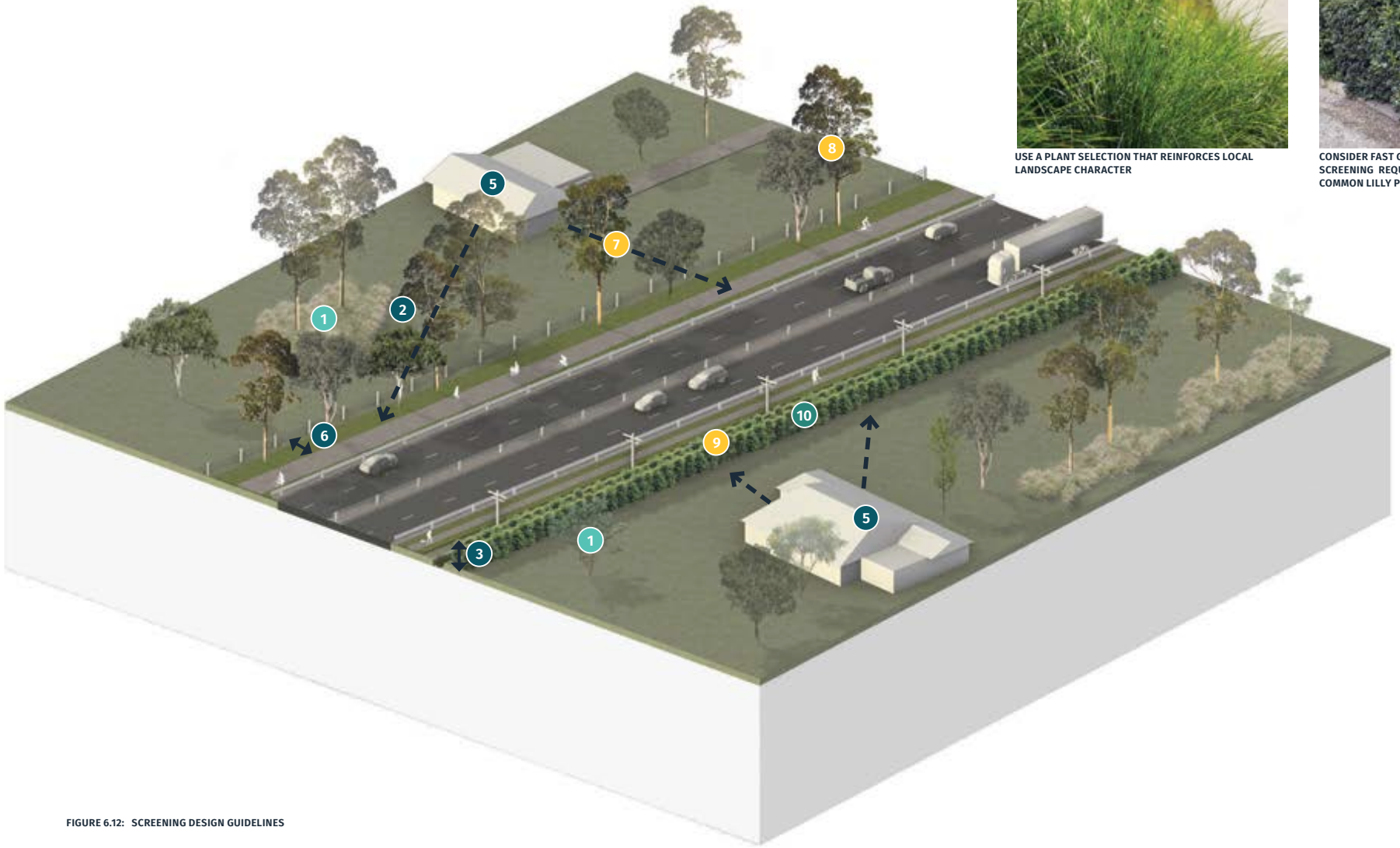
2. Retain and extend existing screening vegetation where feasible, especially established windbreaks
3. Ensure proposed screen planting complies with relevant utility offset requirements including Ausnet Services *'Your guide to planting near electricity lines'*
4. Ensure planting to front of structures considers infrastructure maintenance access
5. Ensure screen planting layouts are developed in consultation with relevant property owners
6. Ensure landscape and maintenance proposals address land ownership and asset management considerations including required offsets from private fence lines

Reinforce

7. Ensure existing desirable views are retained
8. Use a predominately resilient indigenous plant selection that reinforces local landscape character
9. Reinforce existing historic windbreak planting along property boundaries where appropriate

Enhance

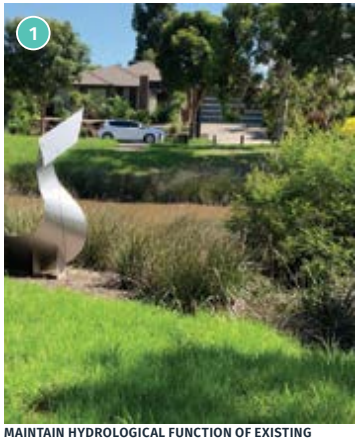
10. Consider fast growing species and early planting works where a screening effect is required quickly. These may be native but non-indigenous
11. Underground power infrastructure where feasible to improve visual amenity and allow improved opportunities for screen planting along road corridor.



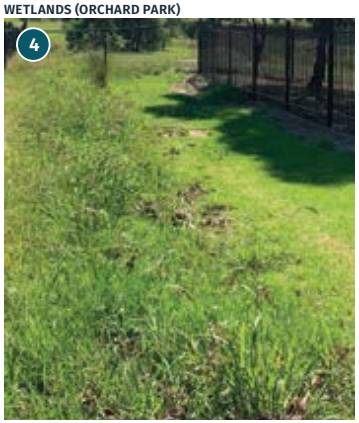
USE A PLANT SELECTION THAT REINFORCES LOCAL LANDSCAPE CHARACTER

CONSIDER FAST GROWING NATIVE SPECIES WHERE SCREENING REQUIRED QUICKLY EG. SYZYGIUM SMITHII - COMMON LILLY PILLY

FIGURE 6.12: SCREENING DESIGN GUIDELINES



MAINTAIN HYDROLOGICAL FUNCTION OF EXISTING WETLANDS (ORCHARD PARK)



USE LANDSCAPED SWALES OVER HARD SURFACES

6.6.10 Water sensitive urban design (WSUD)

Outcome

A sustainable road corridor that reduces, redirects and filters stormwater runoff through appropriate landscape and hard surface treatments.

Description

WSUD treatments seek to combine landscape and water management solutions to deliver a multitude of environmental benefits. By imitating natural processes, WSUD interventions infiltrate, filter, store, evaporate and detain runoff close to its source. WSUD can perform multiple roles of stormwater conveyance and treatment, landscape amenity features and ecological habitat.

WSUD can include swales, wetlands, detention basins, sand filters, filter strips, oil/water separators and various kerb treatments to allow passive irrigation such as kerb cutouts.

The design of the Project drainage system should be undertaken in collaboration with local authorities to create an integrated catchment management approach.

Key Project locations

+ Wetland adjacent to Plenty Valley Christian College
+ Orchard Park wetlands
+ Man made wetland at Youngs Road intersection
+ Swales along length of Project corridor
+ Drainage basins.

Guidelines (Figure 6.13)

Protect

1. Maintain hydrological function of existing wetlands where feasible, as well as wildlife movement corridors (such as through the inclusion of a dry shelf in culverts)

Select and align proposed Project drainage features to avoid unnecessary vegetation removal (e.g. revert to kerb and channel rather than swales near existing trees to be retained)

Reduce

2. Install filtration basins to improve water quality
3. Use landscaped swales over hard surfaces where feasible. Ensure swale planting is appropriate for predicted flow velocities
4. Reduce run off by exploring alternative surface materials such as permeable paving for paths or other areas of hardstand
5. Capitalise on opportunities to capture and reuse water for passive irrigation of the landscape eg. kerb cut outs
6. Avoid placing drainage features into small areas which would result in the use of steep banks, retaining walls and safety fences
7. Integrate maintenance access into the design of drainage features

Reinforce

8. Design detention basins and swales to integrate with the existing landscape character and topography. Preference for organic, natural shapes with shallow embankments to reduce the need for fencing
9. Consider the local hydrological network when designing drainage features

Rehabilitate

10. Plant swales and detention basins with an appropriate mix of low maintenance native plants
11. Use organic fibre mesh on swales to aid plant establishment
12. Ensure plants sit at the correct level to suit the inundation/operation of a basin

Enhance

13. Consider public open space improvements (in consultation with Council) such as the installation of boardwalks, lookouts and interpretative signage to provide details on Project WSUD features and wetland ecology
14. Consider opportunities for stormwater harvesting in collaboration with adjoining land owners eg. Yarrambat Park Golf Course.

CAPITALISE ON OPPORTUNITIES TO CAPTURE WATER FOR PASSIVE IRRIGATION OF THE LANDSCAPE (SOURCE: SAN MATEO COUNTY)

CONSIDER PUBLIC OPEN SPACE IMPROVEMENTS SUCH AS THE INSTALLATION OF INTERPRETATIVE SIGNAGE (SOURCE: ATYPICA.COM)

Protect

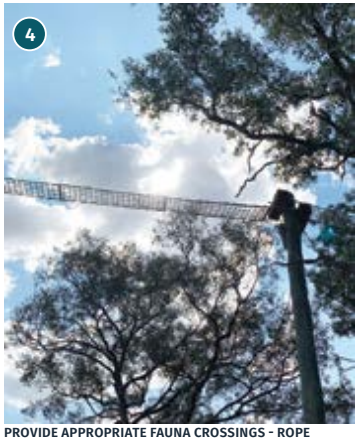
Reduce

Reinforce

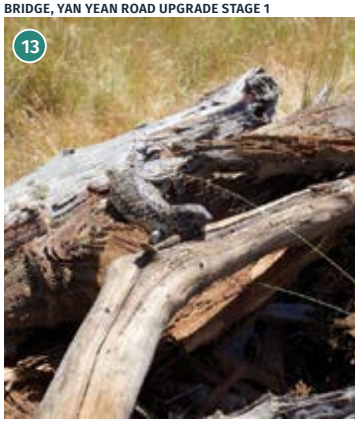
Rehabilitate

Enhance

FIGURE 6.13: WSUD DESIGN GUIDELINES



PROVIDE APPROPRIATE FAUNA CROSSINGS - ROPE BRIDGE, YAN YEAN ROAD UPGRADE STAGE 1



USE FELLED TIMBER FOR CREATION OF WILDLIFE HABITATS (SOURCE: GREENING AUSTRALIA)

6.6.11 Native flora and fauna habitat

Outcome

Planting to protect and enhance existing ecological value, whilst supporting the movement of wildlife to improve road user and fauna safety.

Description

The project area has a rich ecology with the presence of several endangered flora and fauna species. Habitat loss and fragmentation impacts can be reduced through landscape treatments that reinforce and rehabilitate this habitat and key movement corridors.

All landscape works would need to be undertaken in accordance with the Project's Construction Environment Management Plan (CEMP) and the recommendations contained within Technical Report B2 - *Biodiversity Impact Assessment.*

Key Project locations

+ Identified areas containing remnant EVCs, ecologically significant flora species and native remnant vegetation (refer Section 4.5 - *Vegetation*)
+ Habitat species for the Swift Parrot (refer Section 5.2 - *Cultural value of vegetation assessment)*
+ Wetland areas and large native trees
+ Wildlife movement corridors (refer Section 6.4 and 6.5 - *Opportunities and Constraints)*

Guidelines

Protect

1. Prioritise the retention of high ecologocal value flora and fauna habitat where feasible

Reduce

2. Ensure kangaroo foraging habitat is not planted near the road corridor
3. Acknowledge wildlife movement corridors in the placing of fencing and safety barriers (refer Section 6.4 and 6.5 - *Opportunities and Constraints)*
4. Provide appropriate fauna crossings in accordance with the CEMP
5. Use weed free mulch and top soil derived from site removal where feasible

Reinforce

6. Select tree species to include key Swift Parrot and Grey-headed Flying-fox habitat
7. Use 'stepping stones' of native vegetation such as paddock trees to link larger patches of wildlife habitat
8. Involve local community and property owners in the design of flora and fauna habitat to increase ecological awareness

Rehabilitate

9. Use resilient indigenous species where appropriate with consideration of EVC compositions and distributions
10. Ensure locally appropriate re-vegetation through seed collection, propagating locally collected seed or purchase of plants from local nurseries
11. Undertake soil testing along the corridor to ensure appropriate species selection and site preparation regimes

Enhance

12. Remove identified weeds where appropriate
13. Use felled timber for creation of wildlife habitats (refer details within Technical Report B2 - *Biodiversity Impact Assessment*, including reference to MRPV's Highest and Best Use Timber Policy).

6.6.12 Median and verge planting

Outcome

Safe, maintainable landscape treatments to appropriate median and verge locations that soften the visual impact of the road corridor, reduce stormwater runoff and enhance placemaking.

Description

Planting within verges and medians provides an opportunity to visually break up the expanse of road and pathway paving, while helping to continue the characteristics of the landscape across the road corridor. Planting in appropriate locations would help achieve the stated Landscape vision for a well vegetated road corridor.

Space is highly constrained along the corridor and planting will only be appropriate in locations where safety and maintenance outcomes can be guaranteed (refer Table 6.1).

The installation of safety barriers provides opportunities for tree planting in closer proximity to the road carriageway than would otherwise be permissible. Median and verge landscape treatments must be frangible where not protected by safety barriers.

Median and verge planting should be prioritised in areas of high pedestrian movement and visual sensitivity, such as important gateway locations. Planting in these areas will improve visual amenity, reduce headlight glare and discourage undesirable pedestrian crossing of the road.

A contextual balance needs to be achieved between widening some areas of the design to allow planting within the road corridor, with reducing impacts to existing vegetation along the road edges. If tree planting can not be achieved within the median, the preference is to reduce median widths and provide additional planting space on the roadside.

Key Project locations

+ Wide median in proximity to Bannons Lane
+ High pedestrian areas including Ironbark Road and Bridge Inn Road intersection.

Element	Planting type	Minimum planting width
Median with safety barrier	Trees or non-frangible shrubs	Approximately 4.5m+ (allowing for appropriate deflection of safety barrier)
Median without safety barrier	Turf, native grasses or groundcovers. Shrubs if frangible	1800mm - Turf, native grasses or groundcovers 2500mm - Shrubs
Back of kerb	Turf, native grasses or groundcovers	750mm
Back of pathway	Turf, native grasses or groundcovers	750mm
Back of pathway	Shrubs and trees	1000mm

TABLE 6.1: RECOMMENDED MINIMUM WIDTHS FOR PLANTING WITHIN MEDIANS AND VERGES

Guidelines

Protect

1. Protect and retain existing vegetation through the use of a wide median where feasible

Reduce

2. Ensure safe sight distances are satisfied
3. Ensure non-frangible planting is located to satisfy deflection requirements
4. Set back shrubs at least 500 millimetres from road or pathway edge to avoid overhang
5. Use resilient, low maintenance indigenous species. Consider native grasses and groundcovers over turf to reduce mowing requirements

Enhance

6. Prioritise median and verge plantings in areas of high pedestrian/cycle movement and visual sensitivity, such as important gateway locations
7. Ensure a densely planted, simple and attractive landscape treatment. Verge planting should be neat and structured with lower groundcovers next to the pathway followed by taller species behind.

LOW MEDIAN PLANTING ENSURES APPROPRIATE SIGHT LINES ARE PRESERVED (SOURCE OZBREEDS)

SET BACK NON-FRANGIBLE PLANTING FROM DEFLECTION ZONE

USE VISUALLY PERMEABLE BARRIERS WITH NON-REFLECTIVE FINISH (SOURCE: INGAL CIVIL PRODUCTS)

REPLACEMENT FENCING TO PROPERTY BOUNDARIES SHOULD REFLECT LOCAL CONDITIONS

6.6.13 Fencing and barriers

Outcome

Consistent, well coordinated fences and barriers that are sympathetic to the surrounding landscape and support pedestrian, cycle and wildlife movement.

Description

Fencing and barriers are visually prominent features of the design that would have an important outcome on the aesthetic quality of the road corridor and surrounding landscape.

Continuous safety barriers are proposed in the median and behind outer kerbs. Proposed safety barriers include guardrail, wire rope and concrete barriers if deemed necessary.

Key Project locations

+ Safety barriers - median and behind kerb along alignment
+ Safety barriers - top of retaining walls
+ Fence - Yarrambat Park Golf course, eastern boundary (wire mesh - 30-36m high)
+ Fence - Diamond Valley Archers, eastern boundary
+ Fencing to detention basins.

Guidelines

Protect

1. Align fencing and barriers to avoid unnecessary vegetation removal
2. Enable tree retention or new tree planting through barrier type selection and design to reduce deflection area
3. Ensure fencing and barriers do not block pedestrian routes or access to public open space
4. Acknowledge wildlife movement in the placement of fencing and barriers
5. Maintain sufficient distance from any retained trees during construction of safety barriers and use post holes rather than trenching and footing for installation

Reduce

6. Minimise the use of concrete kerb barriers within the road corridor. Preference for more visually permeable treatments such as wire rope or guard rail barriers
7. Use non reflective finishes for fencing and barriers where feasible
8. Ensure fences are visually recessive where feasible. Consider form, scale, colour and materials that contribute to the existing or desired future character of the area. Replacement fencing to property boundaries should be of high quality and reflect local conditions and histroic land use patterns
9. Provide frangible planting within barrier deflection zone where appropriate to reduce impermeable surfaces and visual impact
10. Design safety barriers and fencing together with retaining walls, aligning joints and posts, and locate fixings so as not to compromise the appearance of the wall
11. Avoid unnecessary stepping in all fencing, especially to tops of retaining walls.

Enhance

12. Consider a form of fence/wall to archery club that has a deliberate aesthetic design outcome to enhance visual amenity at this prominent location.

6.6.14 Lighting, street furniture and public art

Outcome

Contextually responsive public art, lighting and street furniture that creates local landmarks, enhances the journey experience and improves user amenity.

Description

Lighting, public art and street furniture can provide a sense of place, a memorable event along a journey or a distinctive marker to help road users know where they are. Well designed and positioned lighting and street furniture reduces impacts to the landscape while improving user amenity, offering safe locations to sit, relax or wait.

When designed with community in mind, these initiatives can help bolster local identity, foster civic pride and support social interaction.

Key Project locations

+ Bus stops
+ Intersections
+ Yarrambat Township gateway
+ Public open space such as Yarrambat Park, Werther Park and Orchard Park.

Guidelines

Protect

1. Retain existing street furniture where appropriate
2. Ensure light poles are located to avoid impacts to existing and proposed landscape treatments

Reduce

3. Reuse site materials where feasible including felled timber for public art and furniture
4. Ensure functional lighting is used to enhance personal safety and access around infrastructure including footpaths, walking and cycling paths and bus stops
5. Design lighting to minimise light spill, especially around sensitive surrounding land uses and environmental areas
6. Use visually recessive, energy efficient, vandal proof and easily maintained light fixtures
7. Ensure lighting is well coordinated with other infrastructure to avoid visual clutter

Reinforce

8. Reinforce local heritage, identity and character through use of contextual materials and themes for public art and street furniture
9. Ensure street furniture is located in response to user desire lines

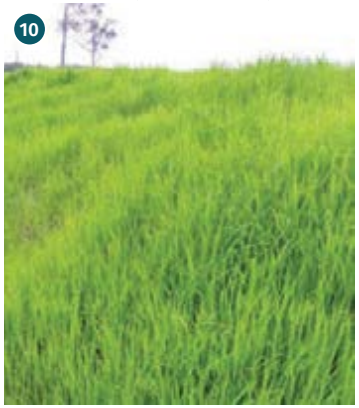
Enhance

10. Use feature lighting to enhance navigation and the user experience at key locations such as important intersections
11. Integrate art works into the design of the Project in consultation with the local community and relevant stakeholders
12. Explore opportunities to integrate Aboriginal heritage and values in the design of art works and street furniture.

INTEGRATE ART WORKS INTO THE DESIGN OF THE PROJECT (WOODEN TOTEM, YAN YEAN ROAD STAGE 1)

REINFORCE LOCAL IDENTITY THROUGH USE OF CONTEXTUAL MATERIALS (REUSED TIMBER BENCH SEAT YAN YEAN ROAD STAGE 1)

USE TEMPORARY FENCING AND HOARDINGS THAT ARE VISUALLY RECESSIVE (SOURCE: SAFE FENCE)



ENSURE ALL STOCKPILES INCLUDE SUITABLE EROSION AND WEED CONTROL METHODS (SOURCE: RMS)

6.6.15 Construction activities

Outcome

Project construction works that avoid or reduce impacts to visual amenity, landscape character and cultural/social values, while ensuring ground conditions are appropriate for future landscape works.

Description

All construction activities should be undertaken in accordance with the Construction Environment Management Plan (CEMP).

Key Project locations

+ Works along the Project Corridor including construction compounds and laydown areas.

Guidelines

Protect

1. Ensure no-go zones are adhered to in accordance with the CEMP
2. Establish site compounds and lay down areas away from areas of sensitive native vegetation
3. Protect trees in close proximity to construction areas in accordance with AS4970-2009 *Protection of Trees on Development Sites*
4. Ensure appropriate vegetation clearance procedures (e.g. pre-clearing surveys and two-stage clearance) in accordance with MRPV specifications developed for the Project
5. Apply suitable construction techniques to minimise impact on Tree Protection Zones

Reduce

6. Use temporary site fencing and hoardings that are simple and visually recessive to reduce visual impacts
7. Ensure a staged removal of vegetation to temporarily reduce visual and fauna impacts, while also suppressing construction noise and dust
8. Protect waterways from sedimentation and erosion through appropriate control measures
9. Ensure protocols for reducing the spread of weeds and pathogens (such as vehicle hygiene and spoil management) are adhered to in accordance with the CEMP
10. Ensure all stockpiles include suitable erosion and weed control methods
11. Minimise soil compaction where feasible

Rehabilitate

12. Undertake soil testing along the corridor to ensure appropriate species selection and site preparation regimes
13. Ensure soil within construction areas is remediated appropriately post construction
14. Ensure that any re-used topsoil is fit for purpose excludes weed plant material, pathogens and extraneous material
15. Ensure all disturbed ground is revegetated in accordance with the Landscape strategy
16. Install landscape treatments only once service and utility installation has been finalised

Enhance

17. Remove identified weeds where appropriate.

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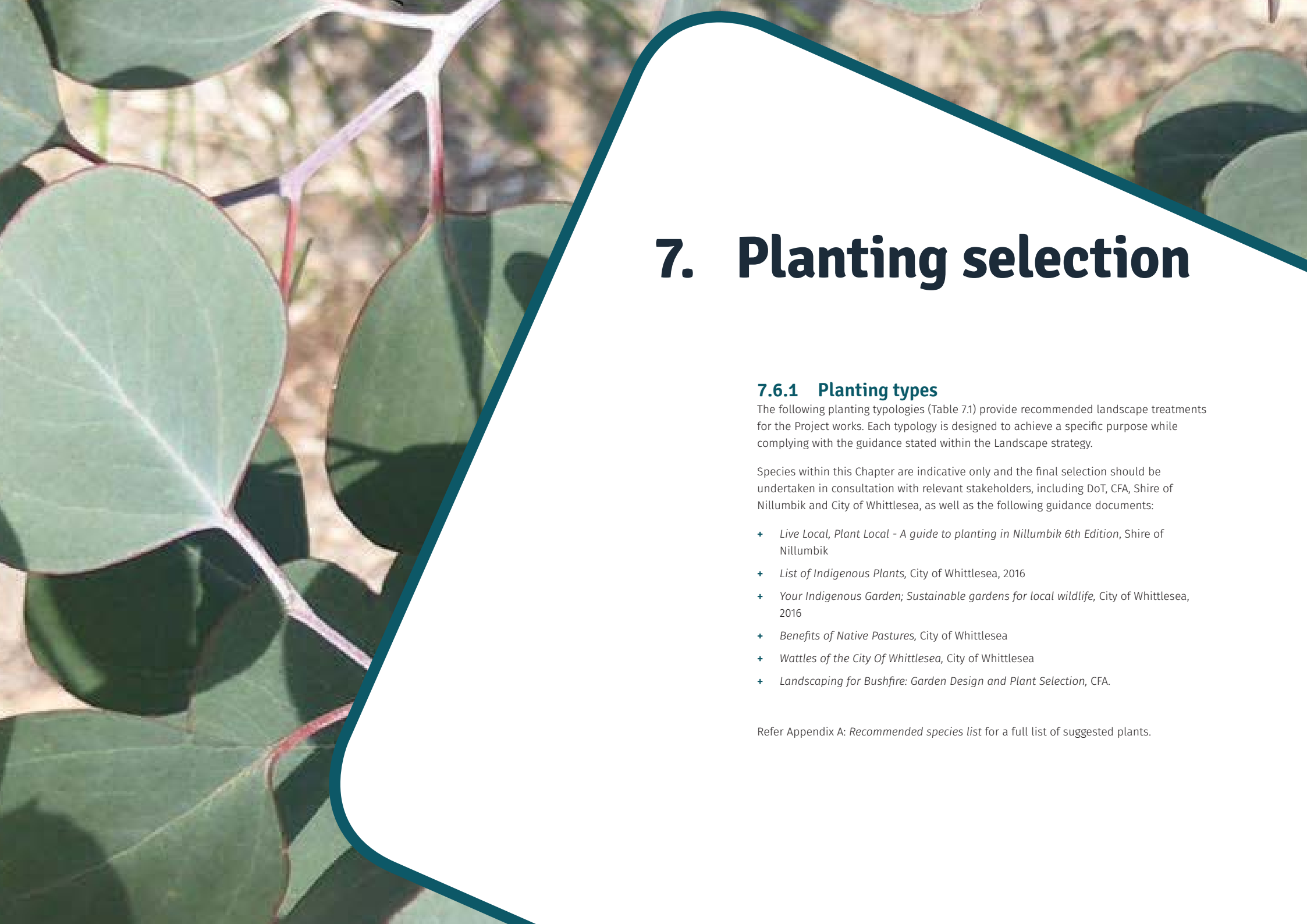


7. Planting selection

7.6.1 Planting types

The following planting typologies (Table 7.1) provide recommended landscape treatments for the Project works. Each typology is designed to achieve a specific purpose while complying with the guidance stated within the Landscape strategy.

Species within this Chapter are indicative only and the final selection should be undertaken in consultation with relevant stakeholders, including DoT, CFA, Shire of Nillumbik and City of Whittlesea, as well as the following guidance documents:

- *Live Local, Plant Local - A guide to planting in Nillumbik 6th Edition*, Shire of Nillumbik
- *List of Indigenous Plants,* City of Whittlesea, 2016
- *Your Indigenous Garden; Sustainable gardens for local wildlife,* City of Whittlesea, 2016
- *Benefits of Native Pastures,* City of Whittlesea
- *Wattles of the City Of Whittlesea,* City of Whittlesea
- *Landscaping for Bushfire: Garden Design and Plant Selection,* CFA.

Refer Appendix A: *Recommended species list* for a full list of suggested plants.

Planting typology	Purpose	Project locations	Provenance	Maximum height	Planting style	Application method
GENERAL TREATMENTS						
Canopy trees	To provide structure to the landscape, reinforcing the existing vegetated character, replacing lost tree canopy and providing appropriate ecological habitat. Consider EVCs and Swift Parrot foraging species for ecological value and habitat connectivity/creation.	Entire Project corridor, either side of the road in compliance with required offsets.	Native and Indigenous	Unlimited	Naturalistic clusters	Planted
Amenity trees	To provide shade and visual interest to pathways, intersections and roundabouts.	Intersections, roundabouts, pathways, gateways, medians in compliance with required offsets.	Native and Indigenous	Unlimited	Structured	Planted
Shrub mix	To replicate the natural understorey beneath the tree canopy along the road corridor, re-vegetating disturbed areas and providing appropriate ecological habitat. To consider EVCs and Swift Parrot Habitat.	Entire Project corridor in compliance with required offsets, including embankments.	Native and Indigenous	5m	Informal, random mix	Planted or seeded
Grasses (planted)	To provide a low maintenance treatment to improve visual amenity, soften infrastructure elements and providing appropriate ecological habitat. To consider EVCs.	Entire Project corridor, including footpath edges and embankments.	Native and Indigenous	1m	Informal mix	Planted
Groundcover mix	To provide a low maintenance treatment to improve visual amenity, soften infrastructure elements and providing appropriate ecological habitat. To consider EVCs.	Entire Project corridor in compliance with required offsets.	Native and Indigenous	0.5m	Structured or informal	Planted or seeded
SPECIFIC TREATMENTS						
Low height mix	To provide a low maintenance treatment to improve visual amenity, and provide compliant sight lines along and across road corridor.	Footpath edges, medians, verges, intersection and roundabout approaches, splitter islands.	Native and Indigenous	1m	Structured	Planted
WSUD planting	To provide improved storm water runoff outcomes including increased infiltration, water quality and improved ecology.	Swales, detention basins, wetland areas.	Native and Indigenous	1m	Structured	Planted or seeded
Screening mix	To provide screening of Project works to reduce visual impacts.	Properties in close proximity to road corridor, adjacent to recreational land uses and front of retaining walls.	Native and Indigenous	Unlimited unless underneath power lines	Linear	Planted
Feature planting	To provide distinctive planting for visual interest, improving wayfinding and marking important locations along the road corridor.	Intersections and gateways including Yarrambat Township, Bridge Road Inn/Yan Yean Road intersection.	Indigenous and native	Unlimited	Structured	Planted
Easement planting	To provide planting appropriate to service easements and underneath powerlines.	Service easements and underneath powerlines.	Native and Indigenous	3m underneath power lines	Informal, random mix	Planted or seeded
Grasses (seeded)	To provide re-seeding of disturbed areas.	Entire Project corridor, especially less prominent embankments.	Indigenous, native and exotic	1m	N/A	Hydro seeding or compost blanket to slopes steeper than 3h:1v Direct seeding to slopes 3h:1v or less
Turf	To provide a superior quality grass treatment for specific highly visible locations.	Highly visible areas - intersections/roundabouts, medians, splitter islands, adjacent to pathways, impacted public open space.	Exotic	N/A	N/A	Turf rolls

TABLE 7.1: PLANTING TYPOLOGIES

CANOPY TREES

To provide structure to the landscape, reinforcing the existing vegetated character, replacing lost tree canopy and providing appropriate ecological habitat. Consider EVCs and Swift Parrot foraging species for ecological value and habitat connectivity/creation.

Eucalyptus blakelyi
Blakely's Red Gum
EVC 22

Eucalyptus camaldulensis
River Red Gum
EVC 55

Eucalyptus Leucoxylon subsp. connata
Yellow Gum
EVC 55

Eucalyptus polyanthemos
Red Box
EVC 22

Eucalyptus sideroxylon 'Rosea'
Red Flowering Ironbark

AMENITY TREES

To provide shade and visual interest to pathways, intersections and roundabouts.

Allocasuarina littoralis
Black sheoak
EVC 55

Eucalyptus melliodora
Yellow Box
EVC 47

Eucalyptus polyanthemos
Red Box
EVC 22

Eucalyptus tricarpa
Mugga/Red ironbank
EVC 55

Cupaniopsis anacardioides
Tuckeroo

SHRUB MIX

To replicate the natural understorey beneath the tree canopy along the road corridor, re-vegetating disturbed areas and providing appropriate ecological habitat. Consider EVCs and Swift Parrot foraging species for ecological value and habitat connectivity/creation.

Cassinia aculeata
Dogwood
EVC 22

Callistemon sieberi
River Borrlebrush

Acacia pycnantha
Golden Wattle
EVC 55

Bursaria spinosa
Sweet Bursaria
EVC 55

Rubus parvifolius
Native Raspberry

GRASSES (PLANTED)

To provide a low maintenance treatment to improve visual amenity, soften infrastructure elements and providing appropriate ecological habitat. Consider EVCs for ecological value and habitat connectivity/creation.

Lomandra longifolia
Spiny-headed Mat-rush

Microleana stipoides
Weeping Grass
EVC 55

Poa ensiformis
Purple Sheath Tussock-grass

Poa sieberiana
Grey Tussock Grass

Themeda triandra
Kangaroo Grass
EVC 22, EVC 55

GROUNDCOVER MIX

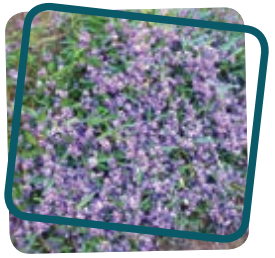
To provide a low maintenance treatment to improve visual amenity, soften infrastructure elements and providing appropriate ecological habitat. Consider EVCs for ecological value and habitat connectivity/creation.

Dichondra repens
Kidney Weed

Einadia nutans
Nodding Saltbush

Grevillea xgaudichaudii
Ground-Cover Grevillea

Platylobium obtusangulum
Common Flat-pea



Hardenbergia violacea
Purple Coral Pea
EVC 22

LOW HEIGHT MIX

To provide a low maintenance treatment to improve visual amenity and provide compliant sight lines along and across the road corridor.

Dianella laevis
Smooth Flax-Lily

Hardenbergia violacea
Purple Coral Pea
EVC 22

Lomandra longifolia
Spiny-headed Mat-rush

Pimelea humilis
Rice Flower

Grevillea xgaudichaudii
Ground-Cover Grevillea

WSUD PLANTING

To provide improved storm water runoff outcomes including increased infiltration, water quality and improved ecology.

Acaena novae-zelandiae
Bidgee Widgee

Bolboschoenus caldwellii
Club Rush

Carex appressa
Tall Sedge

Dianella tasmanica
Tasman Flax-Lily

Schoenoplectus mucronatus
Bog Bullrush

SCREENING MIX

To provide screening of Project works to reduce visual impacts.

Acacia melanoxylon
Blackwood

Allocasuarina verticillata
Drooping Sheoak

Callistemon sieberi
River Bottlebrush

Melaleuca ericifolia
Swamp Paperback

Prostanthera lasianthos
Victorian Christmas Bush

FEATURE PLANTING

To provide distinctive planting for visual interest, improving wayfinding and marking important locations along the road corridor.

Olearia lirata
Snowy Daisy-bush

Goodia lotifolia
Common Golden Tip

Leucochrysum albicans
Hoary Sunray

Epacris impressa
Common Heath
EVC 22

Tristaniopsis Laurina
Water Gum

EASEMENT PLANTING

To provide planting appropriate to service easements and underneath powerlines.

Acacia lanigera
Woolley Wattle

Cassinia aculeata
Dogwood
EVC 22

Themeda triandra
Kangaroo Grass
EVC 22, EVC 55

Acacia paradoxa
Hedge Wattle
EVC 55

Poa sieberiana
Grey Tussock Grass

GRASSES (SEEDED)

To provide re-seeding of disturbed areas

Dactylis glomerata var.
Currie Cocksfoot

Rytidosperma caespitosum
Common Wallaby Grass

Microlaena stipoides
Weeping Grass
EVC 22, EVC 55

Lolium perenne var.
Camel Perennial Ryegrass

Themeda triandra
Kangaroo Grass
EVC 22, EVC 55

TURF

To provide a superior quality grass treatment for specific highly visible locations.

Empire Zoysia
Zoysia Grass

8. Future management

Implementation of the Landscape Strategy's design guidelines through future design stages of the Project would reduce many of the identified visual and landscape character impacts.

The careful ongoing monitoring and maintenance of the completed Project landscape works would be equally important in the successful delivery of the Landscape vision over the entire lifetime of the Project.

Future management tasks should be undertaken with a clear delimitation of State and Local Government maintenance responsibilities. It is expected that the following maintenance responsibilities would apply:

- Road carriageway from kerb to kerb - DoT
- Back of kerb to property boundary - relevant Council authority
- Service roads - relevant Council authority
- Planting within private property - landowner.

8.1 EPRs

The following documents will guide future management of the Project landscape works:

+ Environmental Management Framework (including relevant EPRs)
+ Tree Management plan in accordance with AS4970-2009 *Protection of Trees on Development Sites*
+ Landscape Management Plan
+ Construction Environment Management Plan
+ Landscape Maintenance Plan
+ Relevant Roadside Management Plans and Standards
+ Revant local council Tree Management Policies.

8.1.1 Environmental Performance Requirements (EPRs)

The relevant EPRs for effects on biodiversity (including ecology and arboriculture) and cultural/social values (including landscape, visual and vegetation) are described in Table 8.1 opposite. They include requirements for ongoing monitoring and maintenance of the landscape works.

Implementation of the Landscape strategy itself forms part of several key EPRs for mitigating Project impacts to landscape character, visual amenity and the cultural values of the wider project area. Refer to Chapter 1.5 - *Environmental Performance Requirements* for more details on the EPR process.

Performance objective	Applicable legislation, policy and guideline	EPR Code	Environmental Performance Requirement	Project phase
Ecology To avoid where possible, and otherwise minimise adverse impacts on native vegetation and listed migratory and protected species / ecological communities, and their habitat	*Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) *Planning and Environment Act 1987* Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017) *Flora and Fauna Guarantee Act 1988* Australian Standard 4970-2009 Protection of Trees on Development Site	E1	**Native vegetation** Develop and implement measures to avoid where possible, and otherwise minimise impacts on native vegetation through detailed design and construction, including: • Minimising footprint and disturbance of temporary and permanent works, such as through detailed design of: – The wide median between Bannons Lane and Laurie Street – The Bridge Inn Road intersection – The Jorgensen Avenue intersection – The Youngs Road roundabout – The Yarra Valley Water pump station relocation – The walking and cycling path in Werther Park – The walking and cycling path built within Tree Protection Zones • At the Bridge Inn Road intersection, the Doreen River Red Gums will be retained. A Tree Protection Management Plan is required to protect trees during construction (see also EPR AR3) • Further minimisation of native tree loss during detailed design, prioritising retention of large and hollow-bearing trees • Trees for which the Project will impact <10% of the Tree Protection Zone (TPZ) are likely to be able to be retained. For these specific trees, once construction methods are better known, a detailed arborist assessment must be conducted • Implement the no-go zones identified in EES Attachment VI *Map Book*. Native vegetation removal must be offset in accordance with DELWP's Guidelines for the removal, destruction or lopping of native vegetation 2017 (DELWP 2017c).	Design and construction
	Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) *Planning and Environment Act 1987* *Flora and Fauna Guarantee Act 1988* *Wildlife Act 1975*	E2	**Flora and fauna - design** Design the Project to avoid and otherwise minimise impacts, to the extent practicable, on listed species and ecological communities, the Studley Park Gum, wildlife and their habitat, including: • Utilising the MRPV Fauna Sensitive Road Design Guideline (2020) to incorporate fauna sensitive design, including: – Use of fauna-friendly fencing where fencing is required (avoidance of chain-mesh fencing and barbed wire). If non-metal mesh fencing is required, it must be designed to minimise collision risk – Use of fauna-sensitive lighting where lighting is required	Design and construction

TABLE 8.1: RELEVANT PROJECT EPRS

Performance objective	Applicable legislation, policy and guideline	EPR Code	Environmental Performance Requirement	Project phase
	MRPV Fauna Sensitive Road Design Guideline (2020)		- Avoidance of transparent materials in the construction of bus shelters, barriers, fencing, and signage to minimise the potential for birds or other fauna to collide with them - Targeted signage to minimise roadkill and investigation of other measures during detailed design which may be trialled to minimise collision risk, particularly for Eastern Grey Kangaroos - Providing rope bridges in key connectivity areas for arboreal mammals, to be installed as early as practicable during construction.	
	Australian Standard 4970-2009 Protection of Trees on Development Sites MRPV Fauna Sensitive Road Design Guideline (2020) *Catchment and Land Protection Act 1994*	E3	**Flora and fauna – construction** The CEMP must include requirements and methods in accordance with the MRPV Fauna Sensitive Road Design Guideline (2020) for avoiding, or where avoidance is not feasible, minimising impacts on flora and fauna, including: • Contingency and reporting procedures for the event that a listed threatened species is identified in order to mitigate any potential for significant impacts on the listed threatened species. • Protection of all vegetation inside and adjacent to the project area (where the Tree Protection Zone intersects the project area) that is not required to be removed, provided that such measures should be limited to activities undertaken inside the project area • Fencing no-go zones (refer to Attachment VI *Map Book*) to prevent access during construction • Vegetation clearing controls and protection measures, including protocols such as pre-clearing surveys, two-stage clearing, minimised clearing during spring where practicable, and phased removal wherever practicable (see also EPR V1) • Pruning of trees to be retained must not exceed one third of total canopy area. Pruning and removal of trees must only be conducted following pre-clearance surveys, in the presence of an ecologist • Measures during clearing and construction including weed and disease hygiene, pathogen mitigation, management, monitoring and reporting measures to reduce weed introduction and spread • Fire risk management measures • Development and implementation of a Tree Protection Management Plan for protection of retained trees (see also EPRs AR2 and AR3) • Development and implementation of protocols around the handling of fauna during construction • Retention of dead, declining, or impacted trees for habitat where appropriate and practicable • Minimise impacts of construction lighting through consideration of siting, direction and fixtures • Egress points for fauna (particularly kangaroos) in construction fencing. Construction personnel to report fauna entrapment and traffic control to slow or stop vehicles when wildlife is sighted to minimise collision risk • Trench management, including avoiding open trenches overnight where practicable. Where trenches cannot be closed, check trenches for fauna early in the morning.	Design and construction
		E4	**Swift Parrot Management Plan** Implementing the mitigation measures specified in the Swift Parrot Management Plan, including: • Using existing stacksites and existing road formation for material lay down areas for storage, plant and vehicle storage and site compounds	Design and construction

Performance objective	Applicable legislation, policy and guideline	EPR Code	Environmental Performance Requirement	Project phase
			• Establish and maintain no-go zones (refer to Attachment VI *Map Book*) to reduce impacts on Swift Parrot • Design to avoid incorporating chain-mesh or barbed wire fences as well as clear glass for any structures (bus shelters, barriers). If chain mesh fencing is required at Yarrambat Golf Course, it must be designed to minimise collision risk for Swift Parrot • Inducting construction workers to communicate permit conditions, environmental requirements regarding fauna management and no-go zones • Controlling noise and dust during works in accordance with relevant standards (see also EPRs NV1 and AQ1).	
		E5	**Matted Flax-lily** Where direct impacts on Matted Flax-lily occur, a salvage and translocation plan must be developed and implemented to the satisfaction of the Department of Environment, Land, Water and Planning and the Commonwealth Department of Environment and Energy, prior to the commencement of relevant works.	Design and construction
	Planning and Environment Act 1987	E6	**Strategic revegetation** Strategic revegetation in accordance with the Project's Landscape Strategy (see also EPRs AR4 and LV2) to minimise long term fragmentation impacts by: • Using indigenous species as appropriate from relevant ecological vegetation classes to maximise fauna habitat value and connectivity, including trees likely to be used by Swift Parrot and Grey-headed Flying-fox • Incorporating indigenous mid-storey and ground layer plants as appropriate to complement retained habitat.	Design and construction
	Catchment and Land Protection Act 1994	E7	**Avoid introduction or spread of weeds and pathogens** The CEMP must include measures to avoid the spread or introduction of weeds and pathogens during construction, including vehicle and equipment hygiene.	Design and construction
	Catchment and Land Protection Act 1994	E8	**Operational maintenance** During operation, maintain all fences, signage and fauna crossings, and soil hygiene controls for areas of retained native vegetation in accordance with Department of Transport processes and standards for declared roads in Victoria.	Operation and maintenance
Arboriculture To avoid where possible, and otherwise minimise adverse impacts on remnant, planted, regenerated, or large old trees	Australian Standard 4970-2009 Protection of Trees on Development Sites	AR1	**Avoid and minimise tree removal** During detailed design and construction, review potential tree impacts (particularly large/higher value trees and high value vegetation as identified within the Landscape Strategy's 'Cultural Value of Vegetation Assessment'), and provide for maximum tree retention where possible. This may be achieved through: • Design permanent and temporary works to avoid where possible, and otherwise minimise, adverse effects on trees (see also EPRs E1, AR2 and AR3) • The location and width of walking and cycling paths and footpaths is to be varied further to minimise Tree Protection Zone encroachment where possible • Apply suitable construction techniques to minimise impact on Tree Protection Zones, including limiting excavation depth or building above grade. Include additional retaining walls in the design for high priority trees where appropriate • Optimise design of Safety Barriers to retain trees, such as avoiding trenching	Design and construction

Performance objective	Applicable legislation, policy and guideline	EPR Code	Environmental Performance Requirement	Project phase
			• Prepare a Tree Impact Assessment which includes consideration of necessary cut and fill and grading requirements (3D design) which can be undertaken in stages • Establishment of no-go zones identified in Attachment VI *Map Book* to exclude and protect the trees within the project area, with fencing to be as per the Australian Standard 4970-2009 Protection of Trees on Development Sites.	
		AR2	**Tree Protection Management Plan** Prior to construction commencing, develop and implement a Tree Protection Management Plan (see also EPRs E3 and AR3) based on the recommendations of Australian Standard 4970-2009 Protection of Trees on Development Sites. This will be in consultation with the City of Whittlesea and Shire of Nillumbik and informed by a project arborist (with a minimum qualification of Diploma in Arboriculture (AQF level 5 or equivalent), which covers: • Trees to be removed or retained which will be informed by Tree Impact Assessment • Condition or significance of trees to be removed • Options for relocation and reinstatement of trees if feasible • All tree protection zones and structural root zones • All tree protection fenced off areas and areas where ground protection systems will be used • All services to be located within the tree protection zone. All services will either be located outside of the tree protection zone or bored under the tree protection zone • Location of tree protection measures and ground protection • To reduce tree removal and retain trees for as long as possible, tree removal will be undertaken as late as possible during construction works.	Design and construction
		AR3	**Doreen River Red Gums** At the Bridge Inn Road intersection, the two Doreen River Red Gums will be retained. Prior to any works, a detailed Tree Protection Plan will be prepared by a suitably qualified arborist and must be signed off by MRPV. This will include tree protection measures relevant to proposed works such as a calculated no-go zone and Tree Protection Zones and specific controls for works (including excavation, utility installation, lighting) within the calculated Tree Protection Zones of the Doreen River Red Gums as follows: • Works must not occur within the no-go zone determined in the Tree Protection Plan • The maximum depth of excavation must not exceed 800 millimetres below the existing ground surface within the Tree Protection Zones identified in the Tree Protection Plan • There must be no damage to the tree canopy of the Doreen River Red Gums • Fence/crash barrier, signage footings and road furniture can be installed within the identified Tree Protection Zones identified in the Tree Protection Plan but are not to be more than one metre below the existing ground surface level and must not be strip footings or similar if they exceed 800 millimetres below the existing ground surface level • Any utilities or services such as conduits or pipes to be installed within the Tree Protection Zones identified in the Tree Protection Plan, but outside of the no-go zone identified in the Tree Protection Plan, are to be bored with a minimum of one metre cover to the existing ground surface and are to be no greater than 500 millimetres in diameter • Arrangements for appropriate long-term access to water are to be provided to the Doreen River Red Gums	Design and construction

Performance objective	Applicable legislation, policy and guideline	EPR Code	Environmental Performance Requirement	Project phase
			• The finished level of any surface adjacent to the no-go zone must be +/- 200 millimetres of the existing road and no additional fill can be placed within the undisturbed areas of the Tree Protection Zones identified in the Tree Protection Plan • Reinstatement – the area that is available, must be converted to mulched garden bed with complementary indigenous plantings such as acacias. Reinstatement of existing pavement areas within the Tree Protection Zones identified in the Tree Protection Plan shall be to a minimum depth of 500 millimetres.	
		AR4	**Reinstatement** Reinstatement of soft and hard landscaping is to be in accordance with the Project's Landscape Strategy (see also EPRs E6 and LV2) and include: • Protecting retained trees • Ensuring new tree planting does not adversely impact existing vegetation.	Design and construction
Aboriginal cultural heritage To avoid where possible, and otherwise minimise adverse effects on Aboriginal cultural heritage values, and to maximise the enhancement of these values where opportunities exist	*Aboriginal Heritage Act 2006* Aboriginal Heritage Regulations 2018	ACH1	Implement and comply with the Cultural Heritage Management Plan approved under the *Aboriginal Heritage Act 2006*.	Design and construction
Historical heritage To avoid where possible, and otherwise minimise adverse effects on historical heritage values, and to maximise the enhancement of these values where opportunities exist	*Heritage Act 2017* *Planning and Environment Act 1987*	HH1	**Doreen River Red Gums** At the Bridge Inn Road intersection, retain the two Doreen River Red Gums that are identified in the Heritage Overlay HO191 (see also EPR AR3). For works within the Heritage Overlay that impact historic heritage, prepare a Heritage Impact Statement in consultation with Shire of Nillumbik and implement no-go zones in accordance with the CEMP (see also EPR AR3).	Design and construction
		HH2	**St. Michael's Anglican Church** Design permanent and temporary works to avoid where possible, and otherwise minimise, potential impacts on the heritage values of the St. Michael's Anglican Church that are identified in the Heritage Overlay HO219. The CEMP must include processes and measures to manage historical heritage, such as implementation of no-go zones, within the Construction Environmental Management Plan.	Design and construction
		HH3	**Archaeological discovery protocol** The CEMP must include an archaeological discovery protocol that specifies measures to avoid and minimise impacts on any previously unidentified historical archaeological sites and values discovered during construction. The management protocol must be consistent with the requirements of the *Heritage Act 2017* and include procedures for ceasing work if human remains or archaeological artefacts are discovered, notifying Heritage Victoria of the find, obtaining consent to deal with the find, and dealing with the find in accordance with the consent.	Design and construction

Performance objective	Applicable legislation, policy and guideline	EPR Code	Environmental Performance Requirement	Project phase
Landscape and visual To avoid where possible, and otherwise minimise adverse effects on landscape values, and to maximise the enhancement of these values where opportunities exist	*Heritage Act 2017* *Planning and Environment Act 1987*	LV1	**Implement the Landscape Strategy** Implement the Landscape Strategy (refer to Technical Report G) during detailed design and construction to minimise adverse effects on landscape values and visual impacts, particularly in relation to: • Retaining and reinforcing key existing views as identified within the Landscape Strategy • Heritage values • Existing and proposed landmark elements across the Project • High value vegetation as identified within the Landscape Strategy's 'Cultural Value of Vegetation Assessment' • Community and recreational centres and open space, including existing Council masterplans for Doreen Recreational Reserve, Yarrambat Park & Golf Course and Yarrambat Township • Residential and business interfaces. See also EPRs E6, AR1, AR4, LV2 and V1.	Design and construction
		LV2	**Replanting and reinstatement of vegetation** Replanting and reinstatement of vegetation must occur in accordance with the Project's Landscape Strategy (see also EPRs E6, AR1, AR4, LV1 and V1) in consultation with the relevant land manager, including: • Ensure tree planting is fully coordinated with services, easements and utilities including required height limits and offsets connectivity values, where opportunities exist • Provide replacement screening vegetation where feasible to reduce impacts to visual amenity • Enhance existing vegetation along the road corridor and around infrastructure elements • Provide contextual planting along roads and walking and cycling paths where feasible to achieve tree canopy cover for shade, shelter and habitat creation and connectivity • Seek to improve user amenity through identifying opportunities within public open space in accordance with relevant Council masterplans • Enhance intersections and identified gateways with distinctive native plantings to act as visual marker along the road corridor.	Design and construction
Vegetation To avoid where possible, and otherwise minimise adverse effects on remnant, planted or regenerated vegetation, and maximise the enhancement of these values where opportunities exist	*Planning and Environment Act 1987*	V1	Design permanent and temporary works to avoid where possible, and otherwise minimise adverse effects on, high value vegetation as identified within the Landscape Strategy's 'Cultural Value of Vegetation Assessment'. Removal of vegetation will be phased wherever practicable to temporarily reduce visual impacts (see also EPRs E3 and AR4).	Design and construction

8.2 Residual impacts

8.2.1 Residual impacts

As noted within Chapter 5 - *Value assessment* and Table 8.2 and Table 8.3, residual impacts of varied levels are expected on several of the landscape character zones and view locations assessed within this report.

These residual impacts are likely to occur despite the implementation of the Landscape Strategy. They are associated with the permanent reduction in tree canopy along the project area and expansion of the Project footprint in proximity to sensitive receptors.

While residual impacts from a Project of this nature would be expected, the implementation of additional screen planting initiatives within private property would likely reduce some of the residual visual and landscape character impacts identified further.

This initiative would be most beneficial for residential receptors, educational facilities and religious institutions in proximity to the road corridor. These include Plenty Valley Christian College *(view location 3)*, St Macarius Coptic Orthodox Church and nearby residential dwellings *(view location 8)* and residential dwellings between North Oatlands Road and Worns Lane *(view location 11)*.

Additional native planting within private property would also help offset impacts to LCZ 2 - Undulating Agricultural and LCZ 1 - Suburban Rural by replacing some of the lost tree canopy that gives these zones their distinctive rural character.

Any private planting initiative should be undertaken in consultation with relevant land owners.

Landscape Character Zone	Sensitivity	Residual Impact (Post landscape maturity)
LCZ 1 - Suburban Rural	Moderate	Moderate/Low
LCZ 2 - Undulating Agricultural	High	Moderate/Low
LCZ 3 - Yan Yean Road Corridor	Moderate	Low
LCZ 4 - Doreen Urban Area	Low	Negligible
LCZ 5 - Parkland	Moderate	Negligible

TABLE 8.2: LANDSCAPE CHARACTER RESIDUAL IMPACT SUMMARY TABLE

View location	Sensitivity	Residual Impact (Post landscape maturity)
1 - Doctors Gully/Bridge Inn Road Intersection	Moderate	Moderate/Low
2 - Yan Yean Road - south of Activity Way	Moderate	Low
3 - Plenty Valley Christian College	Moderate	Moderate
4 - Werther Park	Moderate	Moderate/Low
5 - Yarrambat Park	Moderate	Negligible/Beneficial
6 - Residential dwellings near Bannons Lane	Moderate	Low
7 - Yarrambat Park Golf Course	Moderate	Low
8 - St Macarius Coptic Orthodox Church and nearby residential dwellings	High	Moderate
9 - Yarrambat Primary School	Moderate	Moderate/Low
10 - Ironbark Road	Moderate	Low
11 - Residential dwellings between North Oatlands Road and Worns Lane	High	Moderate

TABLE 8.3: RESIDUAL VISUAL IMPACT SUMMARY TABLE

APPENDIX A

Recommended species list

Name	Common name	Height	Provenance	Ecology	Notes
General Treatments					
Canopy Trees					
Corymbia maculata	Spotted Gum	40m+	Native	Key Swift Parrot foraging habitat	Can become a very large tree. Only to be planted at sufficient distance from road corridor.
Eucalyptus blakelyi	Blakely's red gum	25m	Indigenous	EVC 22	
Eucalyptus camaldulensis	River Red Gum	12-30m	Indigenous	EVC 55. Secondary Swift Parrot foraging habitat	Can become a very large tree. Only to be planted at sufficient distance from road corridor.
Eucalyptus leucoxylon subsp. connata	Yellow Gum	10-20m	Indigenous	EVC 55. Key Swift Parrot foraging habitat	
Eucalyptus melliodora	Yellow Box	20m	Indigenous	EVC 47. Key Swift Parrot foraging habitat	
Eucalyptus microcarpa	Grey Box	20m	Indigenous	EVC 55. Key Swift Parrot foraging habitat	
Eucalyptus polyanthemos	Red Box	10-20m	Indigenous	EVC 22. Secondary Swift Parrot foraging habitat	
Eucalyptus sideroxylon 'Rosea'	Red Flowering Ironbark	20m	Native		
Eucalyptus tricarpa	Mugga/Red Ironbark	10-30m	Indigenous	Key Swift Parrot foraging habitat	
Amenity Trees					
Allocasuarina littoralis	Black sheoke	4-12m	Indigenous	EVC 55	
Eucalyptus melliodora	Yellow Box	20m	Indigenous	EVC 47. Key Swift Parrot foraging habitat	
Eucalyptus polyanthemos	Red Box	10-20m	Indigenous	EVC 22. Secondary Swift Parrot foraging habitat	
Eucalyptus tricarpa	Mugga/Red Ironbark	10-30m	Indigenous	Key Swift Parrot foraging habitat	
Cupaniopsis anacardioides	Tuckeroo	10m	Native		
Shrub mix					
Acacia acinacea	Gold Dust Wattle	1-2m	Indigenous	EVC 55	
Acacia lanigera	Woolly Wattle	1-2m	Indigenous		
Acacia paradoxa	Hedge Wattle	2-4m	Indigenous	EVC 55	
Acacia pycnantha	Golden Wattle	8m	Indigenous	EVC 55. Secondary Swift Parrot foraging habitat	
Bursaria spinosa	Sweet Bursaria	10m	Indigenous	EVC 55	
Callistemon sieberi	River Bottlebrush	3-10m	Indigenous		
Cassinia aculeata	Dogwood	2-4m	Indigenous	EVC 22	
Rubus parvifolius	Native Raspberry	2m	Indigenous		
Grasses (planted)					
Lomandra longifolia	Spiny-headed Mat-rush	1m	Indigenous		
Microleana stipoides	Weeping Grass	0.7m	Indigenous	EVC 55	
Poa ensiformis	Purple Sheath Tussock-grass	1m	Indigenous		
Poa sieberiana	Grey Tussock Grass	0.8m	Indigenous		
Themeda triandra	Kangaroo Grass	1m	Indigenous	EVC 22, EVC 55	
Groundcover mix					
Dichondra repens	Kidney Weed	0.5m	Indigenous		
Einadia nutans	Nodding Saltbush	0.5m	Indigenous		
Grevillea xgaudichaudii	Ground-Cover Grevillea	0.5m	Native		
Hardenbergia violacea	Purple Coral Pea	0.5m	Indigenous	EVC 22	
Platylobium obtusangulum	Common Flat-pea	0.5m	Indigenous	EVC 22	
SPECIFIC TREATMENTS					
Low height mix					
Dianella admixta	Black-anther Flax-lily	0.8m	Indigenous	EVC 22	
Dianella laevis	Smooth Flax-Lily	1m	Native		
Grevillea xgaudichaudii	Ground-Cover Grevillea	0.5m	Native		
Hardenbergia violacea	Purple Coral Pea	1m	Indigenous	EVC 22	Climbing plant
Lomandra longifolia	Spiny-headed Mat-rush	1m	Indigenous		
Pimelea humilis	Rice Flower	0.5m	Indigenous	EVC 55	
WSUD planting					
Acaena novae-zelandiae	Bidgee Widgee	0.2m	Native		
Bolboschoenus caldwellii	Club Rush		Native		
Carex appressa	Tall Sedge		Native		
Carex iynx	Tussock Sedge		Native		
Dianella tasmanica	Tasman Flax-lily		Native		
Juncus australis	Austral Rush		Native		
Schoenoplectus mucronatus	Bog Bullrush		Native		Plant adjacent to wet margins

Name	Common name	Height	Provenance	Ecology	Notes
Screening mix					
Acacia acinacea	Gold Dust Wattle		Indigenous	EVC 55	
Acacia melanoxylon	Blackwood	7-15m	Indigenous		
Acmena smithii 'Fire Screen'	Lilly Pilly	4-6m	Native		Suitable for hedge planting to private property boundaries if rapid growth required.
Allocasuarina littoralis	Black sheoke	4-12m	Indigenous	EVC 55	
Allocasuarina verticillata	Drooping Sheoke	4-11m	Indigenous		
Bursaria spinosa	Sweet Bursaria	2-6m	Indigenous		
Callistemon sieberi	River Bottlebrush	3-10m	Indigenous		
Callitris endlicheri	Black cypress pine	15m	Native	EVC 22	
Cassinia aculeata	Dogwood	2-4m	Indigenous	EVC 22	
Melaleuca ericifolia	Swamp Paperbark	2-9m	Indigenous		Prefers wet soils
Prostanthera lasianthos	Victorian Christmas Bush	2-8m	Indigenous		
Solanum laciniatum	Large Kangaroo Apple	1-3m	Indigenous		
Waterhousea floribunda	Weeping Lillypilly	10m	Native		Suitable for hedge planting to private property boundaries if rapid growth required.
Feature planting					
Callistemon sieberi	River Bottlebrush	3-10m	Indigenous		
Dianella laevis	Smooth Flax-Lily	1m	Native		
Epacris impressa	Common Heath	1.5m	Indigenous	EVC 22	
Grevillea rosmarinifolia	Rosemary Grevillea	1-2m	Native		
Goodia lotifolia	Common Golden Tip	1-3m	Indigenous		
Hardenbergia violacea	Purple Coral Pea	2m	Indigenous	EVC 22	Climbing plant
Leucochrysum albicans	Hoary Sunray	0.3m	Native		
Olearia lirata	Snowy Daisy-bush	2-3m	Indigenous		Shade loving
Tristaniopsis laurina	Water gum	5-15m	Native		
Easement planting					
Acacia lanigera	Woolly Wattle	1-2m	Indigenous		
Acacia paradoxa	Hedge Wattle	2-4m	Indigenous	EVC 55	
Cassinia aculeata	Dogwood	2-4m	Indigenous	EVC 22	
Einadia nutans	Knodding Saltbush	0.5m	Indigenous		
Lomandra longifolia	Spiny-headed Mat-rush	1m	Indigenous		
Microlaena stipoides	Weeping Grass	0.5m	Indigenous	EVC 22, EVC 55	
Poa sieberiana	Grey Tussock Grass	0.8m	Indigenous		
Themeda triandra	Kangaroo Grass		Indigenous	EVC 22, EVC 55	
Grasses (seeded)					
Dactylis glomerata var.	Currie Cocksfoot		Exotic		
Lolium perenne var.	Camel Perennial Ryegrass		Exotic		
Lolium rigidum var.	Safeguard Annual Ryegrass		Native		
Microlaena stipoides	Weeping Grass	0.5m	Indigenous	EVC 22, EVC 55	
Rytidosperma caespitosum	Common Wallaby Grass		Native		
Themeda triandra	Kangaroo Grass		Indigenous	EVC 22, EVC 55	
Turf					
Empire Zoysia	Zoysia grass	N/A	Exotic		Low maintenance (mowing only required twice a year)

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