CAMBEWARRA
TAYLORS LANE

Final Report
Prepared by Studio GL for Shoalhaven City Council
June 2021

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EXECUTIVE SUMMARY

Background

Studio GL were commissioned by Shoalhaven City Council to provide a review of the planning controls and zoning around Taylors Lane in Cambewarra. The purpose of the review is to consider the required road structure to support the development of the URA and also the retention of the existing trees.

Location

The area of land under consideration includes Taylors Lane, an existing road located in the suburb of Cambewarra, and the area surrounding the lane including Moss Vale Road South Urban Release Area (MVRN URA). Taylors Lane is intended to provide access into the URA and links to the future planned Far North Collector Road (FNCR) project. The URA land is currently estimated to accommodate 950 dwellings.

Strategic Review & Site Analysis

The review considers the impact of proposed future development within the URA, including its zoning and future connections.

The retention of existing trees necessitates the provision of a permanent tree protection zone, which influences the extent of development.

Traffic studies for the area indicate that given the future role of Taylors Lane, an upgrade of the lane would be required to meet with the future transport demand. An alternative alignment of the new collector road south of the existing Taylors Lane would be advantageous in retaining the trees.

Stakeholder input

In general, stakeholders have supported the retention of the trees, especially within the eastern section of Taylors Lane. Any development on the eastern side will need to consider flooding impact, connectivity requirements and timing.

Options

Investigation of options for the future alignment divides Taylors Lane into two sections (east + west). Three options were considered for the western section of Taylors Lane (W1-W3), with an additional extension of W3 being considered (W3a). The options investigate replacing the existing lane, re-routing the lane from the existing alignment, and using the existing lane as a one way.

Five options are considered for the eastern section of Taylors Lane (E1-E5). These include re-routing Taylors Lane slightly north of its existing alignment, replacing the exisiting lane, and rebuilding the road well to the south of the existing lane in a variety of locations.

Recommendations

In order to preserve a significant number of the existing trees, whilst also supporting the level of development proposed for the URA, the review recommends a combination of Option W3 for the western section of Taylors Lane, and Option E4 for the eastern section.

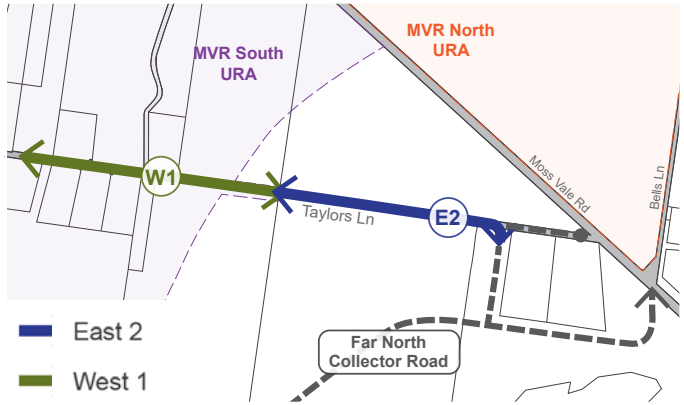


Figure 1 Current proposed outcome

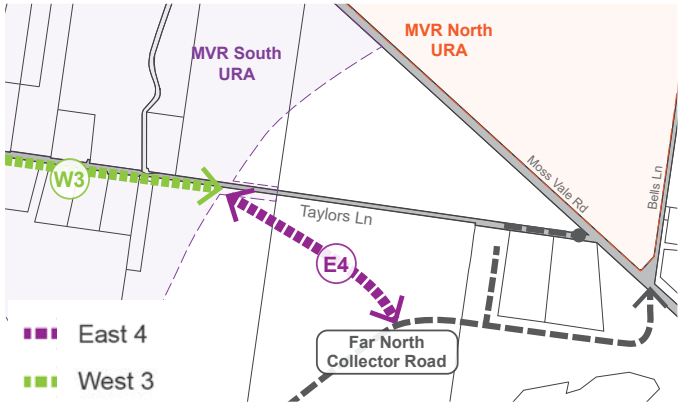


Figure 2 Recommended options for east and west sections

CHAPTER 1

INTRODUCTION

1-1 Background

Introduction

In October 2020, Studio GL were commissioned by Shoalhaven City Council to undertake a review of planning controls and zoning around Taylors Lane in Cambewarra, including options for retaining the trees in the future upgrade of Taylors Lane. This report identifies options and proposed updates to the controls to help guide future development in the area.

Location

The area around Taylors Lane is currently rural in character but is zoned to support urban development. The Moss Vale Road South URA is located at the western end of Taylors Lane, with a grouping of urban zones at the eastern end. Taylors Lane is an existing road that is planned to provide access into the URA and links to the future

Far North Collector Road (FNCR) project which will connect Moss Vale Road with Illaroo Road at North Nowra. Most of the Taylors Lane road reserve contains significant stands of trees which are considered a feature of the current local landscape and are valued by the community.

Council has previously considered several options for the upgrade of Taylors Lane, however, following public exhibition of the options and community opposition to the loss of trees in the preferred option, Council resolved to defer a decision on the upgrade pending a review.

Scope

The scope of work for Studio GL included the following tasks:

1.Undertake the following reviews, considering the required road structure to support the development of the URA and also the retention of the existing trees:

a. Review Shoalhaven Development Control Plan 2014 Chapter NB3: Moss Vale Road South Urban Release Area, the existing zoning and potential planning controls for the area between Moss Vale Road and the edge of the Urban Release Area.

2. Consider potential planning controls, local road network needs and options for Taylors Lane.

3. Consider all relevant planning and development options to retain the existing trees that are currently

a feature of Taylors Lane and how they could be successfully retained and integrated into the future urban development enabled by the existing zones.

4. Consider potential traffic options to support the above desired outcome.

5. Reconsider the current appropriateness of the existing R3 Medium Density Residential, B1 Neighbourhood Centre and SP2 Infrastructure (educational establishment) zones at the eastern end of Taylors Lane.

6. Include an analysis of the likely costs/benefits/ risks/opportunities of each option and implementation mechanisms.

7. Initial targeted consultation with landowners and developers of land around Taylors Lane.

8. Specialist landscape architect and traffic engineering review and input into the planning and development options, focused on the successful retention and integration of the existing trees into the future urban development.

1-2 Methodology & Process

The following methodology has been followed to undertake the review.

Strategic Review

A review and analysis of all existing controls, studies and documentation for the study area was carried out.

The Traffic Engineer reviewed available existing data on traffic, on-street parking, off-street parking, servicing and loading, public transport, walking and cycling, plus road crash data available from Council.

A review of the appropriateness of the existing land use zoning in the area, considering matters such as land capability, constraints, strategic context, options for Taylors Lane and the implications for the Far North Collector project was carried out.

Site Analysis

The Urban Designer, Traffic Engineer and Landscape Architect undertook a site visit to carry out a photographic inventory of key transport and land use, and assess the identified existing trees.

An Arborist (part of the design team) visited site on a separate occasion to carry out a preliminary assessment of the situation as it related to tree retention.

The traffic engineer developed traffic forecasts for 2026 and 2036, in consultation with Council TRACKS models and Council data based on likely development scenarios for the local area.

Stakeholder Consultation

The objectives for the stakeholder engagement was to generate feedback from stakeholders on the following topics: the existing LEP and DCP controls for the area and proposed amendments; Council's development plans for the area around Taylor's Lane; and DRAFT planning and development options to retain and incorporate existing trees along Taylors Lane.

Studio GL conducted two virtual workshops via Microsoft Teams, where 10 participants, comprising landowners and developers within the study area, expressed their ideas and concerns. These comments have been included in the review for each option.

Exploring Options

Initially Studio GL, in consultation with the Traffic Engineer and Landscape Architect, developed options for Taylors Lane and the local road network that could retain and integrate existing trees, as far as practicable, into future development.

Consideration was given to traffic impact, at a conceptual level, with all options being reviewed and assessed by the traffic engineer.

A table was developed outlining the costs/benefits/risks/opportunities for each option. This table was developed at a conceptual level only.

We have also incorporated the input from the Landscape Architect and Arborist to focus on the successful retention and integration of the existing trees into the future urban development.

Two additional options were proposed at a later stage. During the consultation, outlined in section 2-12, an additional option was added which was further revised and reviewed by the Traffic Engineer and Landscape Architect. Subsequently, Council proposed an option. The findings of the review, along with the detail of each option as well as stakeholder input is presented in Chapter 3.

1-3 Project Team




Urban Design Team- Studio GL

Studio GL is a boutique urban design consultancy that uses skilled expertise and knowledge to influence the creation of vibrant and successful cities, towns and neighbourhoods. Our work is a combination of urban design, architecture and strategic planning expertise. Our team brings a diversity of skills and experience of Australian, European and American practice.

Studio GL regularly collaborate with a wide range of companies, providing specialist advice on urban design and the strategic and spatial impacts of proposals.

Felicity is a founding Director of Studio GL and a registered Architect with over 25 years experience. Over the last seven years the majority of experience has been on projects for Councils relating to urban design outcomes.

Traffic Engineer- Henson Consulting

Henson Consulting was formed in 2011. Henson Consulting has undertaken a wide range of transport projects from site developments, rail and airport projects, expert witness and peer reviews.

Colin Henson is the Principal of Henson Consulting, and was a Principal of Arup with over thirty years experience of planning, transport and infrastructure projects. He has undertaken new town and transport infrastructure advice on over a dozen projects in Asia, southern Africa, and the Middle East. He has worked extensively with architectural teams on planning studies.

Colin has over thirty years of experience of traffic and transport for Councils including the Nowra Masterplan for Shoalhaven Council.

Landscape Architect- sym. Studio

sym. studio is a landscape architecture and urban design practice founded on five key principles - Innovation, Integrity, Accountability Excellence & Passion. We are passionate about our work and offer a contemporary voice for landscape architecture; a small, agile and fresh alternative to traditional companies.

Conrad is the Director of Landscape Architecture at sym. Studio with over 25 years experience and broad expertise from projects here in Australia, China and the United States, where he worked for over five years on many large scale public & commercial projects. Conrad spent most of his professional career with the EDAW(AECOM) Sydney and Denver offices. Specialty skills include overall project positioning, master planning, design & construction.

1-4 The Site

Taylors Lane is an existing road located in the suburb of Cambewarra, running west for approximately 1.3kms from an intersection with Moss Vale Road. The road is one of the planned access roads into the Moss Vale Road South Urban Release Area and links to the planned Far North Collector Road (FNCR) project which will connect Moss Vale Road with Illaroo Road at North Nowra. The area surrounding Taylors Lane is currently rural in character with generally large agricultural blocks. There are also a series of smaller 1 acre blocks either side of the lane.

The site is located to the west of the Princes Highway and to the south of Moss Vale Road. The area is edged by rural lands to the southwest, with Cambewarra Range Nature Reserve to the north west, which contains the peak of Cambewarra Mountain.

The study area includes the Moss Vale Road South Urban Release Area (MVRN URA), which is approximately 5 kms north-west of Nowra CBD. In 2014, the URA land was rezoned to provide for approximately 950 dwellings.

Figure 3 Taylors Lane Aerial (souce: nearmap, 2020)

CHAPTER 2

REVIEW AND ANALYSIS

2-1 Strategic Review

Shoalhaven Development Control Plan 2014 Chapter NB3: Moss Vale Road South Urban Release Area.

Author: Shoalhaven City Council (2019)

The Chapter NB3: Moss Vale Road South Urban Release Area identifies development controls applicable to all land within the URA. The intent of the document is to 'facilitate the development of land in the Moss Vale Road South Urban Release Area (URA) in accordance with the provisions of Part 6 of Shoalhaven Local Environmental Plan (LEP) 2014.'

The DCP provides detailed planning and design controls aimed at achieving a 'highly desirable urban area that complements its natural environment by building on significant assets including riparian corridors and elaborate views of natural features including creeks, sylvan backdrops and pastoral landscapes'. The document sets out key development outcomes to ensure housing diversity, a clear street hierarchy, and environmentally sustainable open spaces.

Provisions set out in the DCP illustrate an indicative Layout Plan (shown in Figure 4) which specifies the size and density of residential development across the URA and identifies the area of open spaces. Mandatory controls specify the size of lots which range from 300sqm (Small Lot Residential) along key routes running through the site to lots of over 500sqm located on the edges of the URA.

The street hierarchy shown (Figure 5) identifies a collector road which creates a loop intersecting with Moss Vale Road at both ends which services the future public transport route through the URA. A planned tree-lined boulevard running along the existing Taylors Lane alignment provides frontage for small lot residential developments with vehicle access from rear laneways. Local streets and laneways provide connections from the collector roads to the residential areas, which are all located within the 400m walking distance catchment area of the collector road.

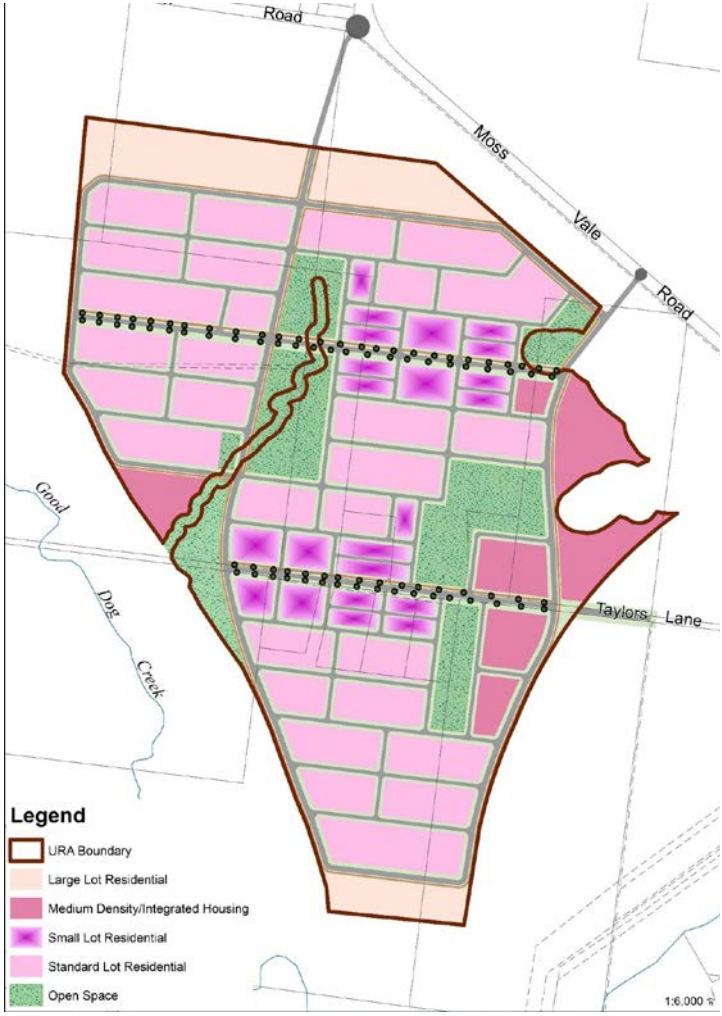


Figure 4 Indicative Layout Plan (MVRS URA DCP 2014)

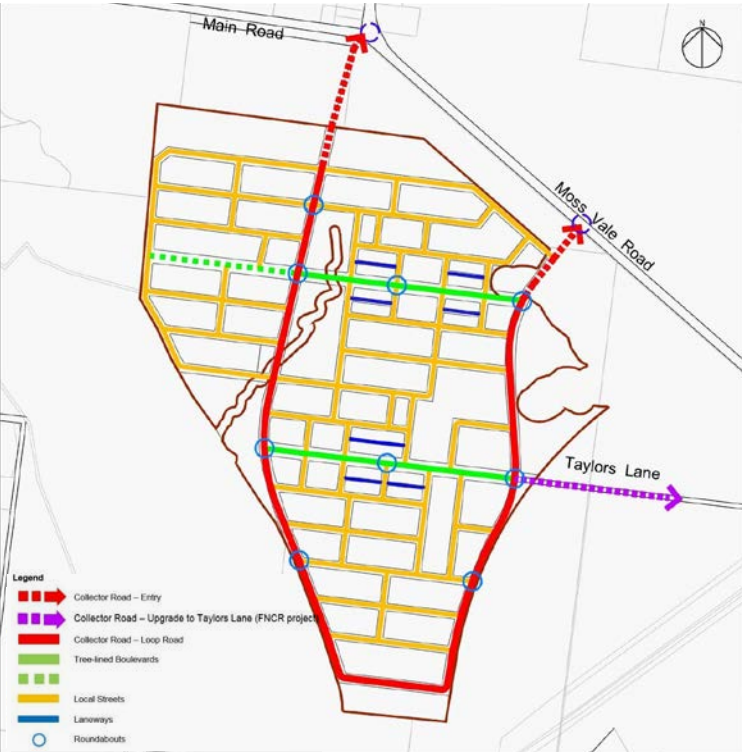


Figure 5 Street Hierarchy within the URA (MVRS URA DCP 2014)

The DCP identifies 2m wide shared pedestrian and cycle routes within the road reserves along tree-lined boulevards and the road network connecting through the open spaces shown in Figure 6.

A public domain landscape strategy identifies open spaces, scenic protection areas, proposed street trees and remnant vegetation within the URA. Provisions are set out for the protection of remnant vegetation and established trees and the proposed landscaping is to be designed in consideration of their retention in the public domain. Existing riparian zones and associated buffers are protected and enhanced to improve the ecological functions of the watercourses.

Relevance

The DCP plans for widening of Taylors Lane to form a tree-lined boulevard along the existing alignment. No provision has been made for retention of any trees within the road reserve, with new street trees proposed as part of the landscape strategy.

The DCP also only includes the western end of Taylors Lane, with the eastern section referenced as a Collector Road, to be upgraded as part of the FNCR project.

Figure 6 Public Domain Landscape Strategy (MVRS URA DCP 2014)

Planning Proposal: Moss Vale Road North Urban Release Area.

Author: Shoalhaven City Council (2020)

Figure 7 Proposed Indicative Layout Plan (MVRN URA Planning Proposal)

Council has prepared a planning proposal for the Moss Vale Road North Urban Release Area that seeks to adjust the zoning and other planning controls in Shoalhaven LEP 2014 to facilitate the development of this regionally significant release area.

The key development outcomes focus on providing housing diversity, a well-defined street hierarchy, a walkable activated retail centre, environmentally sustainable and adaptable open space areas and conservation of flora and fauna within riparian corridors. The planning proposal has received a gateway determination but is yet to be publicly exhibited.

The draft indicative layout plan (shown in Figure 7) provides for a mix of lot sizes to accommodate both low and medium densities throughout the URA. The plan also proposes to provide a village centre that will be a retail commercial and community destination for the surrounding residential areas. The URA has a planned yield of approximately 2500 dwellings.

The draft DCP identifies a collector road structure that enters and exits the Urban Release Area at Moss Vale Road, forming a loop through the release area via the village centre and Bells Lane. The collector roads would form part of the public transport route and cycleway network.

Relevance

This URA, along with the MVRS URA, forms the new urban area being developed either side of Moss Vale Road. The increase in housing and subsequent population will necessitate the upgrade of Taylors Lane as part of the collector road structure supporting the new urban area.

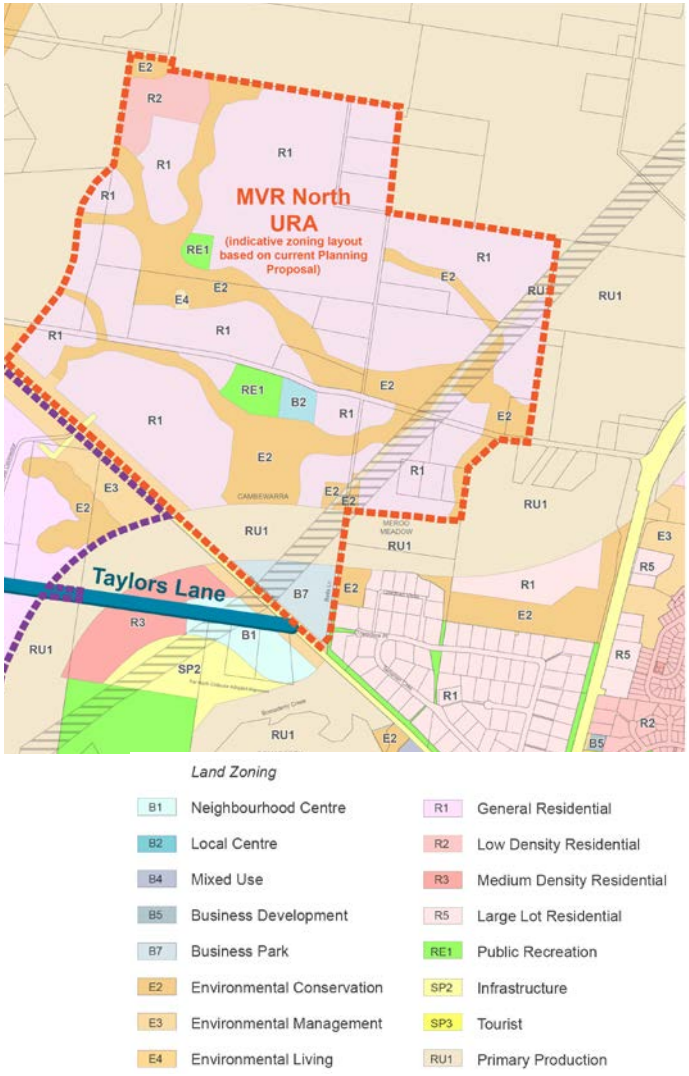
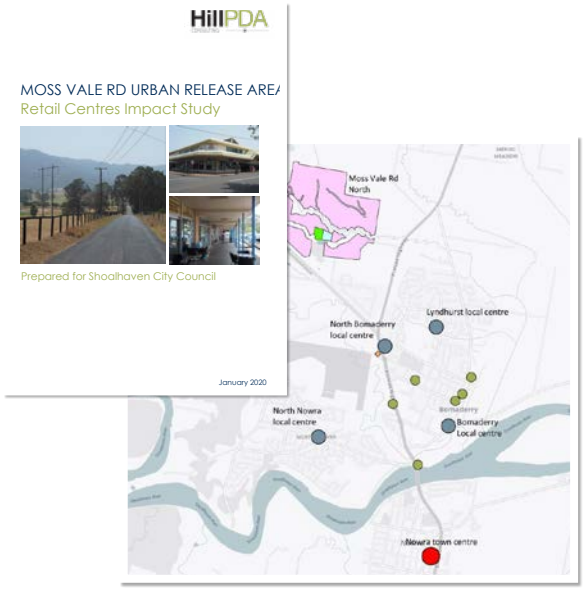


Figure 8 Indicative Zoning Layout (current Planning Proposal)

Moss Vale Road URA Retail Centres Impact Study

Author: HillPDA (2020)



As part of the MVRN URA planning proposal, Council engaged HillPDA to conduct a Retail Centres Impact Study for the MVR URA (both MVRN and MVRS). The study identified the amount and type of retail floorspace required to serve the future community of the MVR URA. The study analysed five potential locations for the local centre, and three different population scenarios. The study's findings informed the zoning of the village centre in MVRN URA.

The HillPDA study sets out 5 parameters to assess the suitability of the proposed location of a local centre. These include development area, location, exposure, accessibility, and walkable catchment. The study notes that given the anticipated additional population the release areas would benefit from the provision of additional retail services.

The study recommended that the best location for retail would be Site 5, which is outside the Urban Release Area, close to the emerging retail centre at the intersection of Moss Vale Road and Princes Highway (as shown in Figure 9), as it would attract passing trade.

If an additional centre was also proposed, it could be at Site 1 or 2 (within MVRN URA), but in this location it would have a reduced demand and therefore require less land (between 0.5 and 1ha) and support less GFA (between 1,000sqm and 2,000sqm).The planning proposal for MVRN URA includes a small retail centre at Site 1 or 2 due to the desire to provide a walkable village centre at this location.

Site 4, which is located at the intersection of Taylors Lane and Moss Vale Road scored high for location as it is off an arterial road, but scored low on walkability, which is a key criteria for adding amenity to the URA. Without a viable retail/

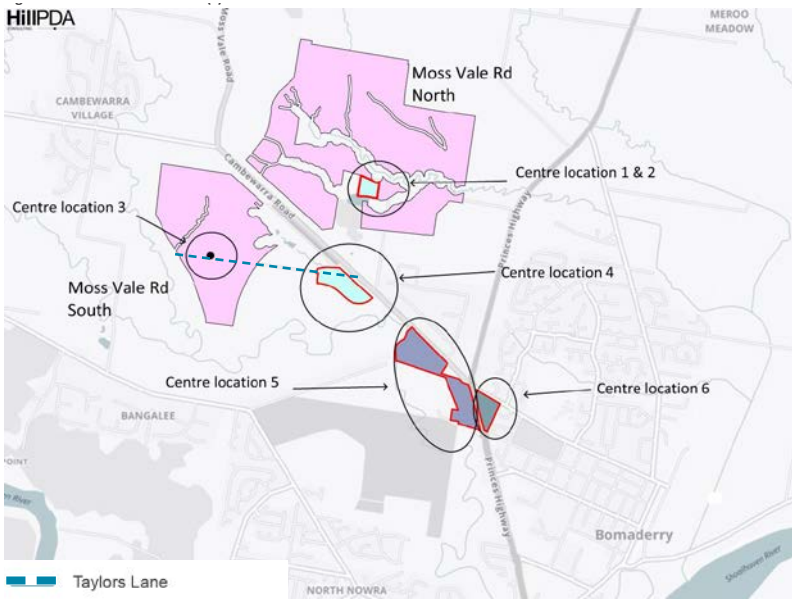


Figure 9 Location of potential retail centres

commercial component at the intersection, the existing B1 zoning is not considered appropriate and could be amended to better support the URA.

Relevance

Site 4 sits at the termination of Taylors Lane. If a B1 Neighbourhood Centre zoning is no longer appropriate, other zoning can be considered.

2-2 Existing LEP Zoning

The site is subject to the Shoalhaven Local Environmental Plan (SLEP) 2014. The predominant land use zoning along Taylors Lane is R1 General Residential, within MVRS URA. The objectives of this zone are:

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To identify land suitable for future urban expansion

The focus of this zoning is on the provision of residential dwelling houses, but a range of other uses are permitted with consent, including Boarding houses, Centre-based child care facilities, Hostels, Community facilities, Dual occupancies, Office premises, Residential flat buildings, Semi-detached dwelling, Seniors Housing, Multi dwelling housing, Dwelling houses, Neighbourhood shops and Recreation areas.

A small portion of Taylors Lane, where it intersects with Moss Vale Road is zoned E3 Environmental Management and small areas to the northeast and west of the URA are zoned E2 Environmental Conservation.

The eastern portions of Taylors Lane are zoned B1 Neighbourhood Centre, R3 Medium Density Residential and SP2 Educational Establishment. These zones are related, as additional density (R3) is desirable adjacent to retail (B1) and community facilities. The remainder of Taylors Lane is zoned RU1, for primary production (farming). This is a part of a corridor which is being preserved for a possible future western bypass of Nowra-Bomaderry.

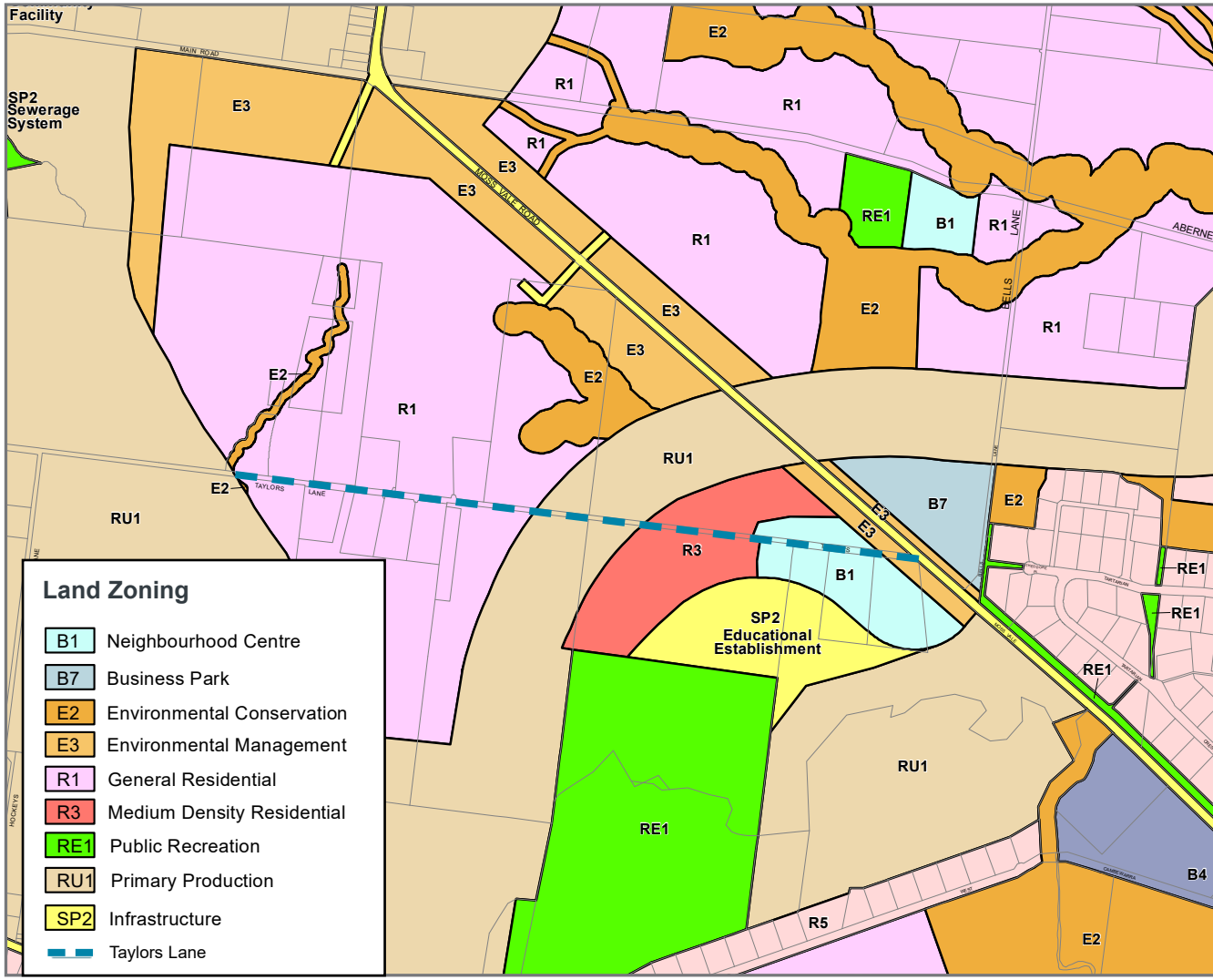


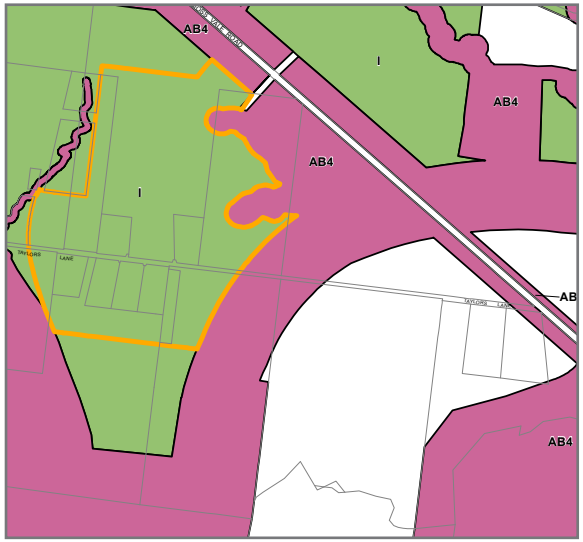
Figure 10 LEP Land Zoning

Minimum lot size is established by the Shoalhaven LEP 2014 and relates to the resultant size of a lot after subdivision. The objectives of this control are:

- to ensure that subdivision is compatible with, and reinforces the predominant or historic subdivision pattern and character of, an area,
- to minimise any likely impact of subdivision and development on the amenity of neighbouring properties,
- to ensure that lot sizes and dimensions are able to accommodate development consistent with relevant development controls.

The minimum lot size for the URA is 500 m^2 generally, with potential for lots down to 300 m^2 in certain high amenity locations, which includes the land either side of Taylors Lane, which is a planned tree-lined boulevard. The minimum lot size for the surrounding area zoned RU1 Primary Production, E2 Environmental Conservation or E3 Environmental Management is 400000 m^2.

The controls set for riparian land and watercourses apply to all land identified on the map and within 50 metres of the top of the bank of each watercourse. There is an area designated as Category 2 located north east of the URA running parallel to Moss Vale Road and a Watercourse Category 3 land located north west of the URA running south west.



Minimum Lot Size

I 500

AB4 400000 (40ha)

Refer to Clause 4.1H

There are currently no identified heritage items or heritage conservation areas in the immediate area around Taylors Lane. The LEP also does not stipulate a maximum building height or FSR controls for any of this land.

Riparian Lands and Watercourses

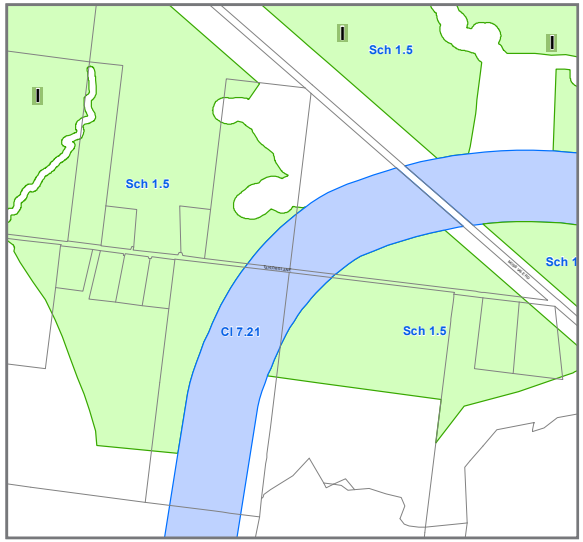
Watercourse Category 1

Watercourse Category 2

Watercourse Category 3

Two mitigating clauses have been identified within the subject area. Clause 7.21 ensures the protection for future use of the identified land on the map as a transport corridor and prohibits any development that would have adverse visual, acoustic or environmental impacts on the land within the vicinity of the Western Bypass Corridor. Schedule 1.5 permits development (with consent) for the purposes of office premises and service stations within the URA and the land around the eastern end of Taylors Lane.

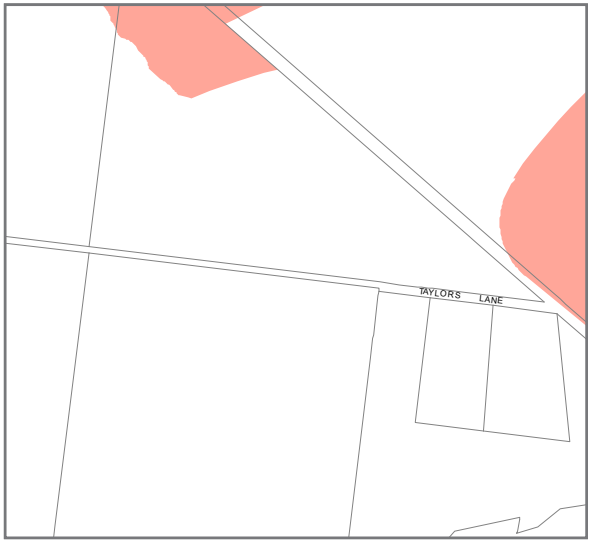
An area of land located to the north of the URA along Moss Vale Road has been identified to have high scenic value. Controls are set to protect the natural environmental and scenic amenity of the land. Any new development on the land is to be assessed for its siting, visual impact when viewed from a public place, and extent of landscaping.



Clauses

Cl 7.21 Development on land in the vicinity of the Western Bypass Corridor

Sch 1.5 Additional Permitted Uses



Scenic Protection Area

Scenic Protection

2-3 Context Plan

This context plan gives a wider view of the location of Taylors Lane, and its context. This area is planned as the location for two large Urban Release Areas (URA's), comprising both a northern and a southern section. These URA's will provide significant opportunities for residential dwellings, along with associated open spaces, and retail business areas. There is also space allocated for environmental conservation and management, especially for riparian areas and creek corridors. The proximity of this development, to the emerging retail area of North Bomaderry, is also illustrated.

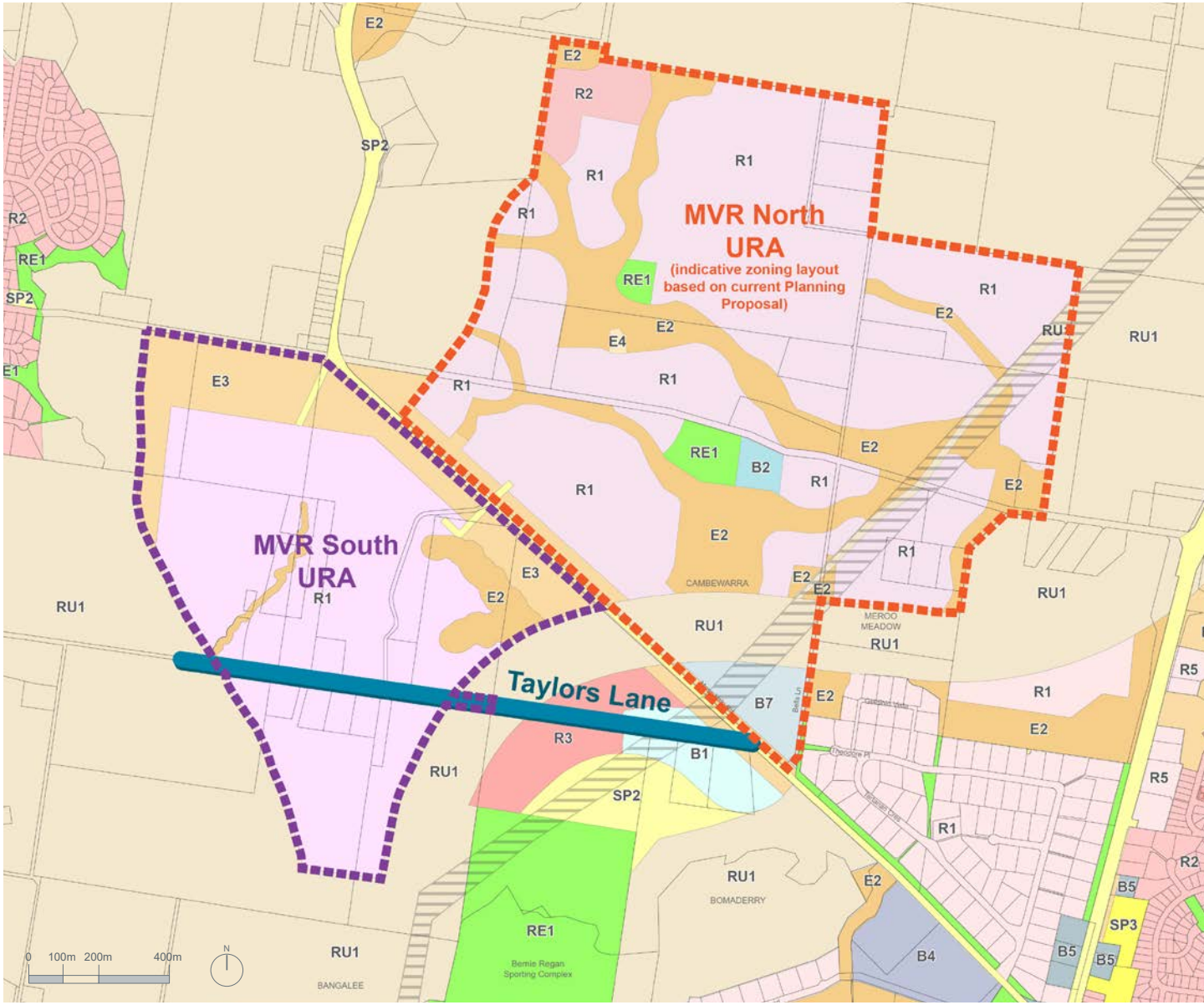


Figure 11 Context plan

Taylors Lane
Moss Vale South URA subject land boui
Moss Vale North URA subject land bour
Easement

Land Zoning

B1	Neighbourhood Centre	R1	General Residential
B2	Local Centre	R2	Low Density Residential
B4	Mixed Use	R3	Medium Density Residential
B5	Business Development	R5	Large Lot Residential
B7	Business Park	RE1	Public Recreation
E2	Environmental Conservation	SP2	Infrastructure
E3	Environmental Management	SP3	Tourist
E4	Environmental Living	RU1	Primary Production

2-4 Key Road Network

Associated with the development of both the north and south URA, is the development of a new road network to meet the needs of the growing population. Within the MVRN URA the indicative key roads loop from Moss Vale Rd, into the centre of the URA, accessing the proposed retail centre, and then back to Moss Vale Rd. In the MVRS URA, the main connector roads also loop from Moss Vale Rd, down to the western section of Taylors Lane that lies centrally within the URA, and then back to Moss Vale Rd.

Other important connections relate to the Far North Collector Road (FNC), which is proposed to run from Illaroo Rd to Moss Vale Rd, with a connection spur to the MVRS URA, via Taylors Lane.

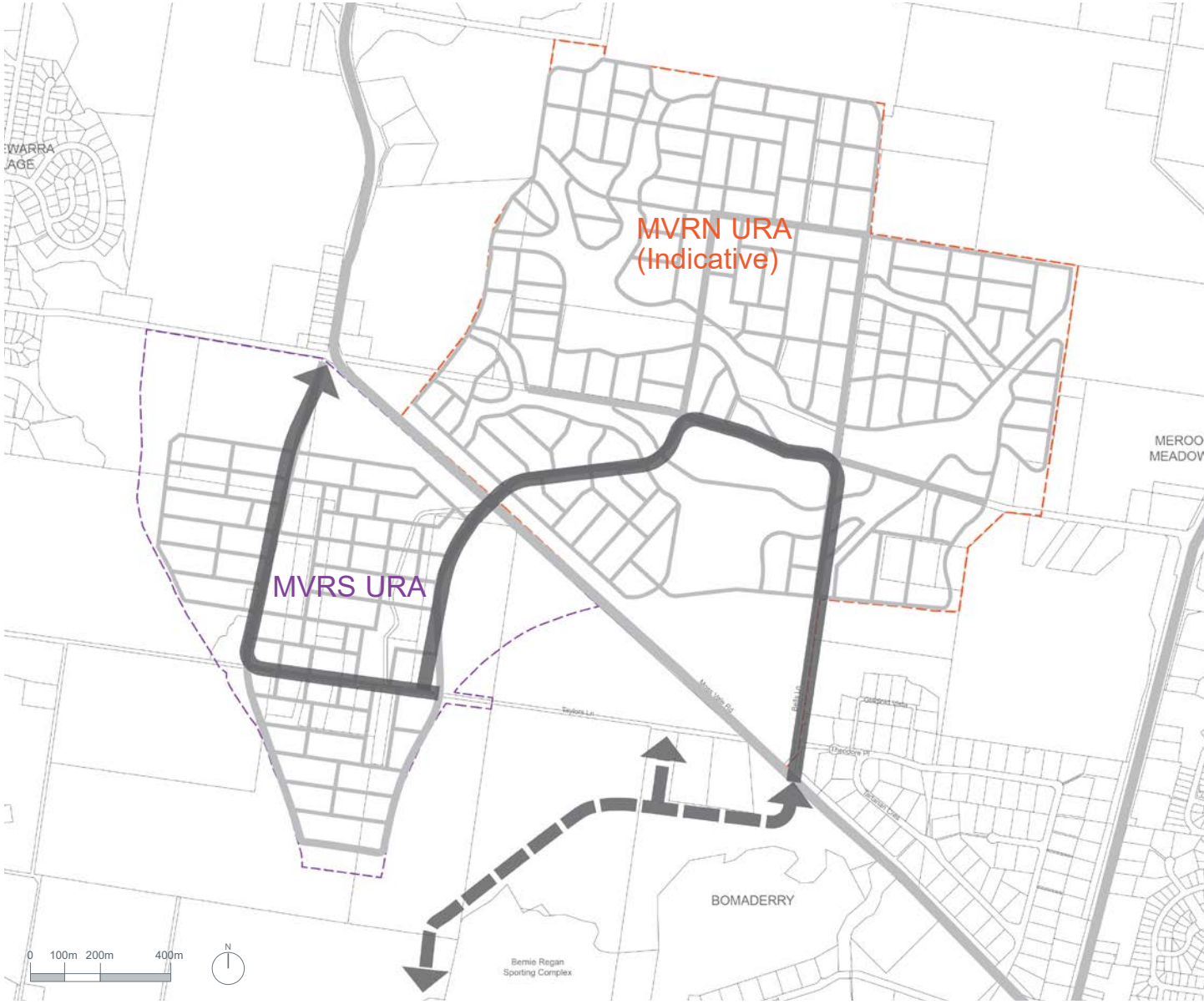


Figure 12 Key Road Network diagram

2-5 Bike/ Pedestrian Network

The bicycle and pedestrian network within the URA's comprises both a local component and a commuter component. The local component utilises new roads to provide safe cycling and walking opportunities, and encourages residents to use these active transport options for short trips within and around the URA's. The commuter network is a wider system of paths that encourages residents to cycle to and from work. This network is more focused on access to Bomaderry and Nowra, and feeds into the local network when it reaches the residential areas within the URA's. Part of this network has been identified within the service easements that run through this area.

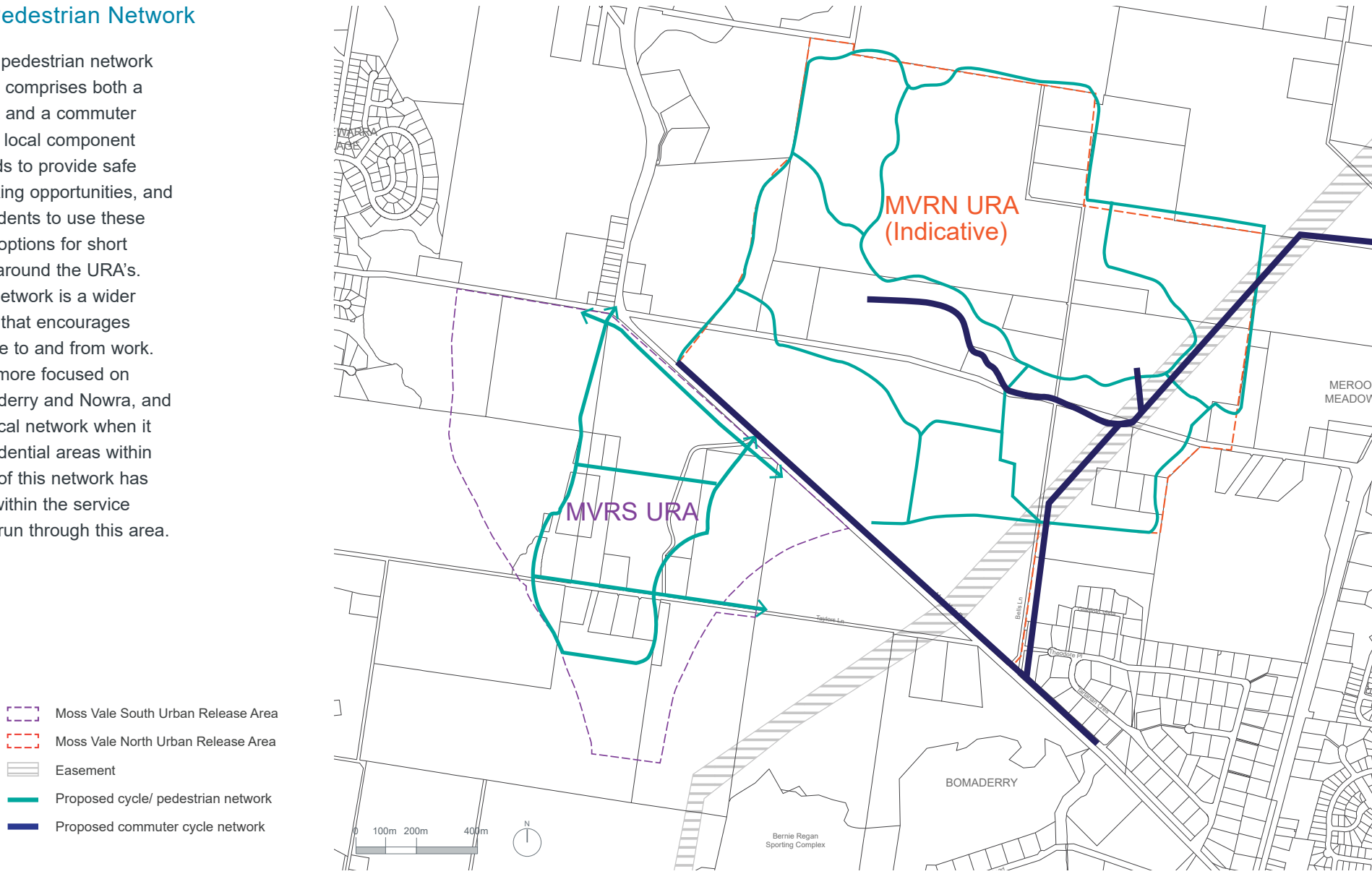


Figure 13 Bike/ Pedestrian network diagram

2-6 Green Network & Passive Recreation

Significant areas within each of the URAs has been dedicated to green spaces and passive recreation. These spaces are often also areas of riparian habitat, or drainage lines following creeks. Some of these areas form part of the flood mitigation and management strategy for this area, which is close to the flood plains of Bomaderry Creek.

The provision of green areas within the URA is also important for the overall health and well-being of the future residents, as they provide spaces for children to play, for dog walking, for exercise, or for enjoyment of the natural setting.

Figure 14 Green network diagram

2-7 Site Photos

Looking west aloong Taylors Lane showing tall trees along either side of the road forming a corridor and canopy of vegetation.

Distant escarpment views across cleared pasture from along Taylors Lane.

View within tree corridor along Taylors Lane looking east.

Tall, mature vegetation along Taylors Lane.

Turn off to Taylors Lane from Moss Vale Road.

(Source: Google Streetview)

Termination of sealed road providing driveway access to Taylors Lane properties.

Existing driveway access to 49 Taylors Lane.

Existing driveway access to 126 Taylors Lane.

2-8 Existing Conditions

Overhead power lines crossing Taylors Lane

Easement (Gas & Electricity)

An approximately 80m wide electricity and gas easement extends north-east to south-west across Taylors Lane.

Restrictions apply to potential development and civil works within the easement which currently contains large overhead power lines and a buried regional gas line.

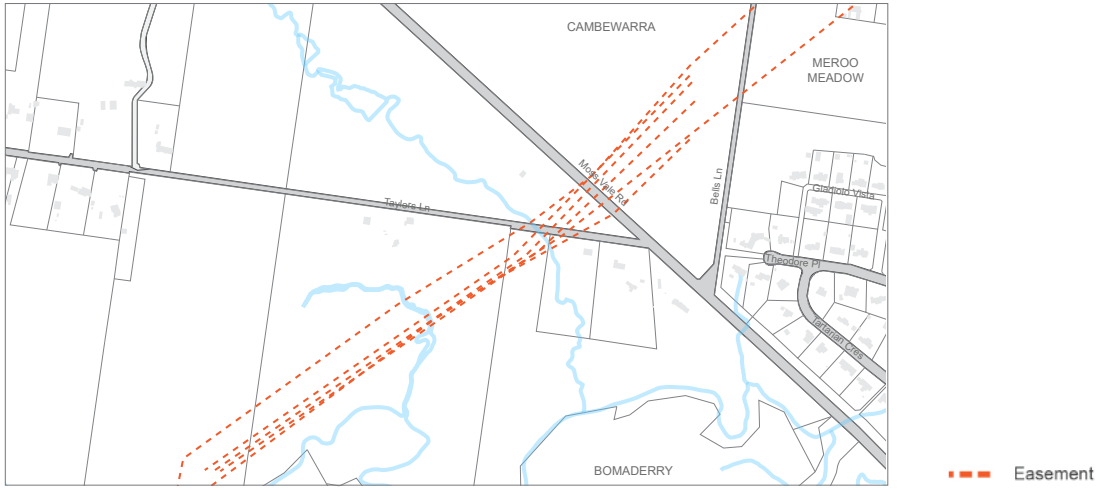


Figure 15 Easement location diagram

Tributaries of Bomaderry Creek north of Taylors Lane

Flooding

The majority of Taylors Lane is not classified as flood prone land, although there is a small section at the eastern end.

To the south of Taylors Lane is a large flood plain that extends along Bomaderry Creek.

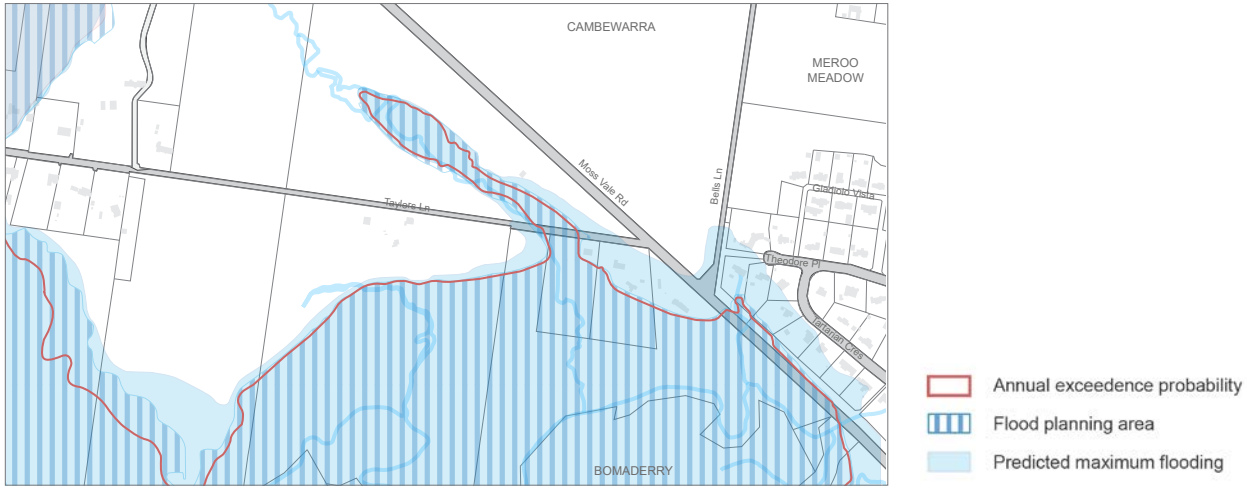


Figure 16 Flood extent diagram

Spotted Gum trees on either side of Taylors Lane.

Landscape

The area has generally been cleared for grazing however remnant, tall Spotted Gum trees line a stretch of Taylors Lane.

A large area of RE1 (Public Open Space) is located to the south of Taylors Lane and includes the Bernie Regan Sporting Complex.

Figure 17 Indicative landscape diagram

Completed kerbing on the new roundabout at Illaroo Road and West Cambewarra Road as part of the Far North Collector Road.
(Dec 2020, source: Shoalhaven City Council)

Access and Movement

The adopted Far North Collector Road connects into Taylors Lane and Moss Vale Road from the south.

Proposed bus and cycle routes are identified in the Moss Vale Road South Urban Release Area DCP to the west of Taylors Lane.

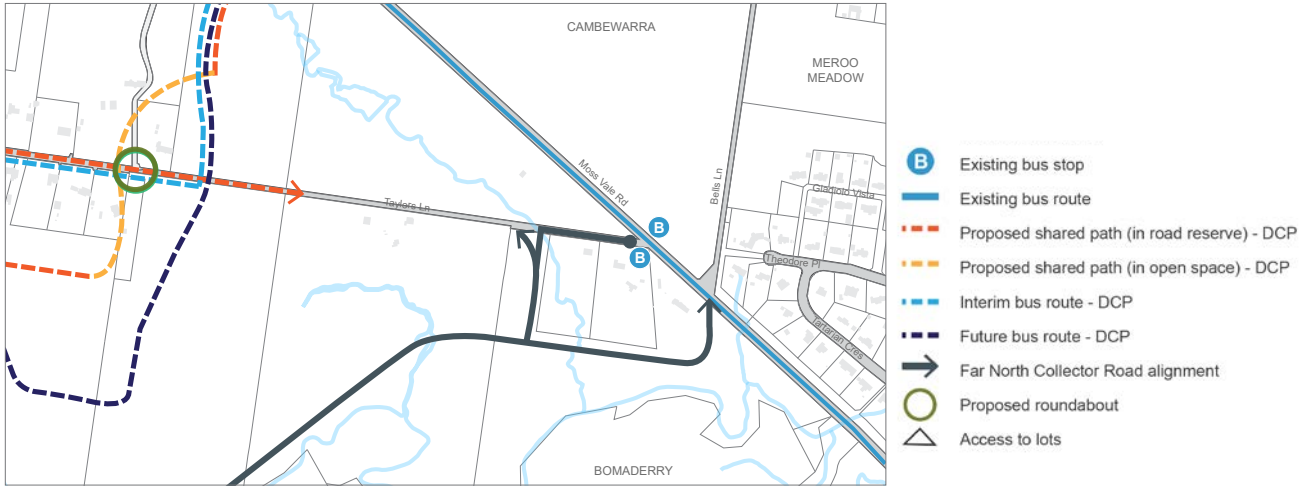


Figure 18 Existing and planned active transport diagram

Existing rural lands around Taylors Lane

Land Zoning

At the western end of Taylors Lane is a large R1 General Residential zoning forming the MVRS URA. This R1 zone is bound by RU1 Primary Production and E2 Environmental Conservation areas.

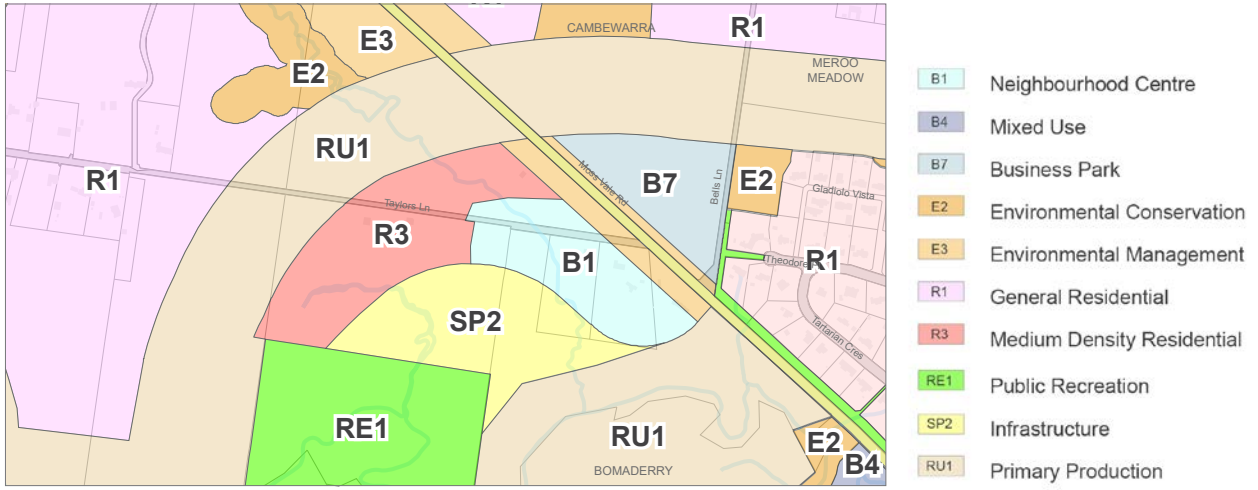


Figure 19 Land zoning diagram

Recent subdivision and development in Tullimbar, Shellharbour NSW (source: nearmaps)

Development plans and progress

The Moss Vale Road South Urban Release Area includes a collection of development applications for subdivision at varied stages of planning and approval.

As more plans are approved, the window of opportunity to impact the big picture planning and infrastructure of the area reduces.

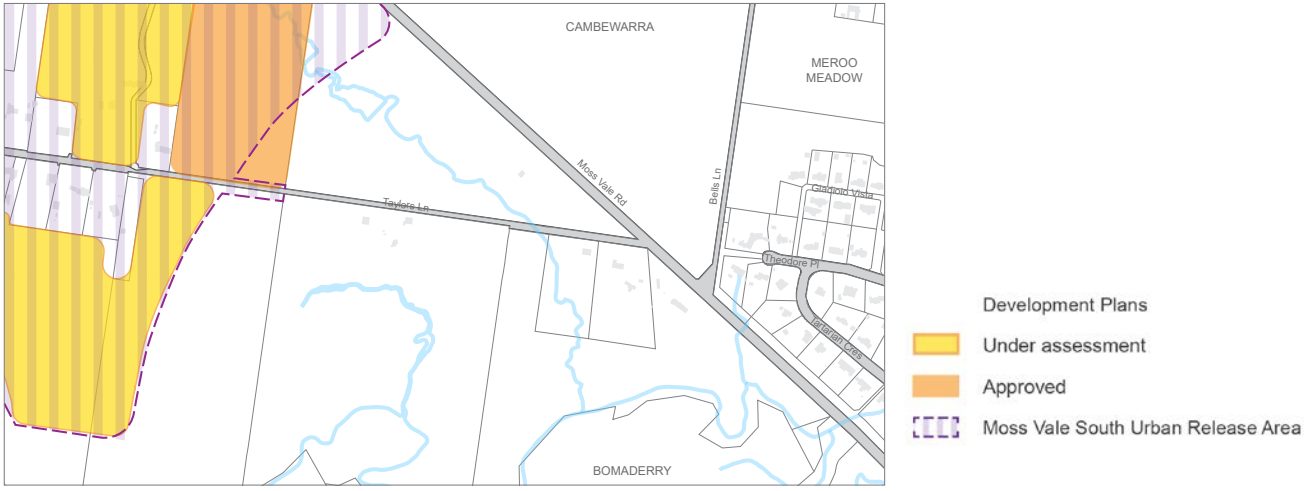


Figure 20 Indicative development applications in progress

2-9 Existing Trees and TPZ Provisions

The following references Council's Arborist report and information provided by the Sym Studio & Arborist Alexis Anderson (Bluegum Arboriculture).

Tree Type, Age & Life Expectancy

The identified trees along Taylors Lane are Corymbia maculata (Spotted Gum), the oldest specimens (+/-qty. 2) of which are identified as approximately 100-150 years old. These trees are known to live for up to 200-300 years on the south coast of NSW and are regarded as having the potential to live as long as any other (native canopy trees) in Australia.

Size

A selected giant tree is 44 metres in height, other typical examples are 35m to 40 metres tall. The average height on the south side is in the high 30m's, while averaged heights on the north side range between 37 to 40m tall.

Tree Locations

The location of individual trees indicates they potentially functioned as a wind break for surrounding farmland. There are long established trees well into maturity on the south side and fewer botanically senile/aged trees or early-mature trees in this lineup compared to those on the north side. The trees on the north side are more widely spaced in places. The tree roots would be grafted together therefore they should be treated as interdependent groups. These form stands of similar trees with a virtual absence of other 'Large Canopy species' resulting from a lack of space which would normally support a diversity of plant /tree community.

Condition

As mentioned in the Council's Arborist report, despite some degraded condition of the trees on the south side due to termite degradation, the trees are in satisfactory condition with no signs of progressive dieback or decline. Similarly, the trees on the north side appear to have random lesions and several large fractured stubs due to termites and high winds. However, they have adequate projected life expectancy and are in an acceptable condition with a projected lifespan to retain if desired.

Tree Removal and Disturbance 'Edge Effect'

It should be noted that if certain trees are removed it may 'open up' the remaining trees to the increased risk of damage since these edges have not 'hardened off'.

If trees are to be removed the Arboricultural preference would be removal on the side exposed to greatest destructive winds - Nowra data indicates that winds over 40km'Hr are most frequent from the west.

Risks as a Bicycle /pedestrian path

There is some concern about the volume of deadwood in the canopy that may prohibit its use as a high use pathway. It was noted that there is not much difference to the situation of Narrabeen Lake recreational trail and could be managed at a reasonable cost to council. The Arboricultural advice here is that this should be assessed following construction and may require a 3-5 year on-going plan.

TPZ Provisions

The Council's Arborist report recommends an average of 9 -10m TPZ radius around the trunk of the south side trees and 9m radius around the trunk of the north side trees. During construction, this radius is to be marked by a steel mesh fence.

Information provided by Bluegum Arboriculture recommends that, in order to prevent future disruption to tree health, maintaining a 12-15m TPZ radius would likely result in no notable impact. As a compromise a 13m TPZ is proposed in the options presented.

The TPZ outlines the total exclusion zone which restricts works such as "level changes, cut, fill, trenching for underground services, hard surfacing (e.g. concrete), dumping of excavated material, storage of construction materials, parking of vehicles, clean-up & washdown, fuel storage." Permitted permanent development includes soft landscaping, interlocking "dry" paving, decking, and elevated pier & beam footings.

2-10 Constraints Diagram

This diagram draws together all the constraints that impact the future of Taylors Lane. The extent of flooding is prominent, as is the prevalence of trees along the laneway. It also illustrates the challenges posed by the disparity between large lots and smaller lots, located fronting the lane. The zoning of land within the area was amended to encourage development, mainly for residential uses, but also for educational and business (retail) uses, along with some medium density residential proposed close to Moss Vale Road.

Allowance has been made for future infrastructure, such as the bypass corridor, which currently is zoned RU1, and continues to operate as rural production. Also indicated are the easements for services, being a regional underground gas line and overhead electricity lines. The current alignment of the Far North Collector Road project, with its associated works proposed along Taylors Lane, is also a constraint within this area.

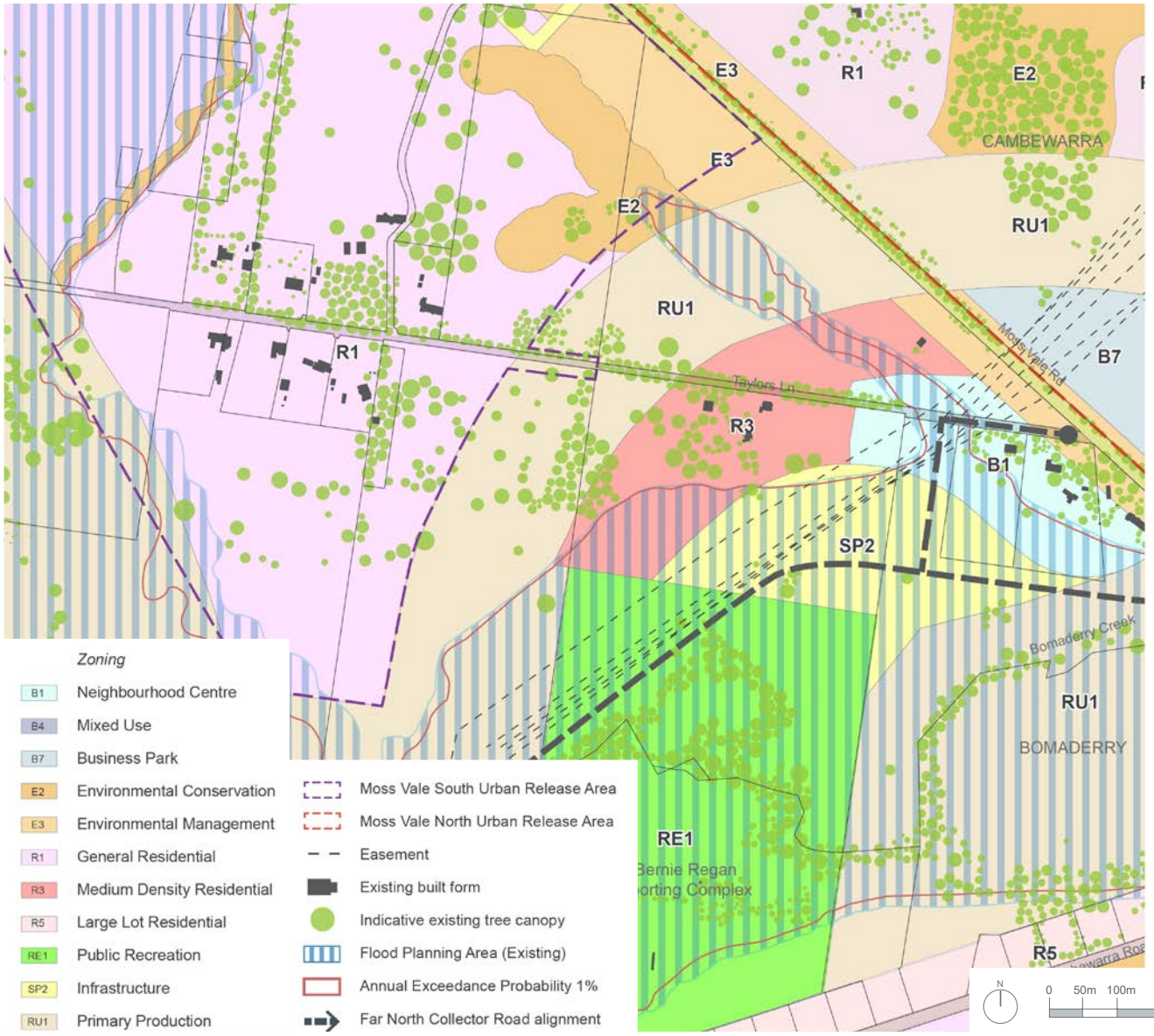


Figure 22 Consolidated constraints diagram

2-11 Traffic Data Review

50km/h speed limit signage along Taylors Lane

Narrow traffic lane within tree grove

Context

Taylors Lane is currently a local road formed for about 1.3km serving several dozen large residential properties and farms. It is a single narrow carriageway paved for one traffic lane each way, with local narrowing to a single traffic lane 5m wide between trees and a narrowest point of 3.0m between trees within a row of large trees on both sides of the road, within the variable 10m wide existing road reserve. There are informal passing places. The designated speed limit is 50km/h. There is no footpath, no constructed drainage, no street lighting and no designated on-road parking - pedestrians and cyclists must use the carriageway.

In addition to the local transport access value to the abutting properties, we understand that Taylors Lane is highly valued by the community as a picturesque road in a grove of trees which form a closed canopy across the carriageway. The scenic quality has featured in local photography and wedding photographs over decades.

Road Safety

There are no recorded traffic crashes in the reported crash data base for the past 5 years (RMS Crash History July 2014-June 2019) provided by Council. This low reported crash rate may be due to a combination of low traffic volumes, use by locals familiar with the road layout, and that the perceived danger of the narrow road causes road users to take extra care.

Given the non-compliant geometry of the road, more road crashes could be expected if the road is not significantly upgraded to accommodate future urban release area traffic volume growth.

Existing Road Use

No recent counts of the use of Taylors Lane were available from Council or other sources. Site inspections suggested weekday peak hour traffic volumes on Taylors Lane near Moss Vale Road are in the order of 20 vehicles per hour (vpd), factored to an estimate of 200 vpd. This traffic was predominantly cars, with some heavy vehicles and farm machinery depending on seasonal activities. There were very few pedestrians, cyclists or buses.

Moss Vale Road (B73/MR271) connects Nowra and Bomaderry to Cambewarra and north to Kangaroo Valley and the Southern Highlands and carried approximately 4000 vpd based on an REF in 2005 for works in the Kangaroo Valley, and 5550 vpd north of Cambewarra Road in 2007 and has increased since.

For comparison The Princes Highway Corridor Strategy included 2013 highway (SH1) traffic south of Shoalhaven River Bridge of 47 544 average daily traffic, 1886 average heavy traffic volume, and 4.0% heavy vehicles.

2-12 Traffic Forecast Development

Future Road Use

The future role of Taylors Lane, planned by Council, is to connect the new local residential and development areas of Cambewarra to North Nowra and Bomaderry via the Far North Collector Road. It will provide an alternate access/ egress route from MVRS and alleviate traffic levels on Moss Vale Road.

In the two options, previously exhibited by Council, the Moss Vale Road/Taylors Lane intersection would be closed, with alternative access via a link road extended south to a new intersection with the Far North Collector Road. The eastern end of Taylors Lane would become a cul-de-sac providing access to the existing properties at that location.

In the long term there could potentially be a connection to the Western Bypass, a motorway-standard Princes Highway town bypass to the west of Nowra via a new western bridge over the Shoalhaven River. Construction of this Motorway in its planned reservation would likely require removal of trees within the motorway reservation where it crosses along Taylors Lane (see Figure 25 Structure Plan below). The delivery of a Western Bypass ultimately relies on State and/ or Federal Government funding. At this time there is no commitment from either level of government to fund or progress the project.

The Moss Vale Road South Urban Release Area has provision for approximately 950 dwellings (Illawarra Shoalhaven Urban Development Update 2016).

Traffic modelling of the Cambewarra area undertaken by Council (Council email and spreadsheet showing minimum projected traffic volume on Taylors Lane as 1684 vpd) suggests that forecast traffic volumes could grow to 3 900 vehicles per day, but more realistically 3000 vpd including construction traffic for many years, warranting a collector road type with one traffic lane in each direction along the Taylors Lane alignment.

“Upgrade of Taylors Lane to the Moss Vale Road South Urban Release Area (URA) boundary - up to 900m approximately of road upgrade along Taylors Lane (2 lanes, 2 way) to DCP requirements including a pedestrian / cyclist shared use path. To comply with the relevant Development Control Plan (DCP), the road requires widening to 20m (including allowance for shared user paths).”

The Council advises that Taylors Lane is also likely to form part of the future Cambewarra bus route.

Options for alternate connection are illustrated in further detail in Chapter 3.

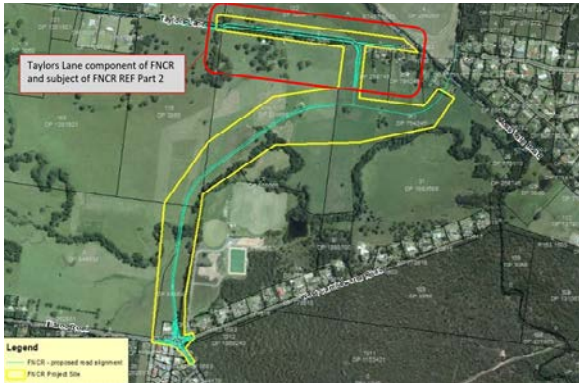


Figure 23 Far North Collector Road network showing Taylors Lane component

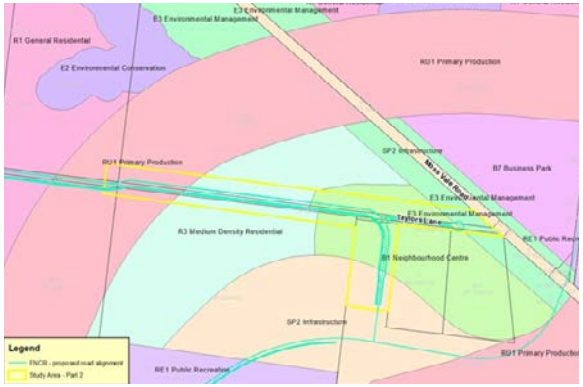


Figure 24 Land zoning over Taylors Lane upgrade area

2-11 Traffic Forecast Development

Initial Assessment

There is a fundamental conflict between retaining the existing trees and meeting the future transport demand including buses and heavy vehicles with a collector road along the current Taylors Lane carriageway.

The collector road will be needed in future to connect MVRS URA to external areas via the FNCR.

The collector road would cross the possible future Western Bypass of Nowra, likely as a bridge over the motorway, with some loss of existing trees along Taylors Lane. It seems likely that the collector road would not intersect with the bypass traffic, and that the bypass traffic interchange would more likely be with Moss Vale Road or the FNCR. The proposed alignment of roads related to Taylors Lane utilise geometries that are constrained by the existing road alignment.

Subject to other considerations such as flooding and geotechnical constraints, an alternative alignment of the new collector road south of the existing Taylors Lane trees would have advantages: a shorter overall route and less vehicle kilometres travelled for general traffic and for buses, a less acute angle with the future bypass thereby allowing a shorter and less expensive bridge or tunnel, and preservation of the community value of the existing Taylors Lane glade as a scenic Active Transport route for pedestrians and cyclists from the new subdivision. This might be included in a “green bridge” over the future bypass. Access for the properties at the east end of Taylors Lane would need to be provided by a separate local access road, possibly increasing the length of new road to be constructed.

Related issues

Issues for further consideration in the evaluation of design options include the widening of the road reserve, relocation of the road reserve across private properties, access to properties, access to future development, traffic impacts on the broader planned road network, wider environmental issues such as flora and fauna, geotechnical constraints, and flooding and drainage impacts in new road reserves, survey, design, project development, and land acquisition. Other issues include falling tree limbs for users of the existing lane, tree maintenance costs, street lighting, considerations for future development close to the existing trees, and other cost implications.

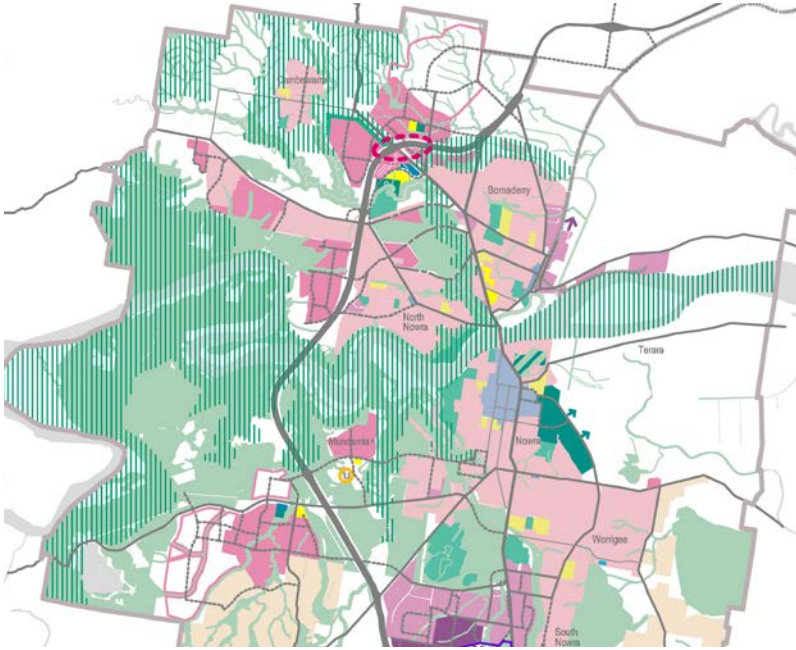


Figure 25 Nowra/ Bomaderry Structure Plan (2008)

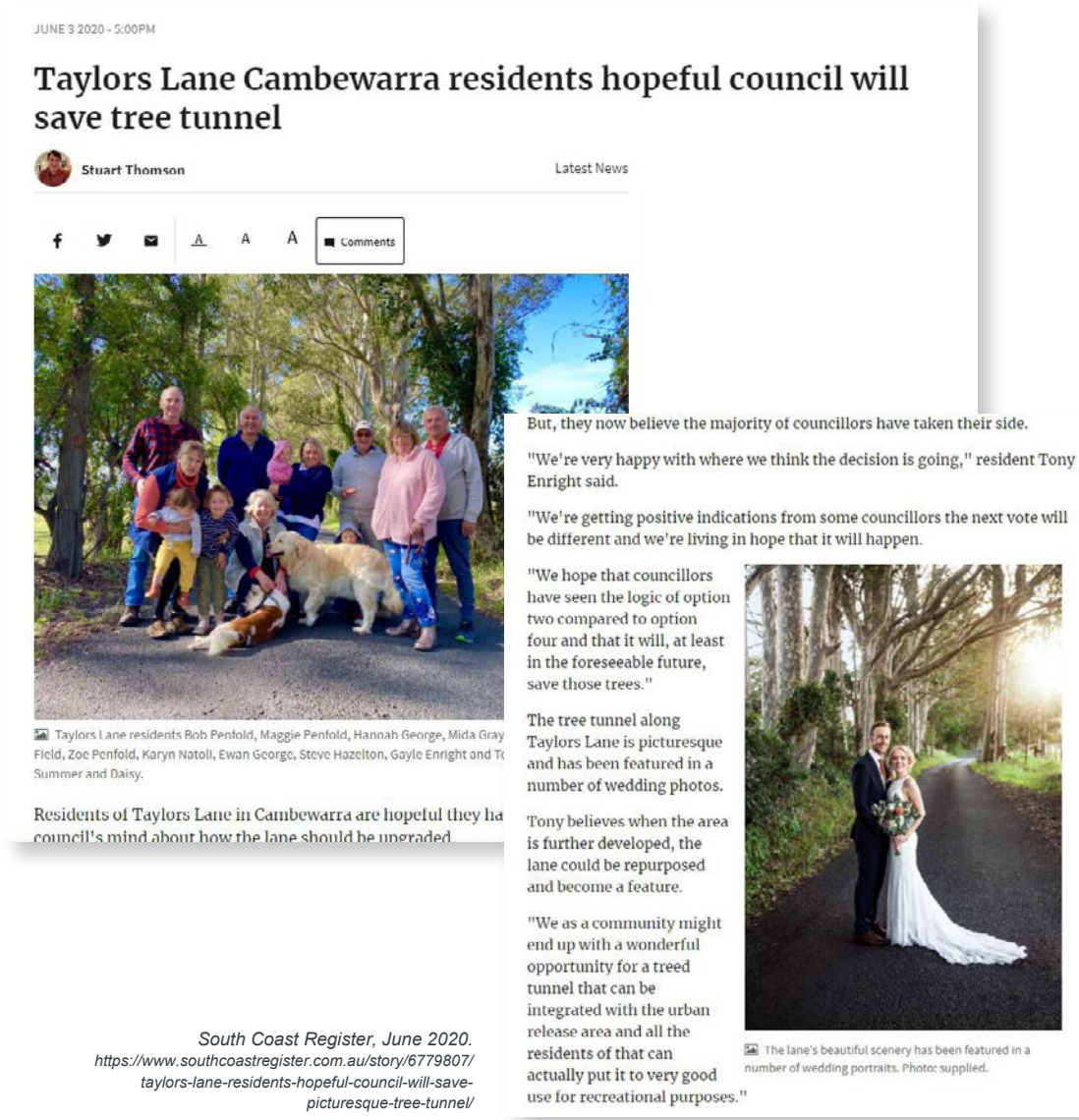
2-13 Stakeholder Input

Recent lodgement of development applications for a few of the larger sites along Taylors Lane has drawn attention to the implications of the existing zoning of this area, along with the impact of the future development on the existing trees that line this narrow laneway. Local media has presented the concerns of local residents that these trees are a local landmark, and their removal would result in a poor outcome for the general area.

Studio GL's engagement is focused on the development of options that would enable the trees to remain. As part of the consideration of these ideas, two workshops were held for directly affected local stakeholders. In total 10 people attended, comprising current owners of land around Taylors Lane and representatives of companies with plans to develop within MVRS URA.

The objective of these workshops was to gain feedback from these stakeholders on the existing LEP and DCP controls, proposed amendments to the controls, and options for the future of this area that would enable the trees to be retained.

The following comments were of a general nature, specific comments relating to the various options presented are included with the relevant option in Chapter Three.



JUNE 3 2020 - 5:00PM

Taylors Lane Cambewarra residents hopeful council will save tree tunnel

Stuart Thomson — Latest News

A A A Comments

Taylors Lane residents Bob Penfold, Maggie Penfold, Hannah George, Mida Gray Field, Zoe Penfold, Karyn Natoli, Ewan George, Steve Hazelton, Gayle Enright and Tc Summer and Daisy.

Residents of Taylors Lane in Cambewarra are hopeful they ha council's mind about how the lane should be upgraded

But, they now believe the majority of councillors have taken their side.

"We're very happy with where we think the decision is going," resident Tony Enright said.

"We're getting positive indications from some councillors the next vote will be different and we're living in hope that it will happen.

"We hope that councillors have seen the logic of option two compared to option four and that it will, at least in the foreseeable future, save those trees."

The tree tunnel along Taylors Lane is picturesque and has been featured in a number of wedding photos.

Tony believes when the area is further developed, the lane could be repurposed and become a feature.

"We as a community might end up with a wonderful opportunity for a treed tunnel that can be integrated with the urban release area and all the residents of that can actually put it to very good use for recreational purposes."

The lane's beautiful scenery has been featured in a number of wedding portraits. Photo: supplied.

South Coast Register, June 2020.
https://www.southcoastregister.com.au/story/6779807/taylors-lane-residents-hopeful-council-will-save-picturesque-tree-tunnel/

Stakeholder Comments - General
Taylors Lane and Moss Vale Road intersection is best used as residential zoning, extending the zoning from MVRN and MVRS. Creating a B2 Neighbourhood Centre zoning would be unnecessary duplication of what's already there and working at North Bomaderry. B4 zoning near Bomaderry Centre has new investment by Coles for redevelopment.
Higher density could be a viable option for the intersection, so it does not compete with the URAs. Landscaping could be added to buffer the development and improve the amenity of the area from the busy Moss Vale Road.
Green network plan is a great idea.
Far North Collector would change the flooding implications for the area south of Taylors Lane - it will reduce the area impacted by flooding, allowing more development opportunities.
Shared path along Taylors Lane East is a great use of the infrastructure - the value of this idea is only if this section is connected into the bigger network into the easement and pedestrian/cycle bridge to prevent disuse and isolation of that section of Taylors Lane.
Would creating an active transport link be the best use of the treed lane? How can the space adjacent to the trees be protected?
Why does the big picture planning have to happen now; wouldn't it be beneficial to do this once some DAs have been submitted to Council?
The decision on which option is selected would be determined by timing as well, as the federal government is funding the development of Taylors Lane.
Concerns over why the power and gas lines are not being tapped into for the URA developments.
Taylors Lane residents will need to have alternative access to either MV Rd, or FNC via various sections of the URA loop road during and after any major works on the treed section of Taylors Lane.
The east end of Taylors Lane should remain as is for as long as possible, and only be upgraded as necessary to integrate with the surrounding development. It does not need to replicate the tree lined boulevard of the URA. When alternative access for the residents is available, the existing tunnel area could be integrated as an internal roadway in the R3 development, with as many trees as possible retained.
Council should develop a likely timeline for all aspects, URA, FNC, Medium Density Development,road access points to MV Rd for URA and FNC, loop road development, supply of infrastructure, sequence of development stages, etc. and share it with stakeholders.
Preserving the trees on the west side of Taylors Lane within the URA has been less of a priority for the community, as that part of the street only has a tree corridor on its northern side.
Any option that preserves as many trees as possible would be preferred if it ticked the rest of the criteria.
Consider the existing DA (North east of the URA.
Residents would prefer that Taylors Lane should not be used to access new development; it should be provided off side roads.

CHAPTER 3

EXPLORING OPTIONS

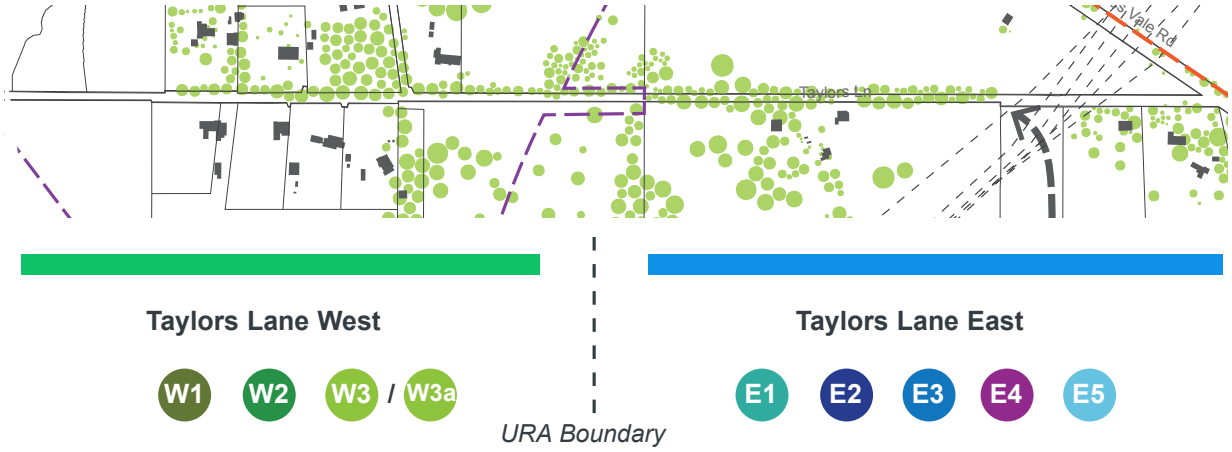
3-1 Overview

Zones

The Moss Vale Road South Urban Release Area (URA) boundary serves as a division that defines two different sections of Taylors Lane.

The eastern part of Taylors Lane currently intersects with Moss Vale Road and features the greatest density of trees on both sides of the lane.

The western portion of Taylors Lane is located within the URA boundary and features trees primarily along the northern edge of the road reserve.



3-2 Ideas Overview (West)

Options

Three possible options were considered for the western section of Taylors Lane (W1-W3), with an additional extension of W3 being considered (W3a).

The first of these options is the current situation set out in the MVRS URA DCP. This replaces the current Taylors Lane with a tree-lined boulevard that provides two way traffic, parking and pedestrian and cycle way access within a slightly modified road reserve.

The second option proposes keeping the existing trees on the northern side of Taylors Lane, and then utilises a large median to allow for the tree protection zone (TPZ), with the other traffic lane set outside this area, well to the south. A TPZ will also be applied on the northern side. Heightened attention and consideration of the impacts of development will be required within this zone.

The third option proposes keeping the existing trees on the northern side of Taylors Lane, but only allows for east bound traffic, in a one way scenario. This would also negate parking options along the revised Taylors Lane. A wide pedestrian and cycle way could potentially be provided within the TPZ, depending on detailed arborist advice. This option has an extension, W3a, whereby this one way traffic is extended all the way along Taylors Lane, until it joins with the connection to the Far North Collector.

	Taylors Lane West		
	W1	W2	W3 / W3a
Also known as	DCP option	Alternative option 1	Alternative Option 2

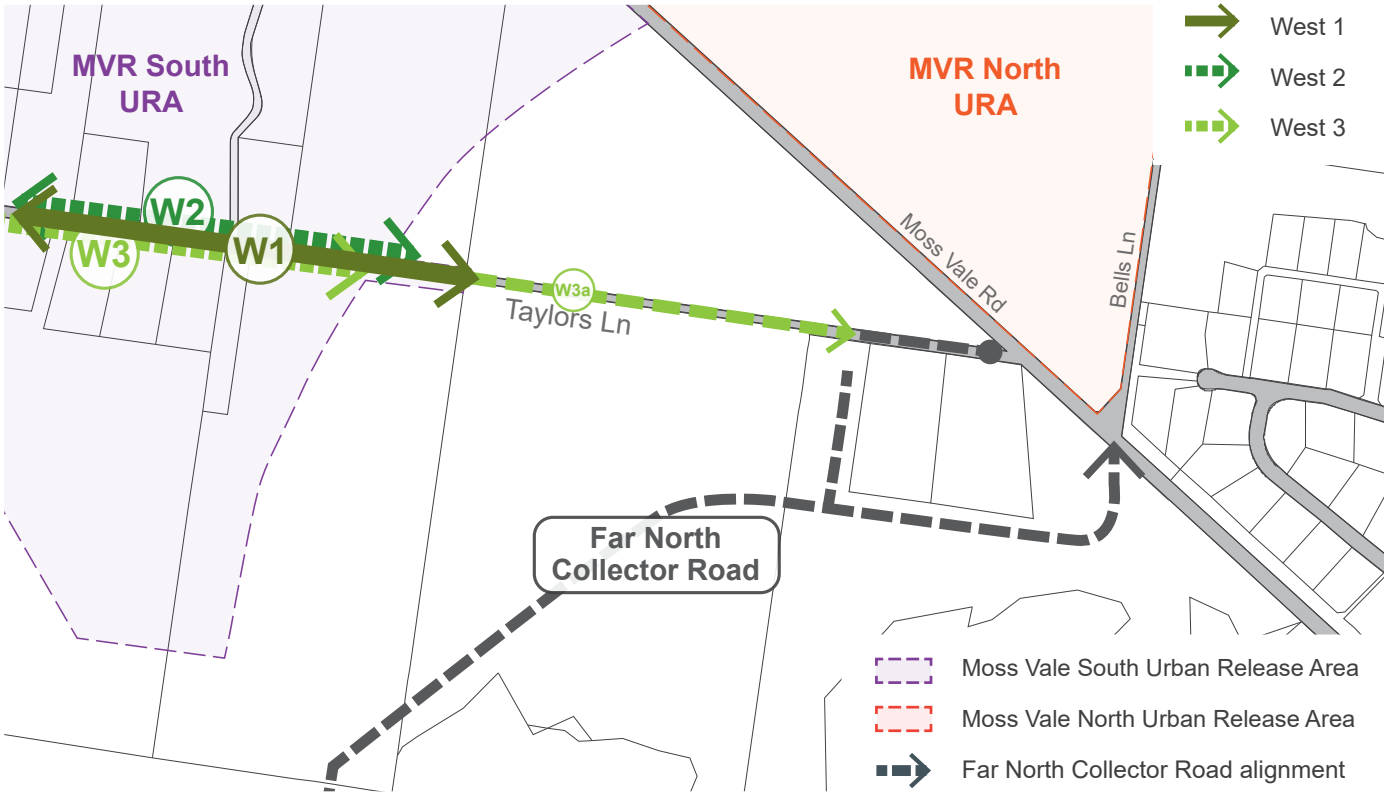


Figure 26 Diagram showing west ideas explored

W1

West 1

Overview	
Proposed by:	Council
Also known as:	Tree Lined Boulevard
Road reserve width:	20m approx.

Key Characteristics

- Creates a distinctive street within the URA.
- Allows for provision of new road designed to current standards.
- New road does not require any additional land acquisition, allowed for within the URA structure plan.
- Enables selection of suitable street trees for the future urban landscape.

Tree Lined Boulevard - DCP

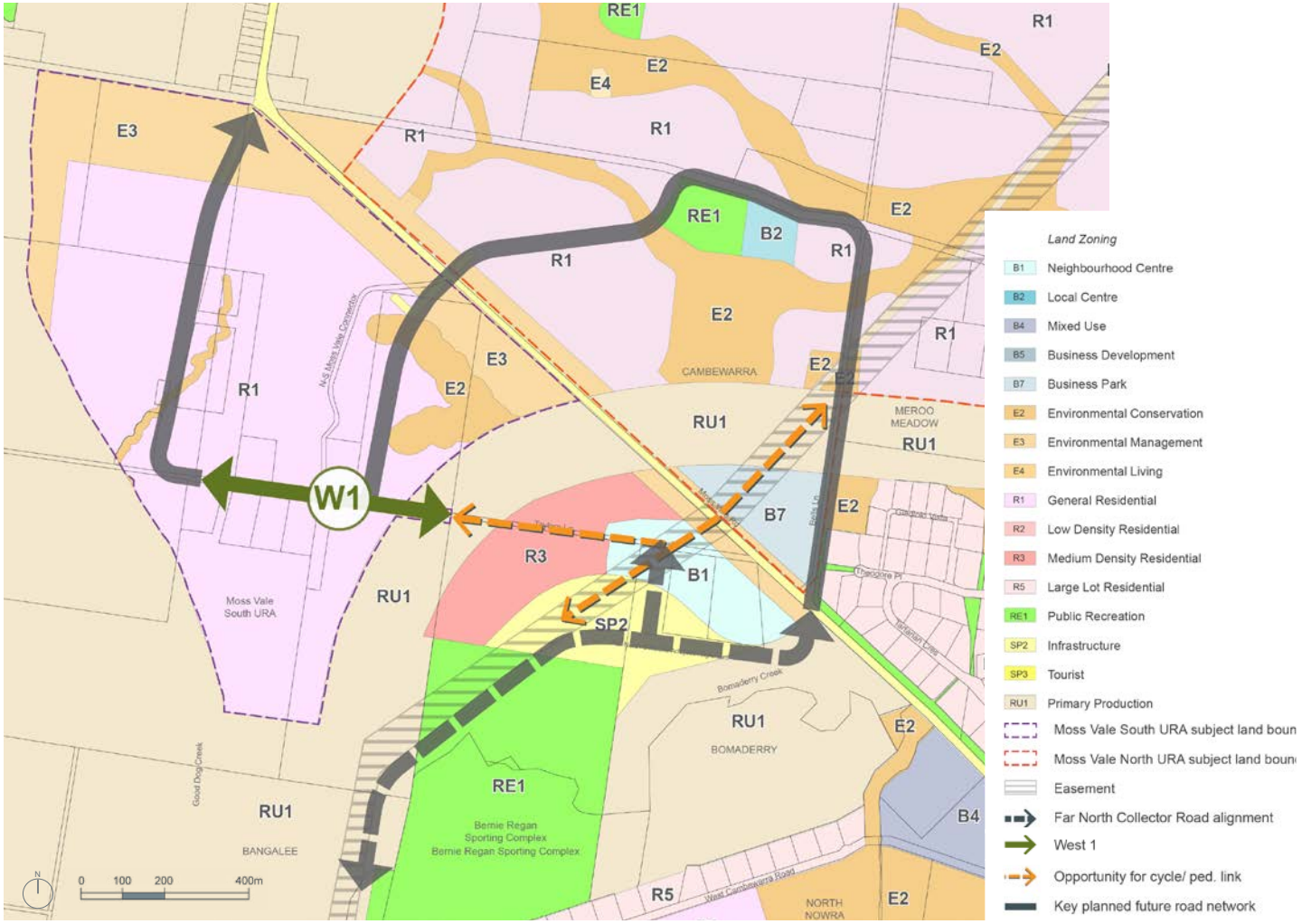


Figure 27 W1 network diagram

W1

West 1

Sections

Existing

1. Existing 10m road reserve, tree lined Taylors Lane.

Potential Future

2. Provision of suitable street trees.
3. Provision of traffic lanes for both directions.
4. Provision of wide verges, enabling pedestrian and cycleway opportunities.

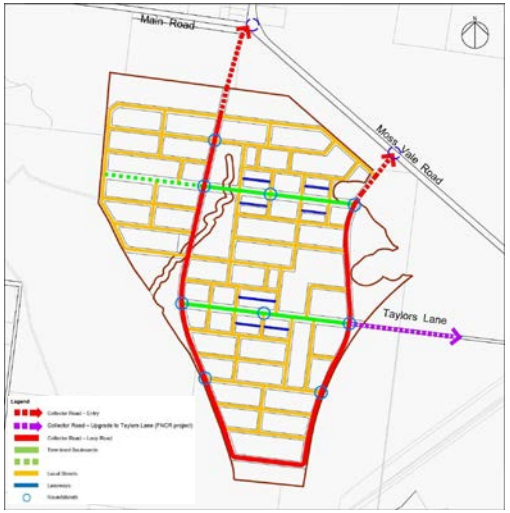


Figure 28 Moss Vale South Urban Release Area DCP Network Diagram

Existing

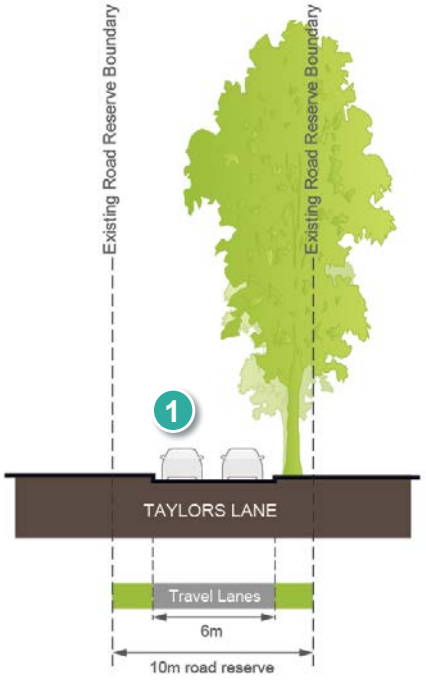


Figure 29 Street section looking west - existing section

Tree Lined Boulevard - DCP

Potential Future

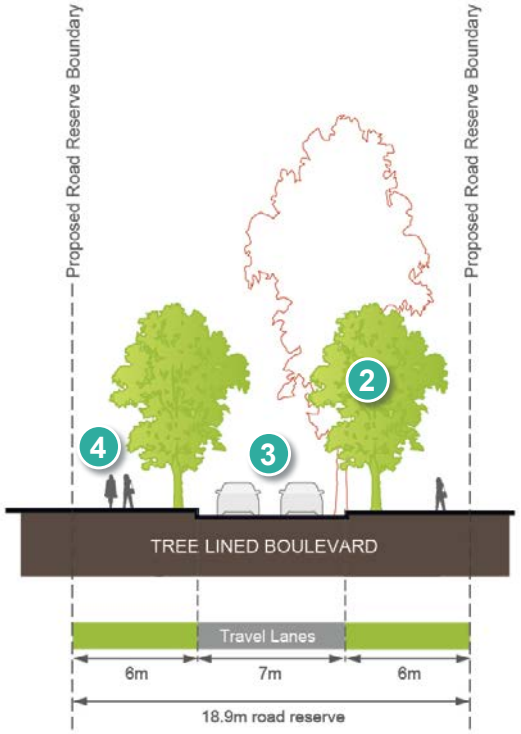


Figure 30 W1 street section - tree lined boulevard

W1

West 1

Stakeholder Commentary

Consider converting Taylors Lane into a one-way street in the eastern part within the URA - going from east to west towards the roundabout.

Any upgrade of the west end of Taylors Lane be only carried out in conjunction with the immediately surrounding developments of the existing 1 Ha lots. This section of Taylors Lane should not be required for construction access for the URA, nor for residents building in the larger developments.

Traffic Commentary

This option allows a typical street to be created, with clear and simple traffic and transport operations.

Landscape Commentary

Requires demolition of an established tree community.

Fragmentation of existing tree canopy & habitat.

Would result in a generic urban release streetscape character.

Will require removal of underground root obstructions to facilitate orderly installation of new street trees & utilities.

Enables selection of species suitable for future urban landscape.

W1

West 1

Summary Table	
Strengths	• Consistent with the planned future road layout • Creation of tree lined boulevard as per MVRS URA vision • New planting more consistent with future urban environment • Minimum disruption to existing properties and development proposals along Taylors Lane • Road widening allowed for in DCP
Weaknesses	• Removal of trees required to enable widening, drainage etc • New trees will be immature • Loss of existing environment
Opportunities	• Creation of strong focal point and identity within URA
Threats/Risks	• Loss of scale of existing trees
Cost	• Cost has been considered
Time	• Time has been considered- minimal delay

W2

West 2

Overview	
Proposed by:	SGL
Road reserve width:	23m

Key Characteristics

- Retains existing trees along the northern side of the lane
- Opportunity provided by wide median, allowing for central pedestrian / cycleway
- Significantly wider road reserve, up to approx.. 23m
- Retention of wide verge to the south
- TPZ/ treatment on north side.

Two way Taylors Lane, wide median

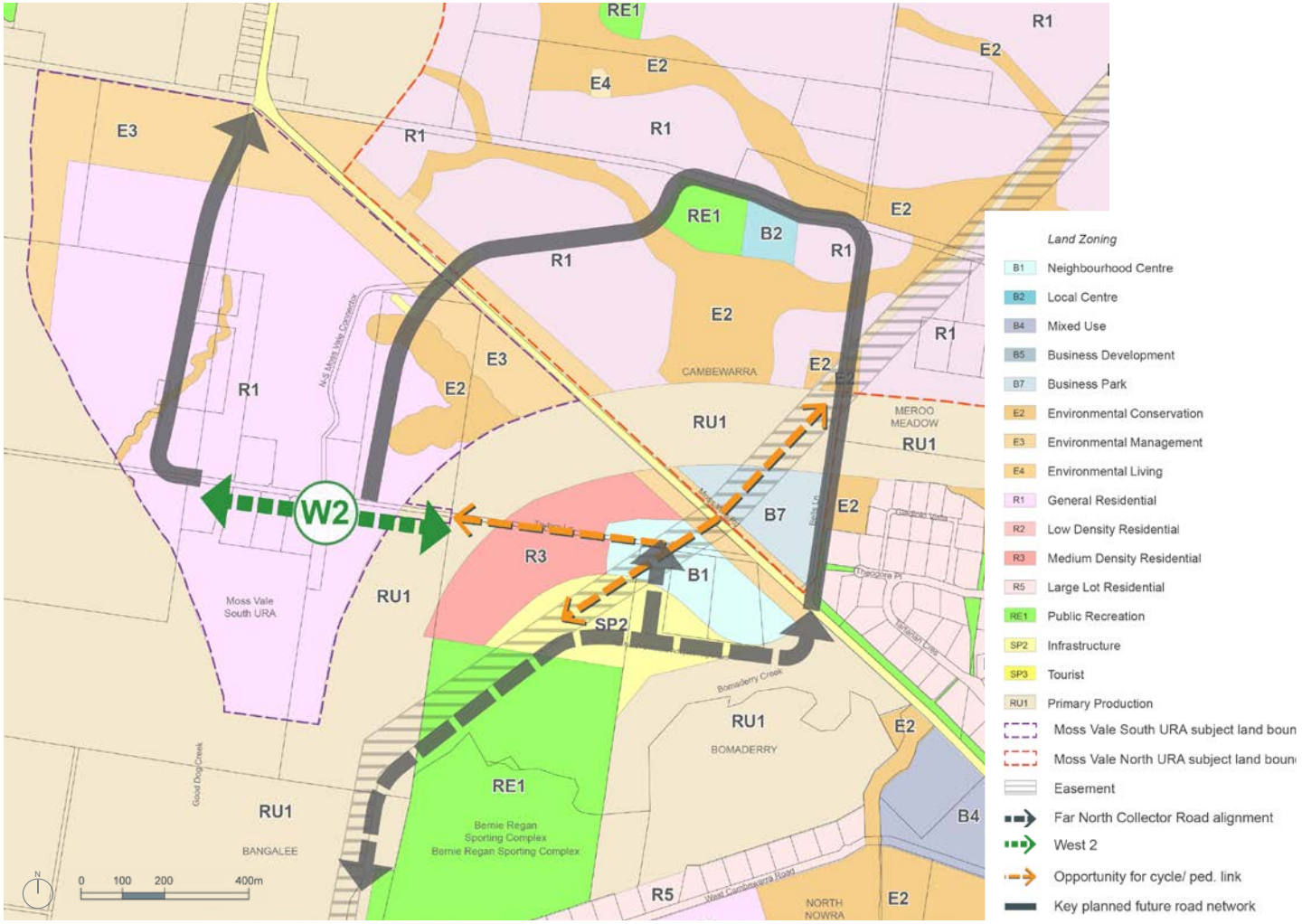


Figure 31 W2 network diagram

W2

West 2

Sections

Existing

1. Existing 10m road reserve, tree lined Taylors Lane.

Potential Future

2. Retention of existing trees.
3. Wide median, with central shared pedestrian and cycle pathway.
4. Wide verge, supporting pedestrian accessibility.

Existing

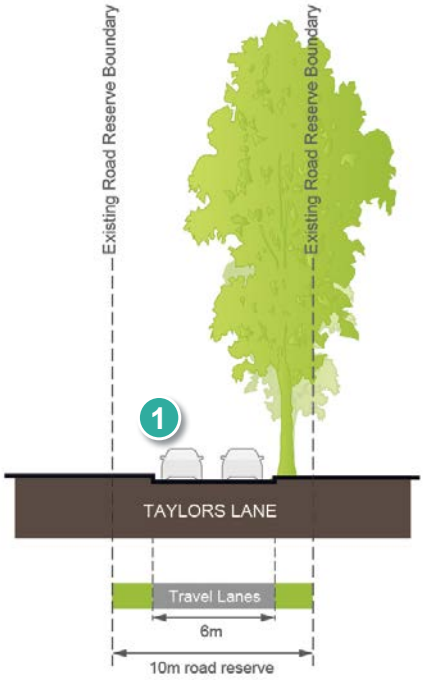


Figure 32 Street section - existing section

Potential Future

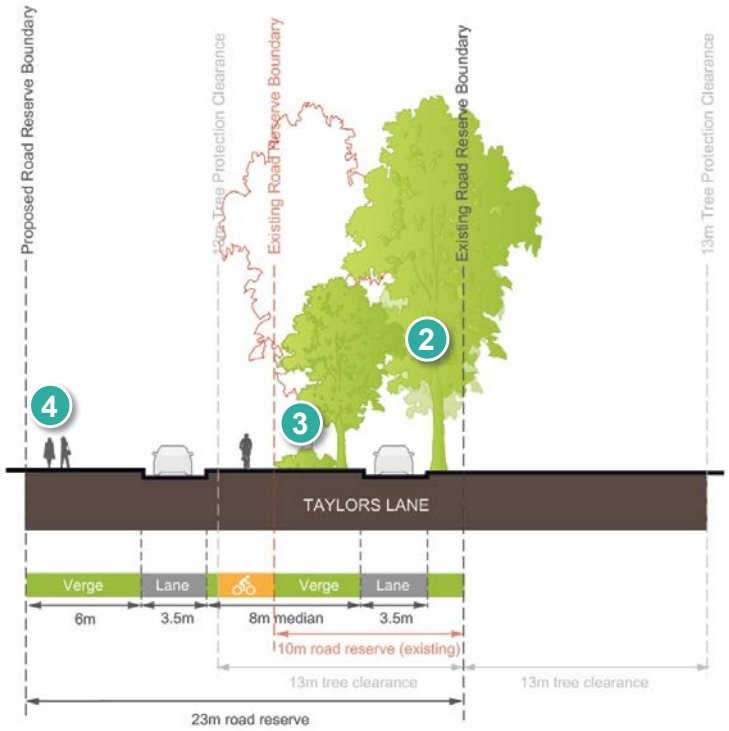


Figure 33 W2 street section

W2

West 2

Stakeholder Commentary

Reduces developable land on the southern side of Taylors Lane, which is not desirable for the landowners on that side.

Traffic Commentary

This option is acceptable in traffic terms but the widely separated carriageways may require a median break at each property access point, with considerable additional signage to clarify road user obligations, eg. One Way; Wrong Way Go Back; Give Way to Cyclists etc.

Street lighting may be more expensive than typical.

Developments on north side have planned road connections to the tree-lined boulevard.

Landscape Commentary

Will cause disruption to interlocking root mass due to tree removal, jeopardizing long term health of remaining trees.

Will cause disruption to interdependent tree canopies due to tree removal, increasing risk of tree high wind 'blow down' of remaining trees.

Partial site specific response valuing natural assets.

Partial fragmentation of existing tree canopy & habitat.

Partial retention of historic rural landuse.

Interesting and functional streetscape character, including old & new.

Localised regrading and retaining required to achieve new streetscape profiles.

Partial removal of underground root obstructions will be required to facilitate orderly installation of new street trees & utilities.

Pressure to remove remnant trees by adjoining residents on north side under 45 degree rule.

W2

West 2

Summary Table	
Strengths	• Retention of majority of northern trees • Continuous amenity between east and west sections of Taylors Lane
Weaknesses	• Existing trees maybe out of place in the future urban environment • Trees may prove a hazard to future residences along north side • Wider road reserve required – up to 23 m • Width required to enable southern lane to be outside Tree Protection Zone • Additional disruption to southern side properties • Possible land acquisition required • TPZ encroachment into developable land on north side
Opportunities	• Opportunity for cycleway within Tree Protection Zone • Retention of large scale, mature trees along one side of the new road
Threats/Risks	• Risks trees pose due to limb drop and blow down • Requirement for maintenance • Loss of trees due to upgrade works, especially drainage, interconnecting streets and works to northern lane • No mechanism to ensure protection of trees – 45 degree rule (local exemption maybe a possibility)
Cost	• Additional costs to revise planning controls, land acquisitions, tree management and development proposals not currently priced
Time	• Additional time required for approval, design and costing not calculated • Additional time for acquisition of land

W3

West 3

Overview	
Proposed by:	SGL
Road reserve width:	Retain existing

Key Characteristics

- Retains existing trees along the northern side of the lane
- Retains existing road reserve width
- Allocates one active traffic lane east bound
- Remainder of existing bitumen width allocated to dedicated cycleway
- (W3a) one way exit from MVRS URA towards Far North Collector
- (W3a) no access from FNC into MVRS URA
- TPZ treatment on north side.

One way Taylors Lane (West to East)

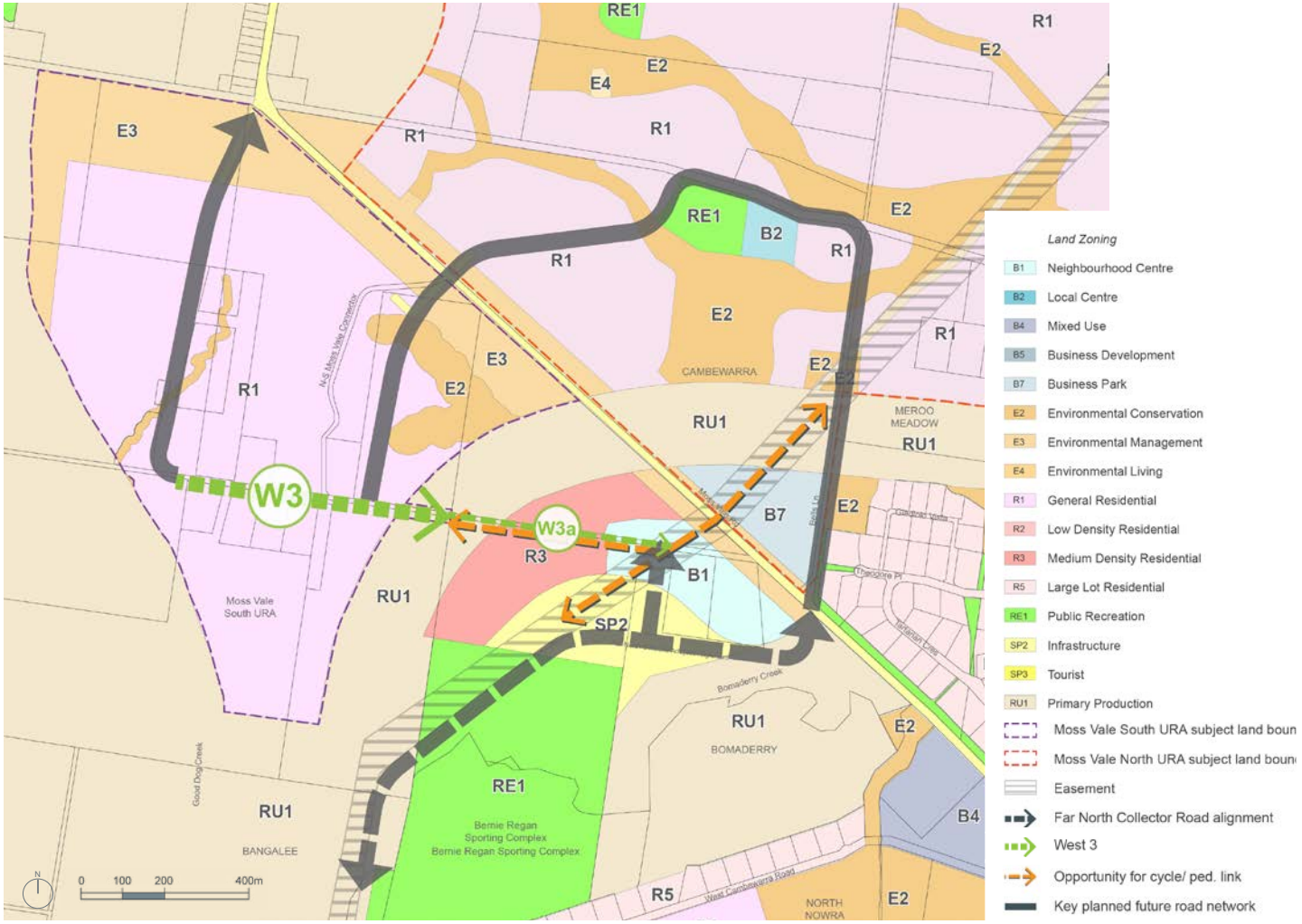


Figure 34 W3 and W3a network diagram

W3

West 3

Sections

Existing

1. Existing 10m road reserve, Taylors Lane.

Potential Future

2. Vehicular traffic to become one-way eastbound (3.5m) plus 2-way dual use ped/bike path (2.5m). Would allow exits and bushfire evacuation.
3. Retention of existing trees.
4. Provision of new street trees to the south

Existing

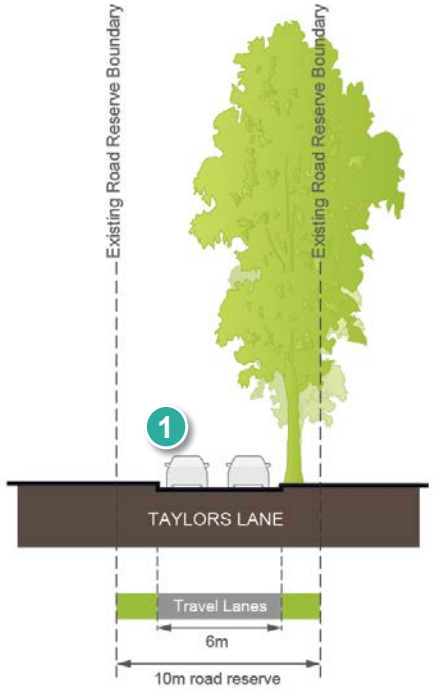


Figure 35 Street section - existing section (looking west)

Potential Future

Figure 36 W3 street section - One way Taylors Lane with one way bike lane (looking west)

W3a

West 3a extension (One way eastbound Taylors Lane)- east of the URA

Sections

Existing

1. Existing 10m road reserve, tree lined Taylors Lane.

Potential Future

2. Taylors Lane to retain current road reserve and existing trees.

3. Vehicular traffic to become one-way eastbound (3.5m) plus 2-way dual use ped/bike path (2.5m). Would allow exits and bushfire evacuation.

Existing

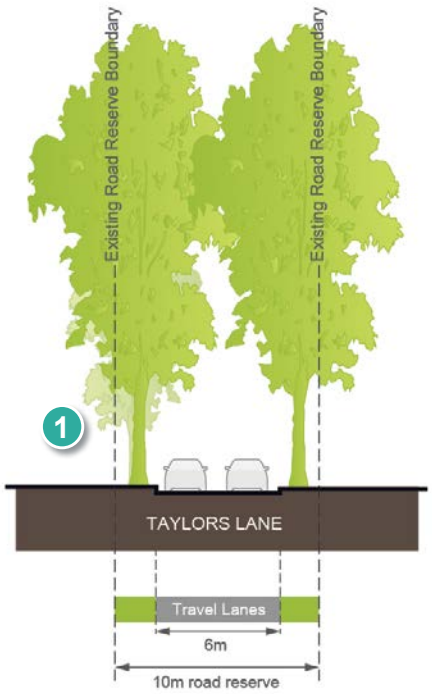


Figure 37 Street section - existing section (looking east)

Potential Future

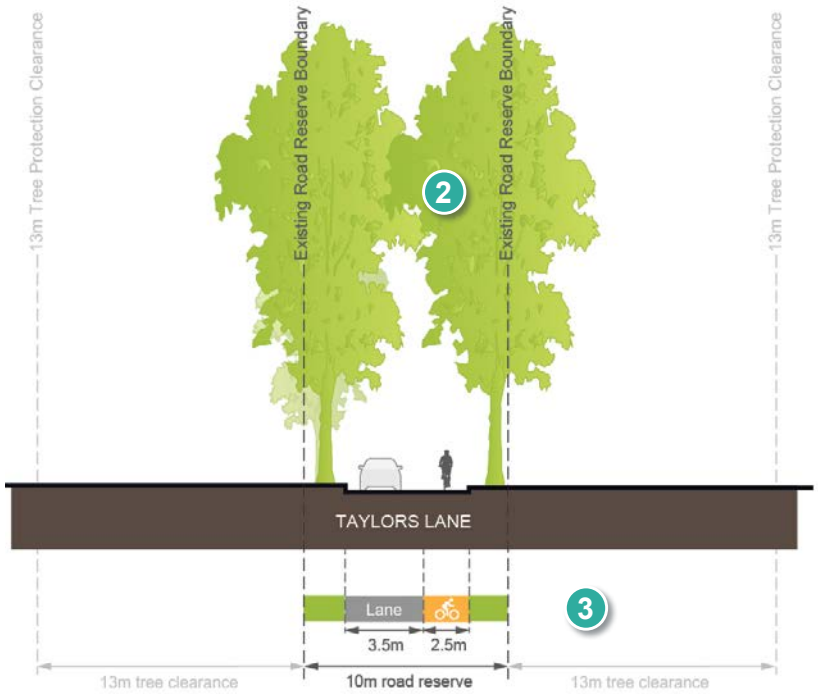


Figure 38 W3a street section - One way Taylors Lane with one way bike lane (looking east)

W3

West 3

Traffic Commentary

This option would require traffic in the opposite direction (west to east) to divert via a different route. This may be problematic where usual wayfinding practice is to allow people to exit via the route they entered. This would particularly be an issue for buses and emergency vehicles.

Developments on north side have planned road connections to the tree-lined boulevard.

Landscape Commentary

Disruption to interlocking root plate due to tree removal, jeopardizing long term health of remaining trees.

Pressure to remove remnant trees by adjoining residents on north side under 45 degree rule.

Partial site specific response valuing natural assets.

Disruption to interdependent tree canopies due to tree removal, increasing risk of wind 'blow down' of remaining trees.

Partial fragmentation of existing tree canopy & habitat.

Partial retention of historic rural land use + Interesting and new use as bicycle /one way laneway.

Partial removal of underground root obstructions to facilitate orderly installation of new street trees & utilities.

W3

West 3

Summary Table	
Strengths	• Retention of majority of trees • Continuous amenity between east and west sections of Taylors Lane • No additional road reserve width required • No additional land acquisition
Weaknesses	• Potential impact on interim bus route in proposed DCP. • Reduced overall connectivity • May require other parts of the road network to be reconfigured
Opportunities	• Opportunity for cycleway within Tree Protection Zone • Retention of large scale, mature trees along one side of the new road
Threats/Risks	• Risks trees pose due to limb drop and blow down • Requirement for maintenance • Loss of trees due to upgrade works, especially drainage, interconnecting streets and works to northern lane • No mechanism to ensure protection of trees – 45 degree rule (local exemption maybe a possibility)
Cost	• Additional costs to revise road design, additional traffic analysis and tree management.
Time	• Additional time required for review, revision of design of road and additional traffic analysis

W3a

West 3a

Summary Table	
Strengths	• Retention of majority of trees, including the tree avenue in the eastern section • Continuing use for vehicular traffic • Maximises activity (use of the corridor) • Road reserve remains unchanged
Weaknesses	• Some tree loss due to required changes to drainage and road upgrade works
Opportunities	• Opportunity for cycleway within Tree Protection Zone • Retention of large scale, mature trees along both sides of the road • Retention of avenue in its current configuration and context, as a vehicular route
Threats/Risks	• Risks trees pose due to limb drop and blow down • Requirement for maintenance • Loss of trees due to upgrade works, especially drainage, interconnecting streets and works to northern lane • No mechanism to ensure protection of trees – 45 degree rule (local exemption maybe a possibility)
Cost	• Additional costs to revise road design and tree management.
Time	• Additional time required for review, revision of design of road, additional traffic analysis and reconfiguration of broader road network

3-3 Ideas Overview (East)

Five possible options were considered for the eastern section of Taylors Lane (E1-E5).

The first of these options was one initially developed by Council, where Taylors Lane is re-routed slightly north of its existing alignment.

The second option was Council's preferred option, which removed the majority of trees and rebuilt the road with a wider footprint within the current alignment.

The remaining three options are similar in that they all remove the new road from the existing Taylors Lane alignment, allowing the retention of the majority of trees in this eastern section of the laneway.

They all propose retention of the Taylors Lane road reserve for use as a shared pedestrian / cycle path. This shared path would be able to be connected into the wider commuter cycle network, thereby providing access for cyclists and pedestrians into the MVRN URA, as well as south towards the sporting complex and open space opportunities.

	Taylors Lane East				
	E1	E2	E3	E4	E5
Also known as	Existing Option 1	Existing Option 2	Alternative option 1	Alternative option 2	Alternative option 3

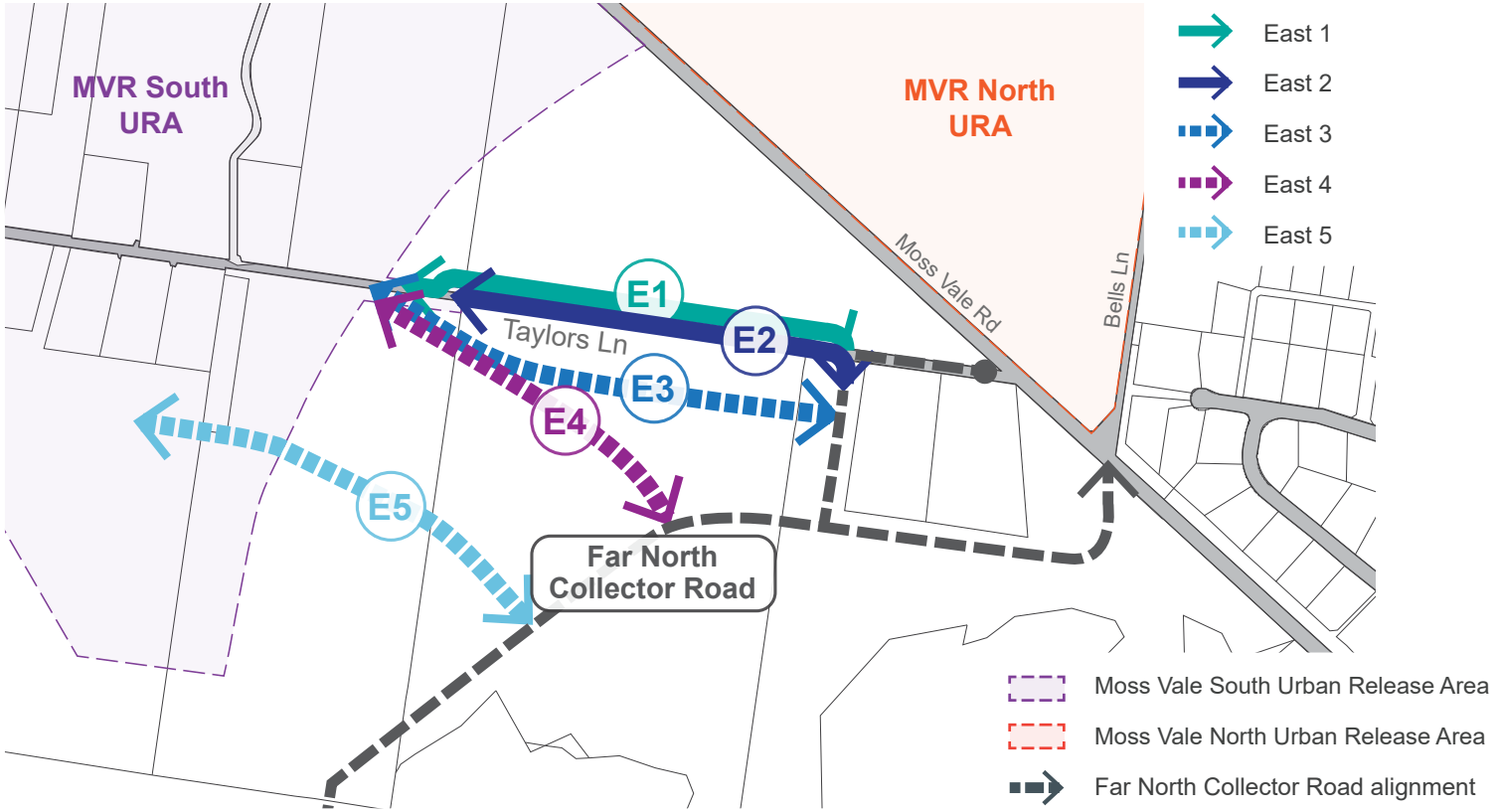


Figure 39 Diagram showing east ideas explored

The third option moved the rebuilt road to the south of its current alignment, clear of the TPZ required to retain the existing trees. It retained the east west alignment, and the proposed connection to the FNC.

The fourth option moved the new road further south, and modified the connection to the FNC, coming in at a bend west of the current connection.

The fifth option moved the new road further south west. The location of the connection into the URA is further south, as is the proposed connection to the FNC.

All of these ideas are explored purely at a strategic level, none of them have been tested for feasibility with regards to environmental impacts, soil conditions, contamination, or issues related to the required crossing of the service easements, etc. Further investigations would also be required into the status of trees within any impacted areas.

	Taylors Lane East				
	E1	E2	E3	E4	E5
Also known as	Existing Option 1	Existing Option 2	Alternative option 1	Alternative option 2	Alternative option 3

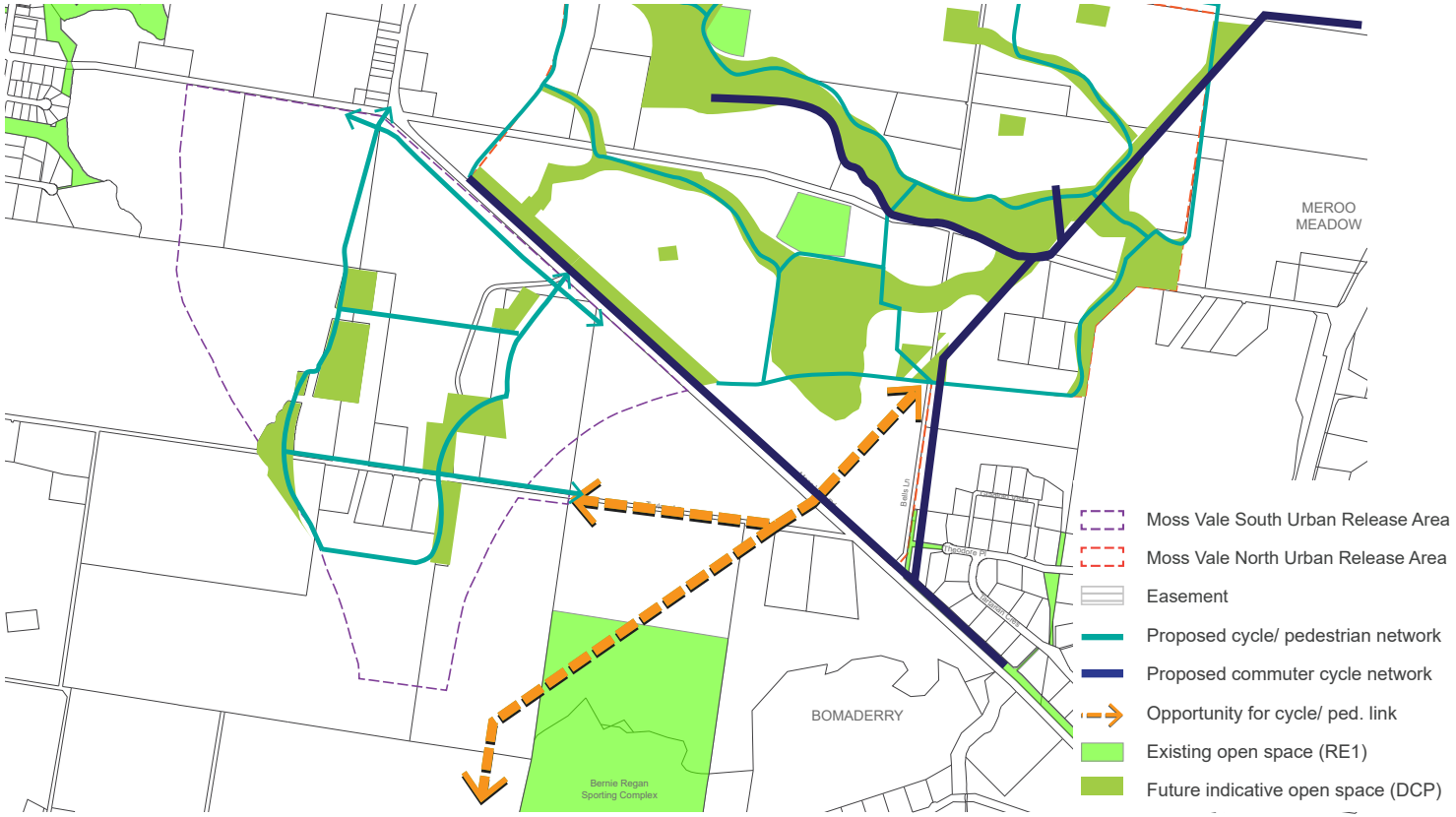


Figure 40 Open space and movement network

E1

East 1

Overview	
Proposed by:	Council
Also known as:	Option 2
Road reserve width:	45m approx.
Road length (between URA and FNC):	690m approx. + 220m approx. (TL link road)

Key Characteristics

- Creates a new road to the north of the existing alignment of Taylors Lane which is wide enough to accommodate additional traffic.
- All other connecting roads as per current structure plan.
- Connection from Taylors Lane to Far North Connector as per current Council plans. These plans have been fully designed and costed.
- Opportunity to retain trees and to potentially accommodate a shared path between the trees.

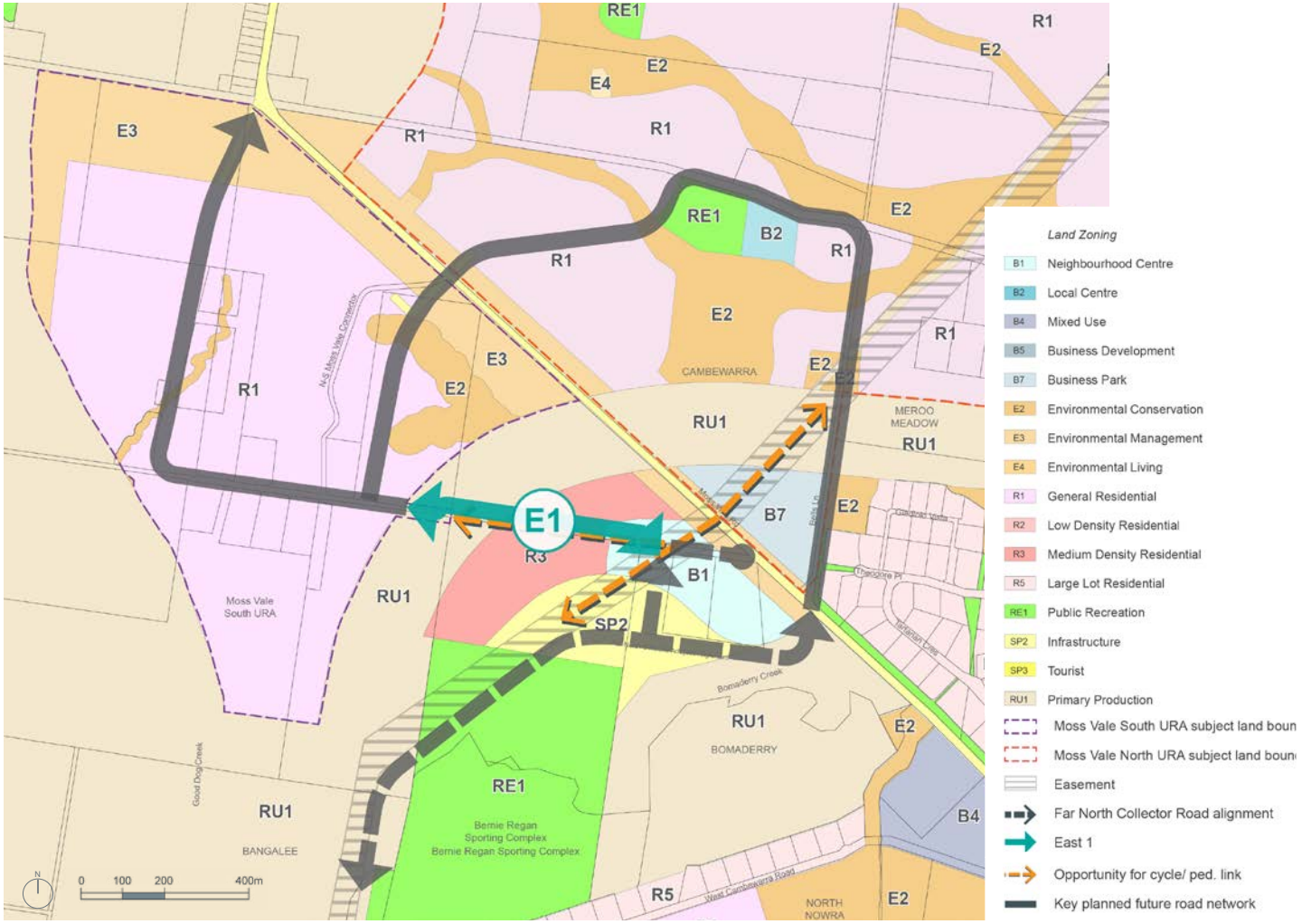


Figure 41 E1 network diagram

E1

East 1

Sections

Existing

1. Existing 10m road reserve, tree lined Taylors Lane.

Potential Future

2. Taylors Lane to retain existing trees. Opportunity for existing roadway to be converted to potential future pedestrian/ cycle path.

3. 10m tree protection zone offset from northern stand of trees to proposed new road reserve.

4. New 19.9m road reserve in accordance with Shoalhaven Development Control Plan 2015 Chapter NB3: Moss Vale Road Urban Release Area Table 3.

Existing

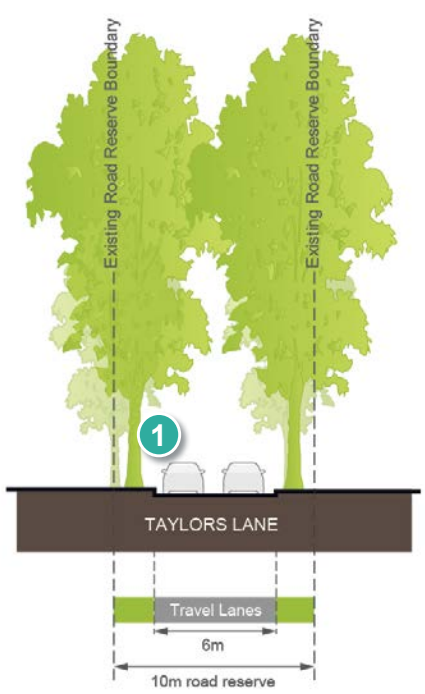


Figure 42 Street section - existing section

Potential Future

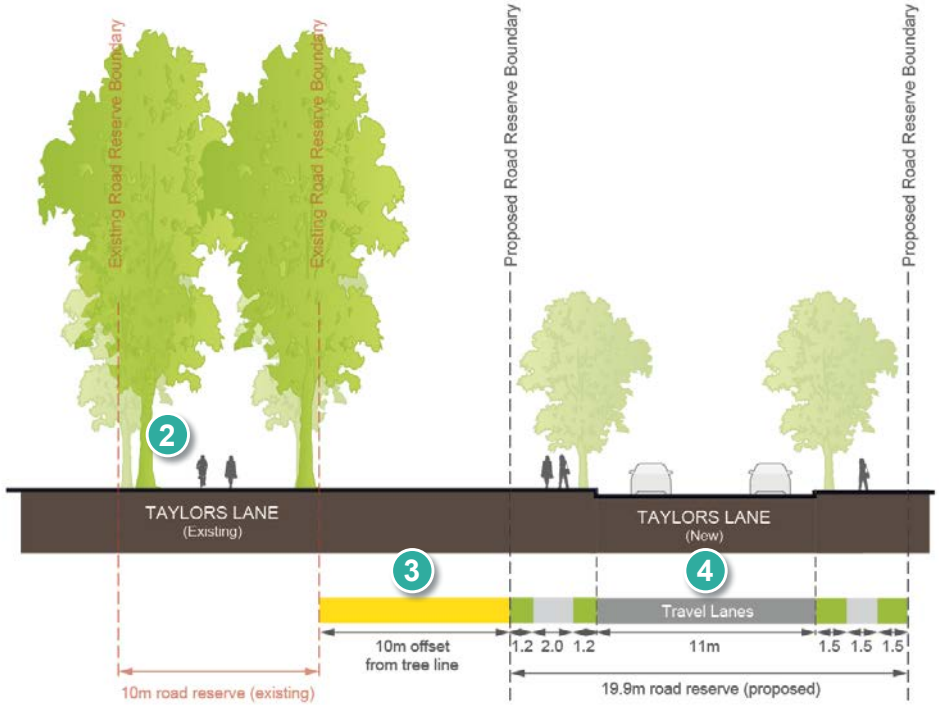


Figure 43 Potential future section (E1)

E1

East 1

Stakeholder Commentary

This was not a preferred option for most developers as it constraints development for the area north of Taylors Lane East.

E1 is the preferred option by farm owners of John V Evison Farm as it keeps all roads in a line, preventing roads being spread in all different directions. Services would be better planned and easier to install. There would be no interruption to existing farm operations.

This was the preferred option selected by the community in the previous round of options, as saving the trees was their key objective.

Significant efforts would be needed to acquire the land (not just a little delay as stated in the pros/cons list).

Significant upgrades need to be done to the road as it is not usable in its present state.

Traffic Commentary

This option combines a conventional new road to modern standards with a parallel tree-lined walkway/cycleway.

Street lighting costs may be higher.

Landscape Commentary

Site specific response valuing natural assets creating a unique urban landscape setting.

Retention of existing tree canopy & habitat.

Retention of historic rural landuse.

Creates a 'Destination' amenity for pedestrian & bicycle.

New portion of road reserve facilitates the orderly installation of new street trees & utilities.

E1

East 1

Summary Table	
Strengths	• Generally retains trees within a widened road reserve, approx. 45m wide. • Retains valued cultural asset • Concept design and cost has been resolved and submitted to Federal Govt funding agency. • Levels, extent of fill, intersection design resolved
Weaknesses	• Inconsistent alignment of Taylors Lane • Limits access for land on southern side • Long crossing distance across area reserved for potential bypass • TPZ over land on southern side of Taylors Lane • Land acquisition required • Reduction in developable land
Opportunities	• Use of Taylors Lane as shared pathway / cycleway • Retention of cultural asset
Threats/Risks	• Long term health of trees due to required upgrade and continual maintenance for the existing road to remain trafficable. • Character of arbour altered, within an urban development setting and with reduced use • No mechanism to ensure protection of trees – 45 degree rule (local exemption maybe a possibility).
Cost	• Costed
Time	• Little delay • Design commenced and costed

E1a

East 1a

Sections

Existing

1. Existing 10m road reserve, tree lined Taylors Lane.

Potential Future

2. Taylors Lane to retain existing trees.

3. Use of the existing Taylors Lane road reserve for one traffic lane as a shared user path. Second shared user path constructed on the northern side of the existing northern trees.

4. Taylors Lane to be re-categorised as shared roadway (a low-speed zone with no heavy vehicles) on raised concrete pavement to support tree root protection.

Existing

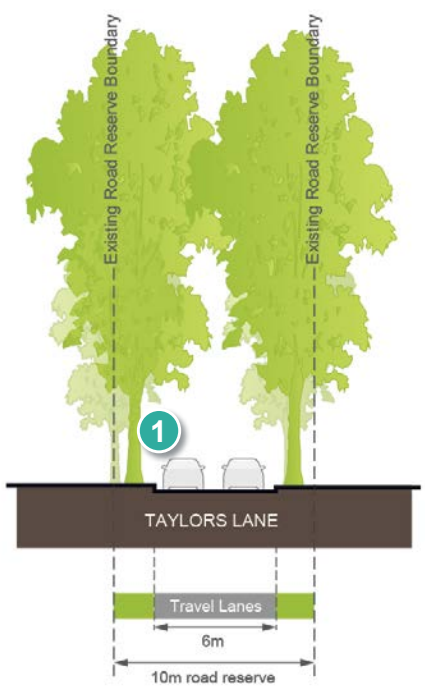


Figure 44 Street section - existing section

Potential Future

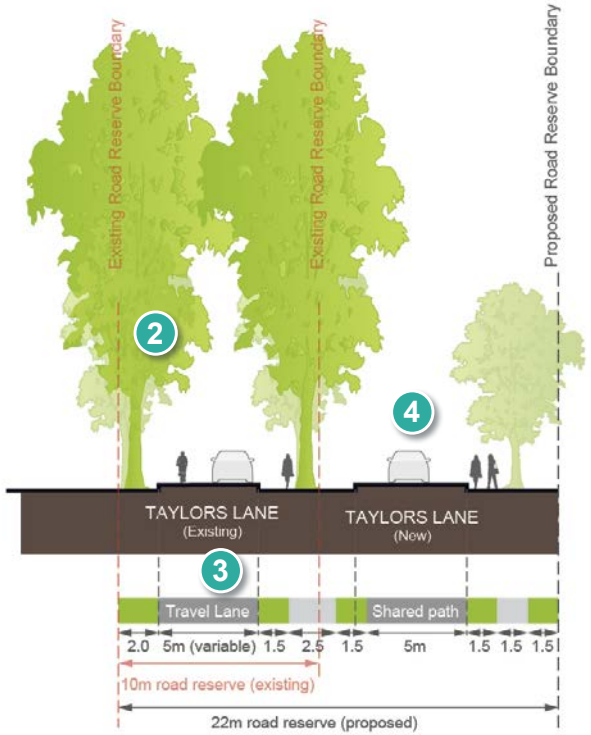


Figure 45 Potential future section (E1a)

East 1a- Raised paving options

Key Characteristics

The following key characteristics would apply to any raised pavement system.

- Paving is elevated above root system.
- Structural support provided via intermittent screw or pier system to avoid compaction.
- Allows for no digging.
- Preferably no compacted road base under surface.
- Preference for permeable surface to allow rainwater penetration.
- Allows for multiple paving options- Mesh grid overlaid with block paving, asphalt or resin bond.
- No concrete is required within the sensitive root range

Issues to be considered

- The bridging system will need to have the flexibility to adjust piles to avoid large or structural roots.
- Location of utility trenches, if any.
- Differential settling at the transition of different materials.

Figure 46 Potential option of pavement system

Case study- Rootbridge

This is one of many systems that may be suitable

Figure 47 Case study- RootBridge Mechanism

Overview	
Suitable for	Heavy vehicular traffic, Light vehicular traffic, Pedestrian traffic
Applications	Car parks, Cycle routes, Footpaths, Driveways
Depth	75mm

E2

East 2

Overview	
Proposed by:	Council
Also known as:	Option 4
Road reserve width:	10-20m approx.
Road length (between URA and FNC):	660m approx. + 220m approx. (TL link road)

Key Characteristics

- Retains the existing alignment of Taylors Lane and widens it to accommodate the additional traffic.
- All other connector roads as per current structure plan.
- Connection from Taylors Lane to Far North Connector as per current Council plans. These plans have been fully designed and costed.
- Requires removal of all trees within widened road reserve.
- 10- 20m wide road reserve.

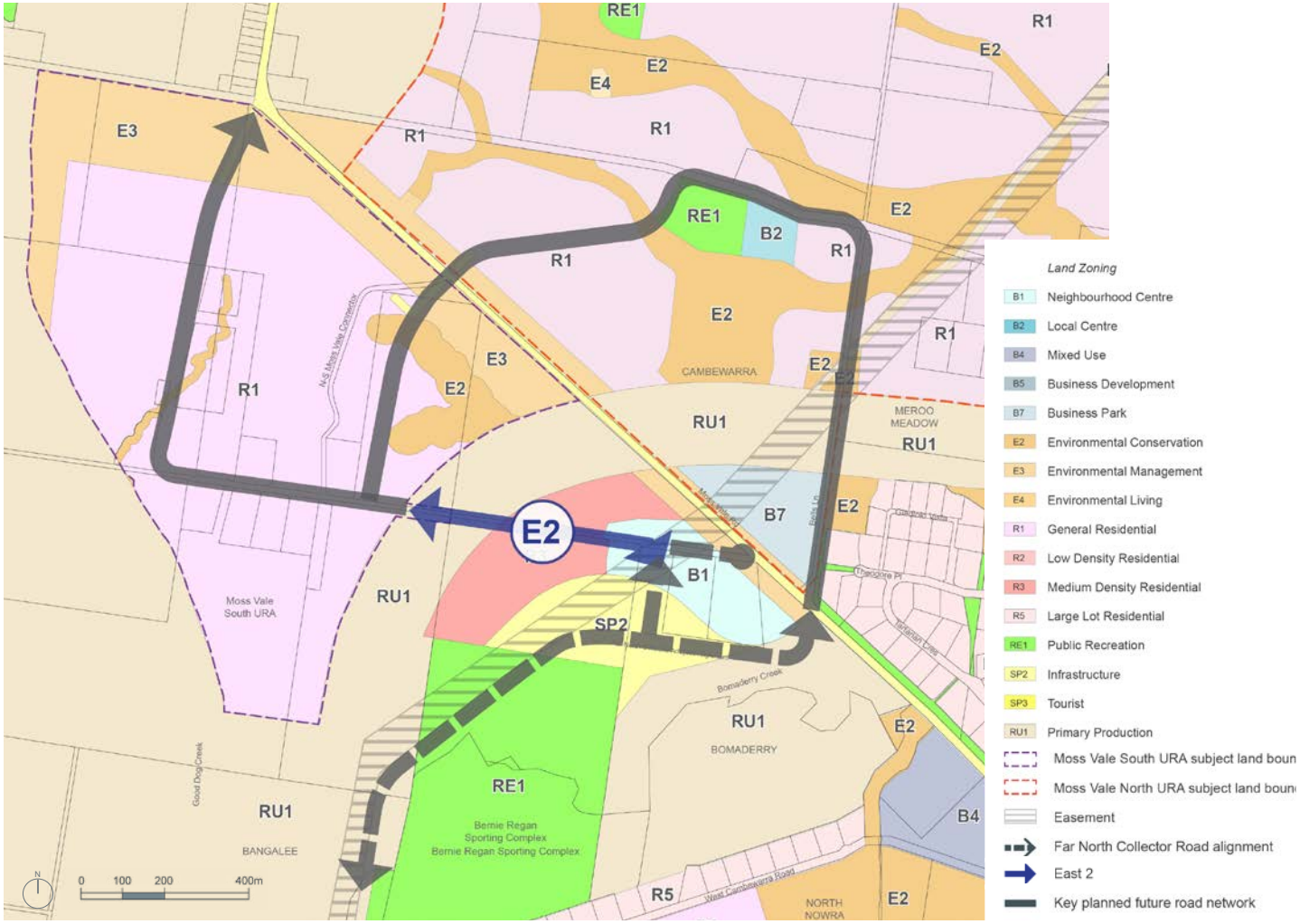


Figure 48 E2 network diagram

E2

East 2

Sections

Existing

1. Existing 10m road reserve, tree lined Taylors Lane.

Potential Future

2. Maintain existing road centreline as centreline for new Taylors Lane reserve.
3. Removal of both north and south stand of trees required (approx 317 trees).
4. Widen existing 10m road reserve to approx. 20m.
5. Shared path within road reserve as indicated in Shoalhaven Development Control Plan 2014 chapter NB3: Moss Vale Road Urban Release Area Table 3

Existing

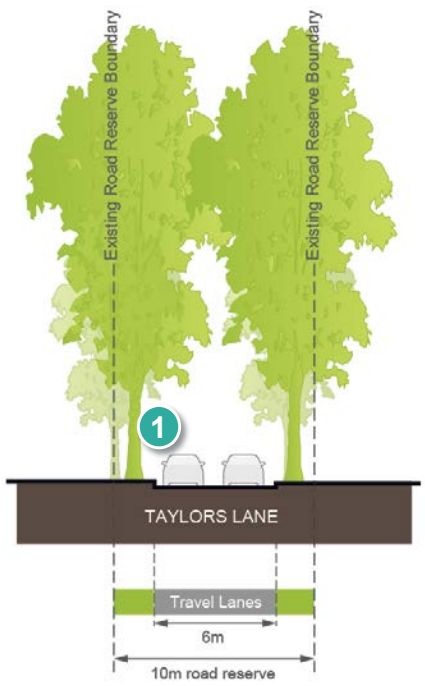


Figure 49 Street section - existing section

Potential Future

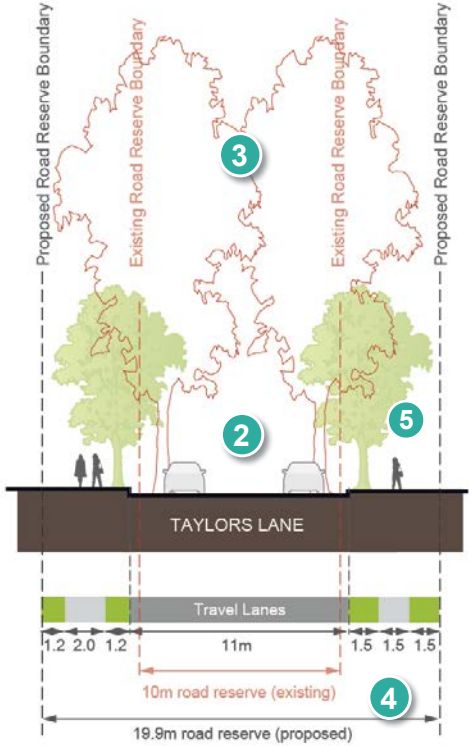


Figure 50 Potential future section (E2)

E2

East 2

Stakeholder Commentary

This was the least preferred option by residents and developers.

The tall trees are a key part of the visual character of the area; they help break up the area and create visual cues for orientation.

Traffic Commentary

This option allows a conventional new street solution, suited to buses and service vehicles.

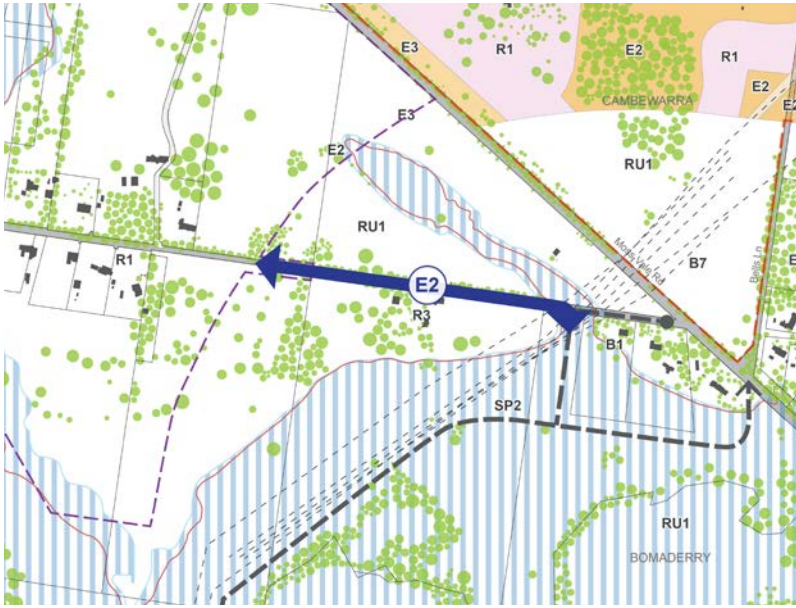
Landscape Commentary

Requires demolition of an established tree community.

Fragmentation of existing tree canopy & habitat.

Generic urban release streetscape character.

Removal of underground root obstructions to facilitate orderly installation of new street trees & utilities.

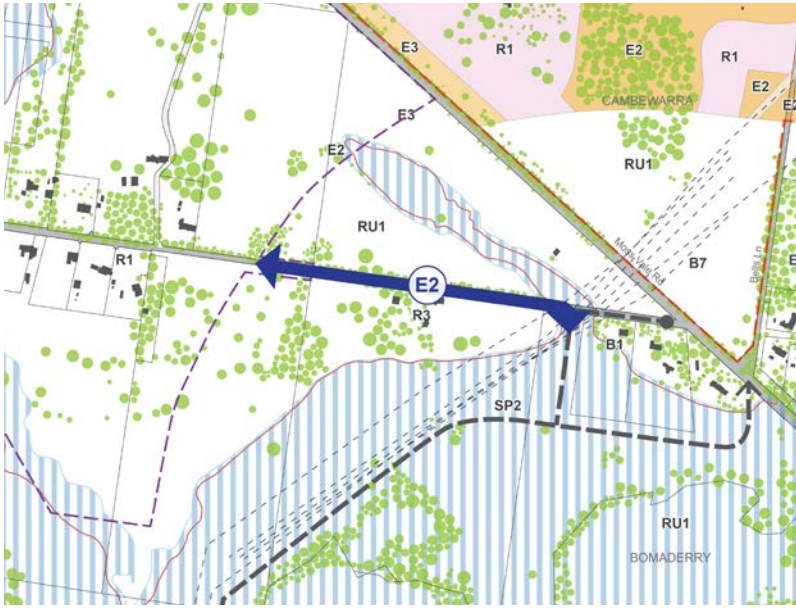


Moss Vale South Urban Release Area
Moss Vale North Urban Release Area
Easement
Existing built form
Indicative existing tree canopy
Flood Planning Area (Existing)
Annual Exceedance Probability 1%
Far North Collector Road alignment
East 2 (Council Option 4)

E2

East 2

Summary Table	
Strengths	• Utilisation of existing road reserve (efficient land use) • Direct alignment • Provides ready access for land either side of Taylors Lane • Levels, extent of fill, intersection design resolved • Minimises impact on developable land • Land acquisition resolved • Enables optimisation of drainage system, road design levels etc • Minimal Additional width required for road reserve – approx. 5m each side
Weaknesses	• Removes all existing trees • Long crossing distance across areas reserved for potential bypass
Opportunities	• Corridor could be widened or aligned to retain trees, with existing Taylors Lane as an extended median, would require 50 - 60m road reserve • Planting of suitable trees for the future urban landscape • Mitigation of tree loss – payment to Biodiversity Trust, revegetation planting of alternate location
Threats/Risks	• Removal of valued community asset • The character of the arbour would be very different if located within an urban (developed) setting
Cost	• Costed • Total length of new road from FNC = approx. 660 m
Time	• No delay – fully designed and costed



E3

East 3

Overview	
Proposed by:	Studio GL
Also known as:	-
Road reserve width:	20m approx.
Road length (between URA and FNC):	650m approx. + 220m approx. (TL link road)

Key Characteristics

- Creates a new wider road to the south of Taylors Lane with a similar east west alignment.
- All other connector roads as per current structure plan.
- Connection from new road to Far North Connector similar to current Council plans. These plans have been fully designed and costed.
- Opportunity to retain trees along Taylors Lane and provide a new shared surface road (10km/h) or a shared path and cycleway.

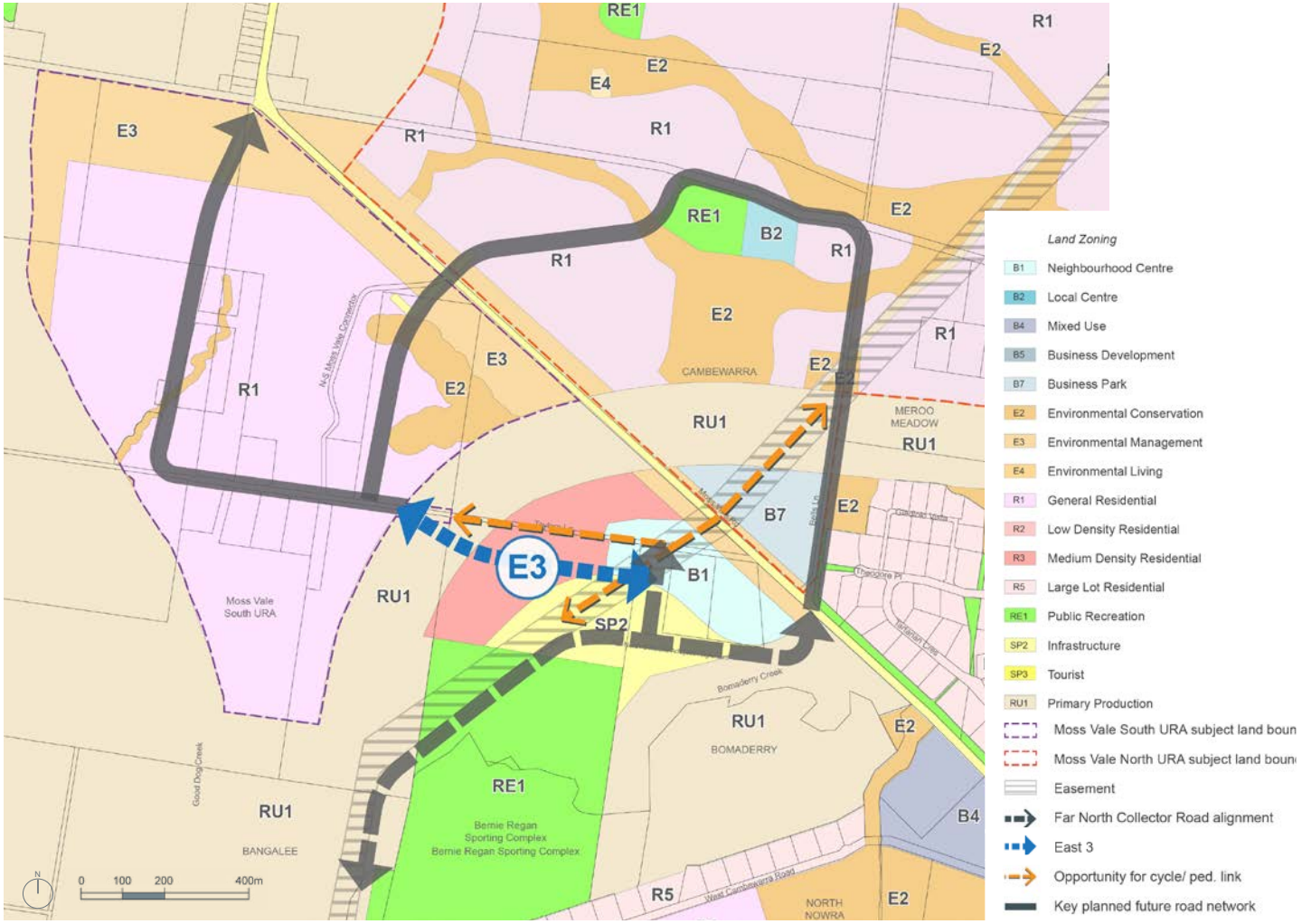


Figure 51 E3 network diagram

E3

East 3

Stakeholder Commentary

Most residents and developers thought this was a good option to consider, as it preserves most of the trees.

There were concerns, however, that it limits the parcel sizes between Taylors Lane and the new road, cuts through land zoned R3, cuts through farming land and has a few bends and turns.

E3 is not a preferred option for farm owners at John V Evison Farm as the west part of this road cuts into the corner of their land, causing possible disruption to private access and future plans for the farm. They had to provide a large amount of their farm land (approx 7 acres) for the FNC Road to the south and this has greatly affected their farming operations. Also the Highway Bypass construction in the future would affect this option. If E3 is preferred by Council, they strongly recommend a re-design for both roads to meet Taylors Lane within the existing boundary of Taylors Lane and not on John W Evison land.

Traffic Commentary

This option offers a conventional street solution, but appears to increase length of road required beyond the minimum.

The intersection of the new road with existing property access to the east and with the proposed opportunity for a cycle/ pedestrian link may result in a complex corner and intersection design, with reduced operational safety.

Landscape Commentary

Land development with point of difference responding to the unique qualities of the landscape setting. Green assets including tree lined Taylors Lane, creating 'Day 1 Impact' for future residents & businesses.

Retention of rural landuse as a historic/cultural asset.

Could lead to greater fragmentation of rural land.

Alignment of new collector road responding to largely cleared grazing land.

E3

East 3

Summary Table	
Strengths	• Retains existing trees, cultural asset and potential biodiversity asset • Location of planned linkage into Taylors Lane within URA maintained
Weaknesses	• Fragmentation of developable land and farmland • New road across private land / land acquisition may exceed grant funding • Road and intersections not designed or costed • Requires Taylors Lane link road off FNC to be retained for access to existing properties • Long crossing distance across area reserved for potential bypass • Reduction in developable land due to impacts of TPZ requirements
Opportunities	• Use of Taylors Lane as potential shared pathway / cycleway • Retention of visual curtilage • Opportunity for trees to be located within a new open space, which could provide high amenity asset for new development
Threats/Risks	• Cost and time to develop new road across private property is uncertain • The character of the arbour could be very different if located within an urban (developed) setting and with reduced use of the lane • Potential obligation for Council to acquire fragmented land • Geotechnical conditions are unknown • Limits access for future development R3/B1 zone • Time delay = risk to FNC grant funding • No mechanism to ensure protection of trees – 45 degree rule (local exemption maybe a possibility)
Cost	• Not costed • Total length of new road from FNC = approx. 650 m
Time	• Proposal is conceptual only, likely delays due to approvals, investigations, design and costing

E4

East 4

Overview	
Proposed by:	Studio GL
Also known as:	-
Road reserve width:	20m approx.
Road length (between URA and FNC):	520m approx. + 220m approx. (TL link road)

Key Characteristics

- Creates a new realigned road to the south west of Taylors Lane with a more direct link to the Far North Connector.
- New road would be perpendicular to potential future motorway and intersect with Far North Connector at the bend in the road.
- New road has not been designed and costed.
- All other roads as per current structure plan.
- Opportunity to retain trees along Taylors Lane and provide a new shared surface road (10km/h) or a shared path and cycleway.

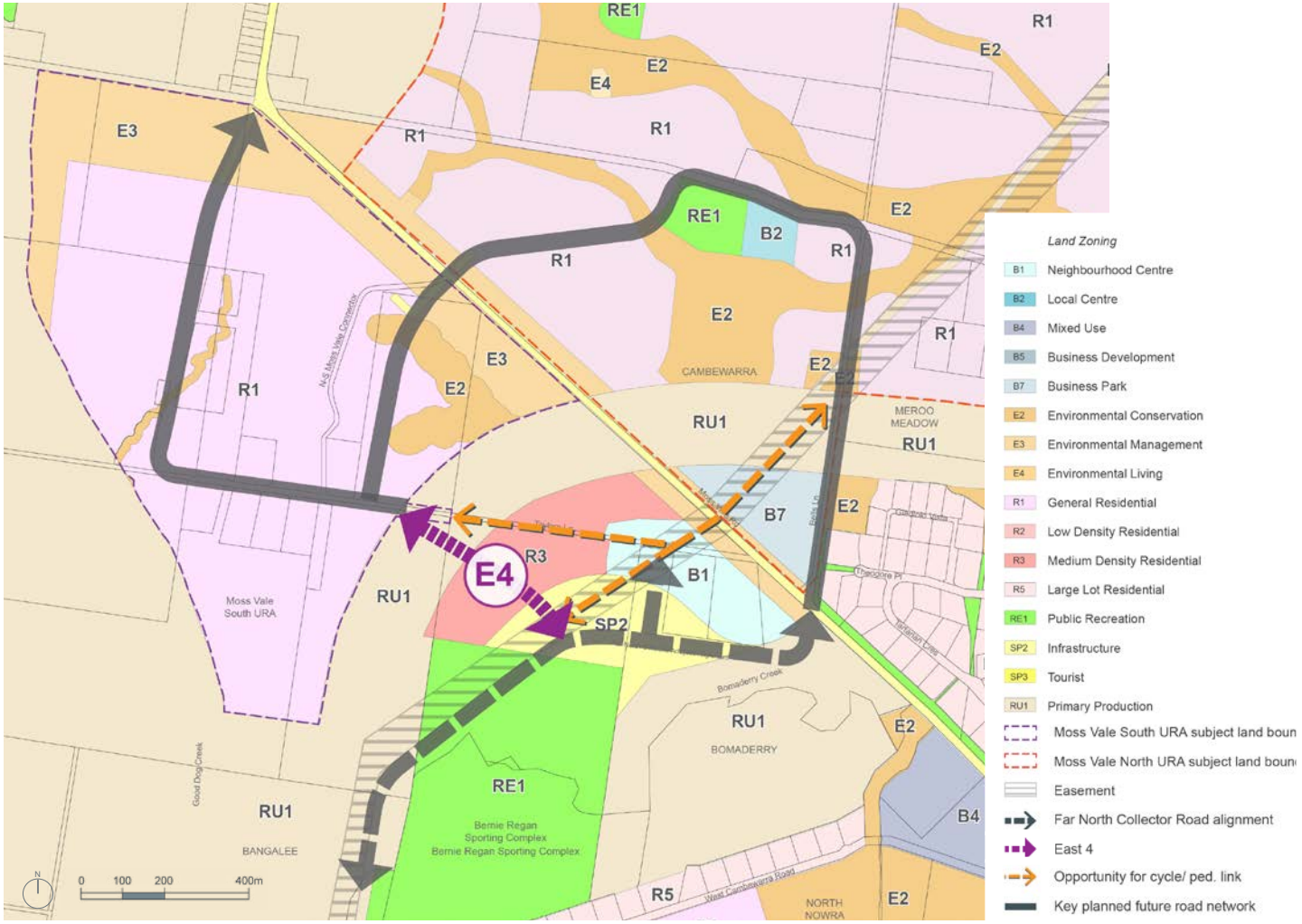


Figure 52 E4 network diagram

E4

East 4

Stakeholder Commentary

Most residents and developers thought this has a good option to consider (similar to E3), as it preserves most of the trees, and it does not break up the land zoned R3 as much.

The design ideas would need to be detailed to assess the feasibility of the ideas and consider the preferred option.

E4 not a preferred option for farm owners at John V Evison Farm as the west part of this road cuts through their land (similar to E3), causing possible disruption to private access and future plans for the farm. They have had to provide a large amount of their farm land (Approx 7 acres) for the FNC Road to the south and this has greatly affected their farming operations. Also the Highway Bypass construction in the future would affect this option. If E4 is preferred by Council, they strongly recommend a re-design for both roads to meet Taylor's Lane within the existing boundary of Taylor Lane and not on John W Evison land.

Traffic Commentary

This option allows a conventional road arrangement, a shorter overall length of new carriageway, better segregation of pedestrians and cyclists from vehicles, and would be suitable for a bus service.

The priority intersection with the Far North Collector Road alignment is at right angles, but is on the back of a curve which may not offer adequate sight lines, and hence lower road safety.

A roundabout would not be suited to the road hierarchy or pedestrian or bike safety.

Road has to cross more flood prone land and potential soft soils.

Landscape Commentary

Land development with point of difference responding to the unique qualities of the landscape setting. Green assets including tree lined Taylors Lane, creating 'Day 1 Impact' for future residents & businesses.

Alignment of new collector road responding to largely cleared grazing land.

E4

East 4

Summary Table	
Strengths	• Retains existing trees, cultural asset and potential biodiversity asset • Location of planned linkage into Taylors Lane within URA maintained • More direct link to the FNC • Potential for improved geometry for connection to FNC • More perpendicular crossing of area reserved for potential bypass • Creation of multiple development parcels within the R3 zone
Weaknesses	• Requires Taylors Lane link road off FNC to be retained for access to existing properties and developable land north side of Taylors lane • Reduction in developable land due to TPZ requirements • Fragmentation of farmland • Roads and intersections not designed or costed • New road is across private land/ land acquisition may exceed grant funding • Crosses more flood prone land and soft soils = more costly to design & construct
Opportunities	• Use of Taylors Lane as potential shared pathway / cycleway • Opportunity for trees to be located within a new open space, which could provide high amenity asset for new development

E4

East 4

Threats/Risks	• Cost and time to develop new road across private property is uncertain • The character of the arbour could be very different if located within an urban (developed) setting and with reduced use of the lane • Potential obligation for Council to acquire fragmented land. No mechanism to ensure protection of trees – 45 degree rule (local exemption maybe a possibility) • Geotechnical conditions are unknown • Limits access for future development R3/B1 zone • Time delay = risk to FNC grant funding
Cost	• Not costed. Total length of new road from FNC = approx. 510 m
Time	• Proposal is conceptual only, likely delays due to approvals, investigations, design and costing

E5

East 5

Overview	
Proposed by:	Studio GL
Also known as:	-
Road reserve width:	20m approx.
Road length (between URA and FNC):	500m approx. + 220m approx. (TL link road)

Key Characteristics

- Creates a new road to the south west with a more direct link from the south of the urban release area to the Far North Connector.
- New road would be perpendicular to potential future bypass and intersect with Far North Connector within land zoned for public open space. This road has not been designed and costed.
- All other roads as per current structure plan.
- Opportunity to retain trees along Taylors Lane and provide a new shared surface road (10km/h) or a shared path and cycleway.
- Retains size of developable land east of potential motorway.

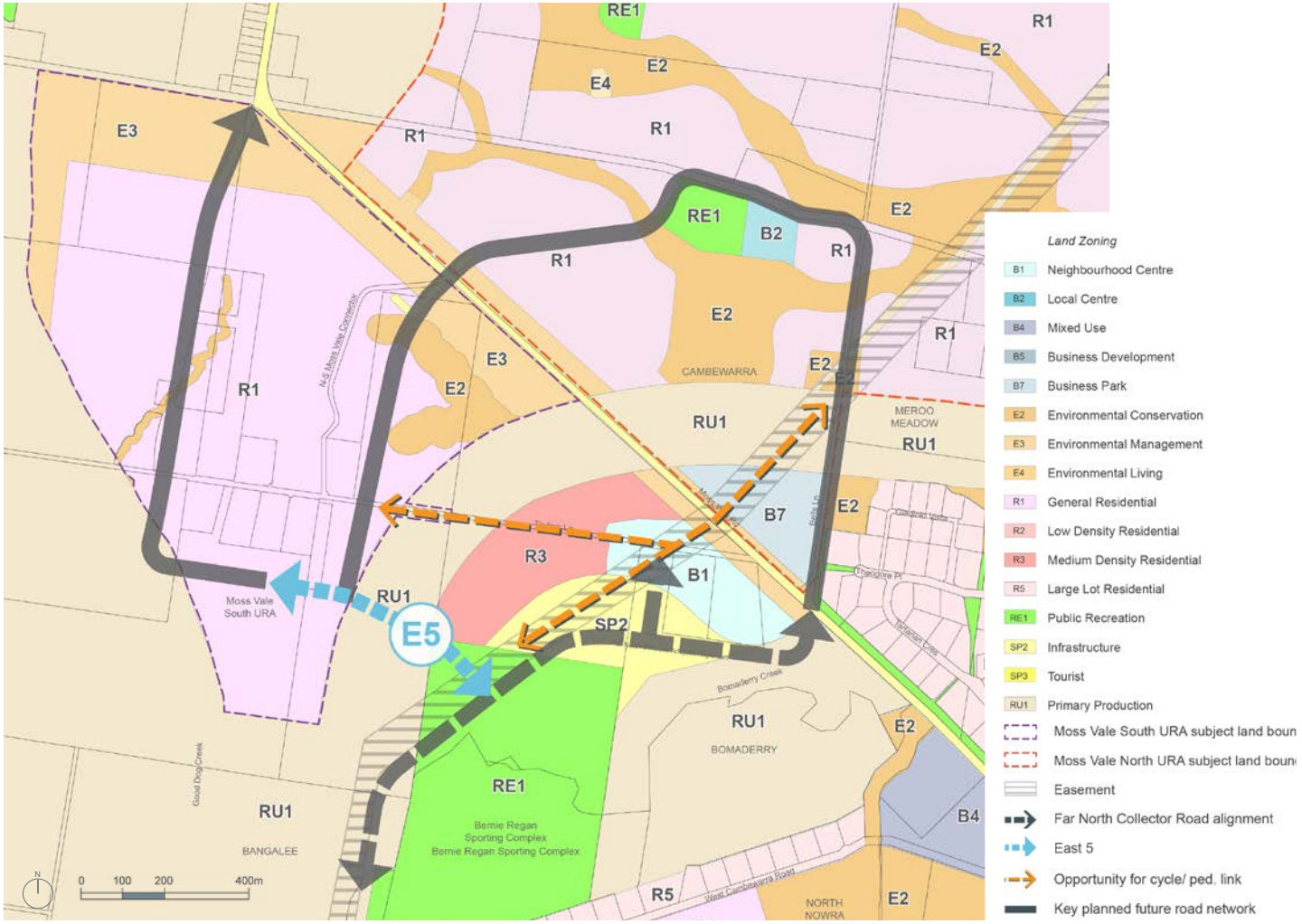


Figure 53 E5 network diagram

East 5

Stakeholder Commentary

This was not a preferred option for most as it connected into the MVRS URA south of Taylors Lane. The staged development proposed for the URA envisions development to the north of Taylors Lane first, followed by development in the southern parts at a later stage.

Connecting into the URA at the southern end does not match with the road hierarchy as planned in the MVRS URA, causing significant changes to the traffic movement.

E5 not a preferred option for farm owners at John V Evison Farm as the west part of this road cuts through their land (similar to E3), causing possible disruption to private access and future plans for the farm. They have had to provide a large amount of their farm land (Approx 7 acres) for the FNC Road to the south and this has greatly affected their farming operations. Also the Highway Bypass construction in the future would affect this option.

It was mentioned that a previous option considered by Council had a similar trajectory, but it wasn't considered feasible. It would be important to look into those notes.

Some residents favour this option, as it does not cut through smaller properties on the south side of Taylors Lane.

If this were to become the preferred link it would require a tie in to parts of the URA loop road, and might allow the existing treed section of Taylors Lane to be integrated into the medium density development.

Traffic Commentary

Comments on this option as per E4, but improves the safety of the T junction and its offset distance from the next access road to the east.

Some consideration will need to be made as to whether this and other options are appropriate crossing locations of the future western bypass (RU1 crescent) to the northwest of Nowra.

Road has to cross more flood prone land and potential soft soils.

Landscape Commentary

Land development with point of difference responding to the unique qualities of the landscape setting. Green assets including tree lined Taylors Lane, creating 'Day 1 Impact' for future residents & businesses.

Alignment of new collector road responding to largely cleared grazing land.

Removal of collector road from proximity to Taylors Lane creates a heightened focus on landscape setting for pedestrian/ bicycle path, uninterrupted by traffic flow.

Potential to retain Taylors Lane (west) as local road and associated benefits of 150 year old native trees. Would be subject to additional traffic analysis.

New collector road entry point facilitates arrival sequence through established sport and recreation areas, elevating the marketability of urban release area.

Promote active travel utilising walking and biking connections, alternatives to reduce car dependency.

Promote 'Green Grids' connecting fragmented landscapes for biodiversity.

Establish new connections to established sport and recreation amenities, creating interconnected open space networks.

Established trees canopies for shade & comfort, reducing pavement temperatures.

Retention of rural landuse as a historic/cultural asset.

E5

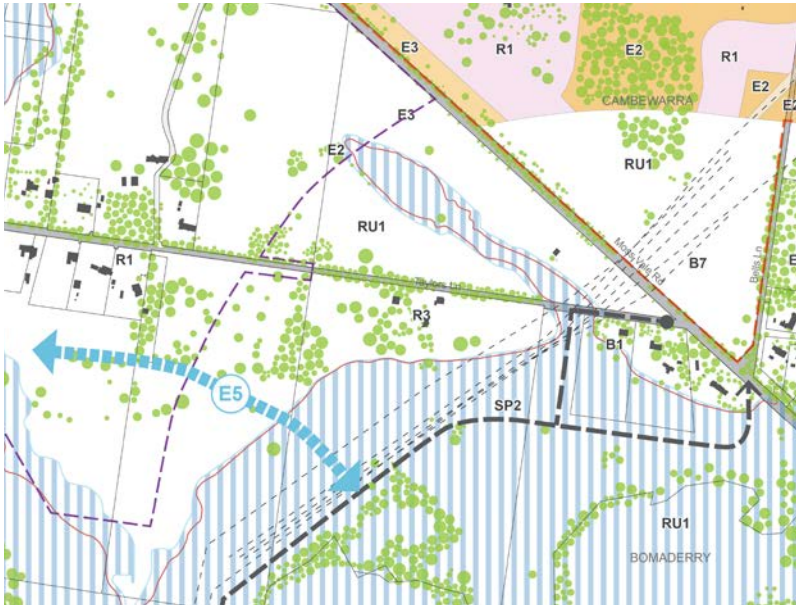
East 5

Summary Table	
Strengths	• Retains existing trees, cultural asset and potential biodiversity asset • Minimises length of new road construction • More direct link to the FNC • Potential for improved geometry for connection to FNC • More perpendicular crossing of area reserved for potential bypass • Creation of consolidated development parcel
Weaknesses	• Requires Taylors Lane link road off FNC to be retained for access to existing properties and developable land north side of Taylors lane • New road is across private land/ land acquisition may exceed grant funding • Significant fragmentation of farmland • Additional traffic analysis needed • Location of linkage into URA altered • Crosses more flood prone land and soft soils = more costly to design & construct
Opportunities	• Use of Taylors Lane as potential shared pathway / cycleway • Retention of visual curtilage • Opportunity for trees to be located within a new open space, which could provide high amenity asset for new development

E5

East 5

Summary Table (Continued)	
Threats/Risks	• Relies on development in the southern part of the URA (Stage 3) proceeding to enable connection- likely to be some time off • The character of the arbour could be very different if located within an urban (developed) setting and with reduced use of the lane • Potential obligation for Council to acquire fragmented land • Geotechnical conditions are unknown • Limits access for future development R3/B1 zone • Time delay = risk to FNC grant funding • No mechanism to ensure protection of trees – 45 degree rule (local exemption maybe a possibility) • Cost and time to develop new road across private property is uncertain
Cost	• Not costed • Total length of new road from FNC = approx. 410 m
Time	• Proposal is conceptual only, likely delays due to approvals, investigations, design and costing



3-4 Summary

	Taylors Lane West			Taylors Lane East				
	W1	W2	W3	E1	E2	E3	E4	E5
Also known as	DCP option	Alternative option 1	Alternative Option 2	Existing Option 1	Existing Option 2	Alternative option 1	Alternative option 2	Alternative option 3

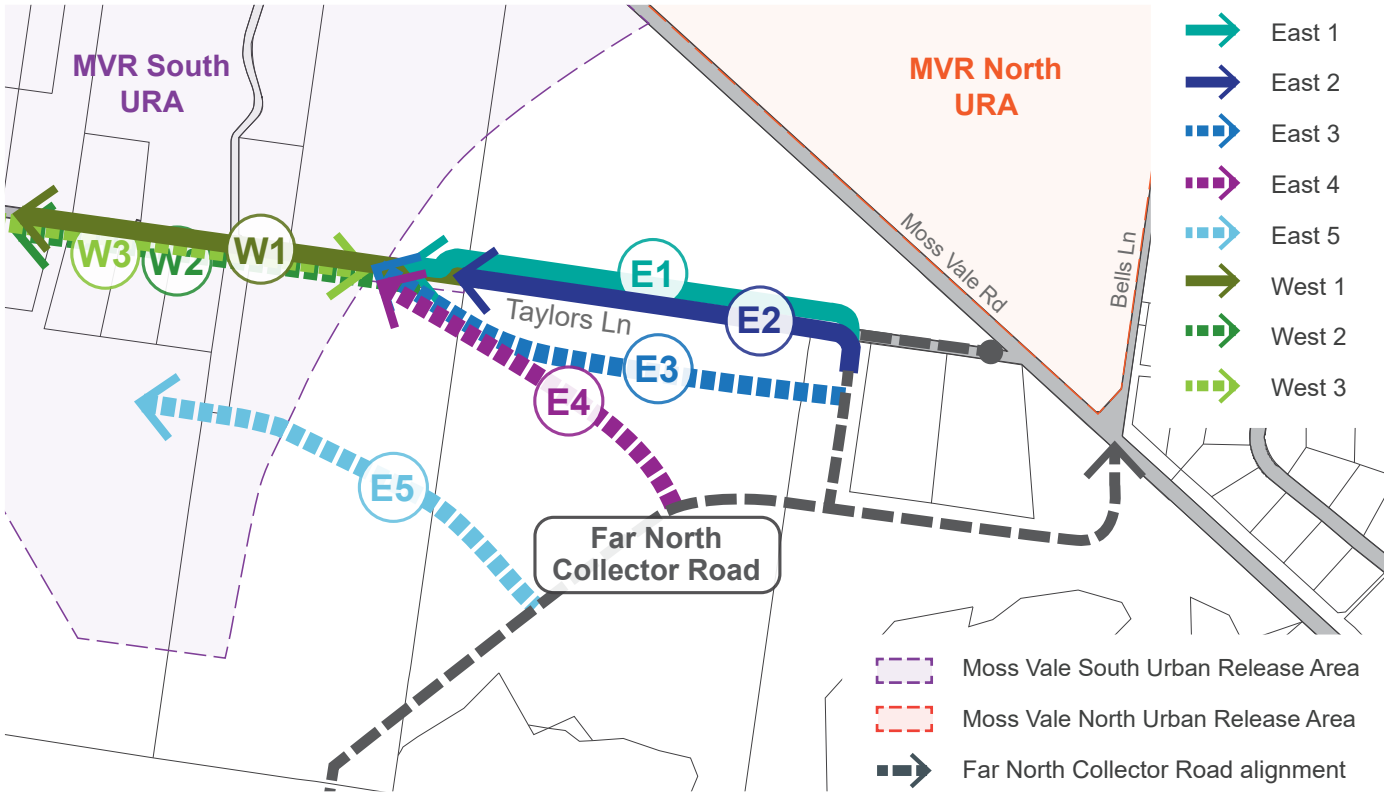


Figure 54 Diagram showing all ideas explored

3-5 Issues

Shared path and shared zone

A number of proposed options make reference to a shared path or a shared zone. Transport for New South Wales defines a shared path as "an area open to the public that is designated for the use of both bicycle riders and pedestrians. Shared paths can be identified by signs and/or pavement markings showing a pedestrian and a bike."

A shared zone is described to be "a road or network of roads or a road related area where space is shared safely by vehicles and pedestrians and where pedestrian priority and quality of life take precedence over ease of vehicle movement."

Criteria for Shared Zone:

- Current traffic flows ≤ 100 vehicles per hour and ≤ 1000 vehicles per day
- Current speed limit ≤ 10 km/h
- Length of proposed Shared Zone ≤ 400 metres
- Current speed limit of adjoining roads ≤ 50 km/h
- Current carriageway width minimum trafficable width of 2.8 metres
- Route access must not be located along bus routes or heavy vehicle routes except delivery or garbage trucks
- Streets with narrow or no footpaths where pedestrians are forced to use the road
- Kerbs must be removed unless excepted by the RMS (See Section 4)

	Taylors Lane West		Taylors Lane East			
Shared zone	-		E1a	E3	E4	E5
Shared path	W1	W2	E1	E2		

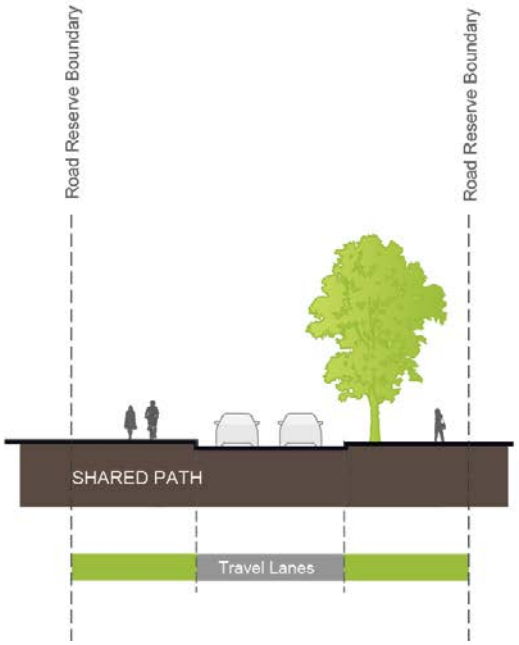


Figure 55 Shared path

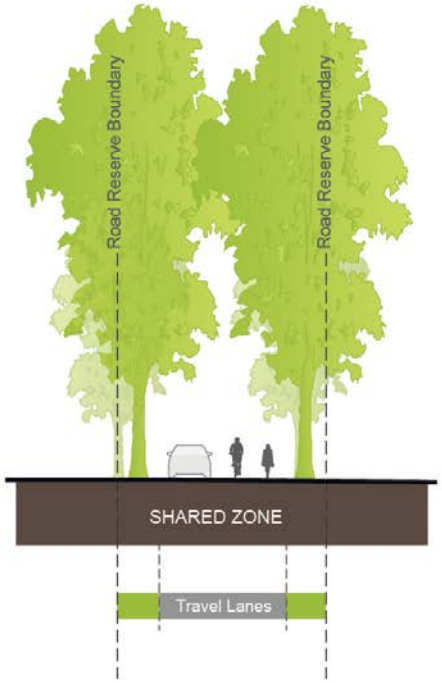
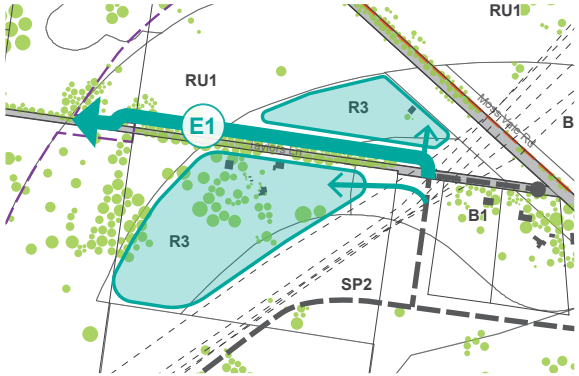


Figure 56 Shared zone

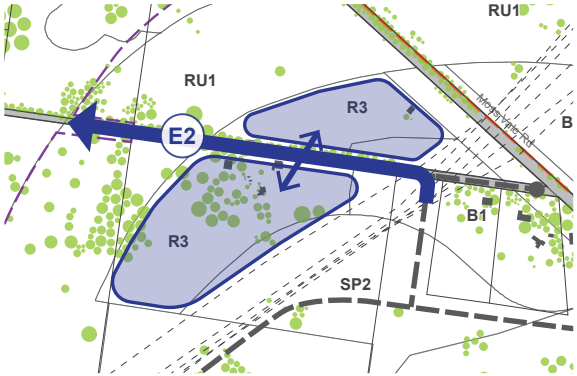
Access modifications

Modifying the access available via Taylors Lane will require alternate access to be proposed to the R3 Medium Density Residential land. Additionally, modification of these access links will ensure retention of Talyors Lane as an Active Transport Link.

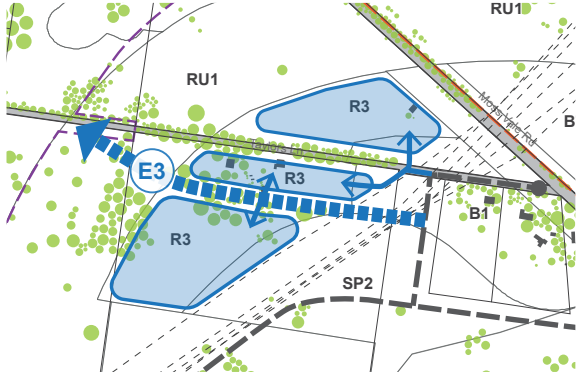
The following diagrams illustrate general principles for access under each of the explored options.



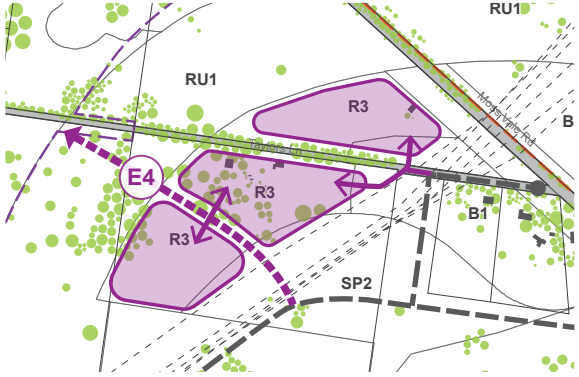
Access to the proposed R3 zone would be provided via E1 and the Far North Collector Road.



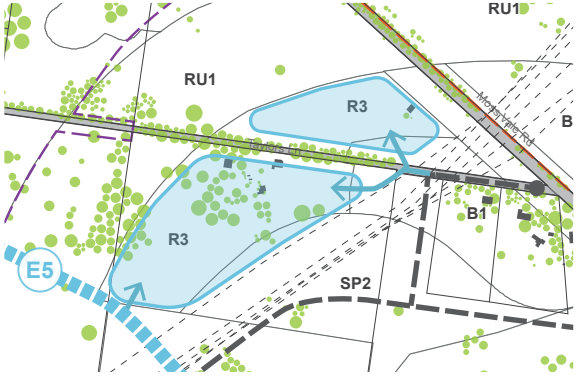
Access to the proposed R3 zone would be provided via E2.



Access to the proposed R3 zone would be provided via E3 and an additional access way alongside the easement.



Access to the proposed R3 zone would be provided via E4 and an additional access way alongside the easement.



Access to the proposed R3 zone would be provided via E5 and an additional access way alongside the easement. Alternatively, access to the northern area could be provided off the Far North Collector leg servicing the B1 zone.

CHAPTER 4
FINDINGS

4-1 Overall Response

This report has been developed to present options for the retention of the existing tress, currently located along Taylors Lane, Cambewarra. In order to provide these options, consideration has also been given to the future traffic needs of the Moss Vale Rd South Urban Release Area (MVS URA) that is located at the end of the laneway. Currently all the surrounding land is rural in nature, but this will change significantly over the next twenty to thirty years as development occurs in line with the approved URA planning instruments.

In order to service the access needs of the growing population, Shoalhaven Council has, in the URA documents, indicated that Taylors Lane would be upgraded to provide two-way access into and out of the URA, and a connection to the pending Far North Collector Rd (FNC), located to the south. This upgrade work is to be undertaken as part of the FNC works. The preferred option presented by Council, following investigations and consultation with stakeholders as part of the FNC project, would require the removal of the majority of mature trees located along the laneway.

Parts of the wider community has expressed dismay that these trees will be lost, as they are considered an item of cultural heritage and essential to the character of the area, even as it changes to its future character as an area supporting significant development.

In recognition of the differences between sections of the laneway, especially those within the designated URA and the area to the east of the URA boundary, options have been proposed for these two sections separately.

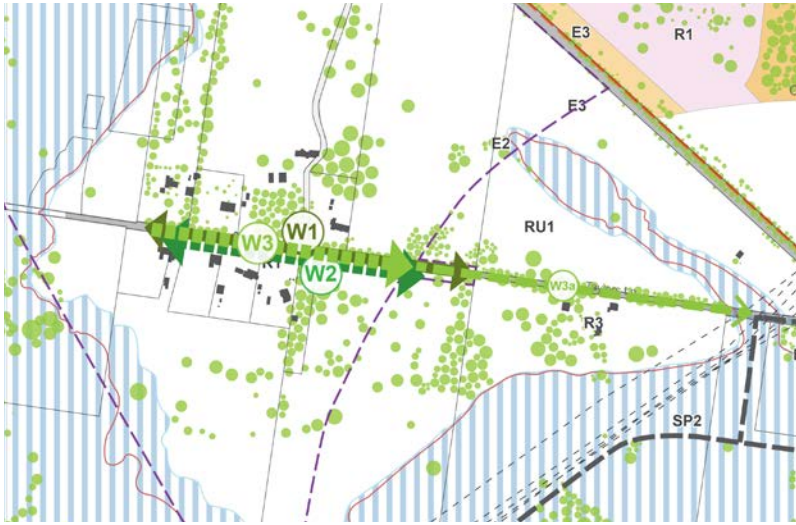
Western section

The western section of Taylors Lane lies within the boundary of the MVRS URA. This area will undergo significant changes as the land is subdivided and new residential development occurs.

The options within this area focus on how to retain some of the trees, being those located to the north of the existing laneway alignment. The existing scenario (W1), as indicated in the URA DCP document, allows for the removal of all large trees within the road reserve, with the provision of new street trees as part of the new development.

The second option (W2), retains trees to the north, retains the existing laneway alignment as an east bound lane, with the westbound lane being located well south, outside the nominal TPZ of the retained trees.

The third option (W3) retains the trees to the north, retains the existing laneway alignment as an east bound lane, and does not provide a west bound lane. All traffic along Taylors Lane would only be able to travel east through this section. An extension of this option (W3a) proposes extending the east bound only lane all the way to the connection with the FNC.No traffic would be able to enter the URA via Taylors Lane, instead all access would be provided via Moss Vale Rd.



Eastern section

The eastern section of Taylors Lane lies outside the boundary of the MVRS URA. This section traverses an area designated for a potential motorway bypass, that is currently zoned and used as Primary Production land. It also crosses land zoned for future medium density development and land zoned for future business uses, before it connects to Moss Vale Rd.

Significant changes to traffic flow will occur within this section, as the intersection with Moss Vale Rd is to be terminated, and the new FNC road is proposed to be constructed to the south. A small connector road is also proposed between Taylors Lane and the FNC.

This section also is the location of the most recognisable section of trees. Located either side of the road reserve, these large trees form a dense arch across the laneway for a significant part of this section. This is where local residents have often had wedding photos taken, and the grove is very distinctive and ingrained in the existing character of the area.

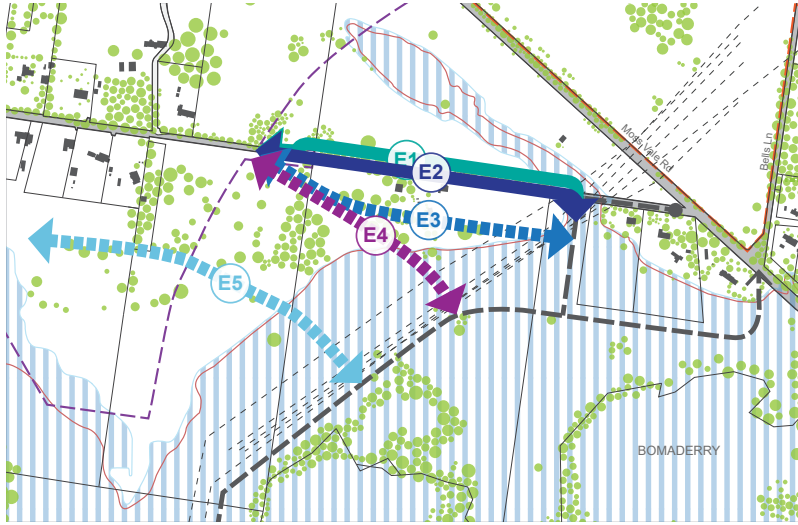
From a purely practical perspective, these trees are a challenge. They are very large and are not a usual street tree species. They will require on-going maintenance and monitoring to ensure that they do not present an unacceptable hazard, but they are also an irreplaceable asset. At approximately 100 to 150 years old, these trees are not comparable to replacement trees that are planted now.

The first two options presented were developed during Council's work relating to the FNC, as a way of upgrading Taylors Lane to carry the expected traffic flow between the URA and the FNC. The first option (E1) relocates the road north of the trees, but in close proximity, which raise the issue of potential long term detrimental impacts on the trees, and also does not address the 'role' of the trees in the new development that will occur around the retained laneway.

The second option (E2), which was Council's preferred option, proposes complete removal of all trees that impact on the construction of a new tree lined boulevard, that would provide a well mannered, but generic, access into the URA. New street trees, planted as part of this upgrade, would be unlikely to ever reach the height of the existing trees, and would definitely not do so within our lifetime.

The remaining three options all move the new road access away from the laneway alignment, to varying degrees. Option three (E3) moves the road to the south, but sufficiently so that there would be no impact from the road on the long term health of the retained trees.

Option four (E4) moves further south, and modifies the connection of this new road into the FNC, which retaining the nib connection to the east to service the R3 residential land and B4 business land adjacent to Moss Vale Rd. This option does divide the R3 land into smaller development parcels.



Option five (E5) moves the road further south and west. The connection to the URA and the FNC are modified, but the road does not bisect the R3 land, instead it crosses into the Public Open Space.

All these options modify how the connector road crosses the services easement, and the Primary Production lands, that may one day be required for a motorway by-pass. They all also result in the retained tree lined laneway being repurposed as a pedestrian / cycleway, with connections into the wider active transport network.

All the options have been scored on a matrix as follows.

4-2 Scoring Matrix

In order to correlate all the issues that need to be considered in determining a recommended option, a weighted matrix has been developed that identifies a range of relevant issues, considers the weighting of that issue and then addresses each option, depending on the impact of the issue on the option.

Impact on trees

This issue measures the impact of the option on the existing trees, using a scale of 0 – no impact, to 5-significant impact. Impact can include removal of some or all of the existing trees.

The weighting given to this criterion for the western section was 25%. The trees in this section are not as iconic as those in the eastern section.

The weighting given to this criterion for the eastern section was 35%, in recognition of the importance the wider community places on these trees and the visual and cultural place they have in the character of this area.

Impacts on land

This issue measures the impact of the option on adjacent land, both developable and non-developable. This is measured using a scale of 0-no impact, to 5-significant impact.

The weighting given to this criterion for the western section was 30%, but only for impacts on R1 lands, as the land is subject to the MVRS URA DCP.

The weighting given to this criterion for the eastern section was 25%, as the impacts are wide spread across a range of land uses.

Impact on non-developable (RU1-Primary Production) land- considered the comments received from the current owners / users of this land.

Impact on non-developable (RE1-Public Open Space) land- considered the impacts of the options on the open space to the south of Taylors Lane. The new FNC works will have significant impacts on this area, but one of the proposed options would further increase this impact.

Impact on developable land- Land currently zoned R3 Medium Density Residential, B1 Neighbourhood Centre and SP2 Infrastructure – Educational, would all be impacted to various degrees by the proposed options. These impacts include fragmentation, reduction, and isolation.

Impact on traffic flow / accessibility

This issue measures the impact of the option on traffic movement, and general accessibility. Measured on a scale of 0-no impact, to 5-significant impact, this relates to how traffic will flow through the area, and into and out of the URA. Ease of accessibility to new developments is also considered, as is the way the option places Taylors Lane within the wider road network.

The weighting given to this criterion for both sections was 20%, in consideration of how the various options will impact how traffic flows through and around the area, and how connectivity is affected.

Cost – land acquisition

This issue measures the impact of the option as it relates to the costs of land acquisition. This is measured on a scale of 0-no impact, to 5-significant impact, and relates to the amount of additional land that would need to be acquired for the option to be constructed.

The weighting given to this criterion for the western section is 10%. Actual costs relating to land acquisition are unknown, but there is a discernible quantum of land required for each option. The land in this section is subject to the MVRS URA DCP, with planning for development already underway.

The weighting given to this criterion for the eastern section is 5%. Actual costs relating to land acquisition are unknown, but there is a discernible quantum of land required for each option.

Impact on scenic value / amenity

The trees that line the entire length of Taylors Lane to some degree, are large, well established native species. As such they provide significant scenic value to the area and are integral to its current character. The role these trees may play in the future character of this area is at the centre of this report.

The weighting given to this criterion is 10% for both sections, as the retention of the scenic quality of this area, even as it undergoes significant change, is of importance to the wider community.

Cost - construction and constructibility

This issue provides a relative indication of cost of construction and constructibility of each option based on Council's costings and on a high level square metre costing produced by Henson Consulting as well as an assessment of constructibility. Measured on a scale of 0-most cost effective, to 5-least cost effective. The options are rated relative to each other.

The weighting given to this criterion for both sections is 5%. The costing and constructibility assessment is very preliminary and does not account for any latent conditions relating to soil type or other specialist requirements.

4-2 Scoring Matrix- West

	West Options								
	Weighting	W1	Weighted Score	W2	Weighted Score	W3	Weighted Score	W3+W3a	Weighted Score
Impact on trees	25%	5	1.25	3	0.75	1	0.25	1	0.25
Impact on traffic flow	20%	0	0	2	0.4	3	0.6	4	0.8
Cost - land acquisition	10%	1	0.15	3	0.45	1.5	0.225	0	0
Impacts on developable R1 land	30%	0	0	4	1.2	2	0.6	2	0.6
Impact on scenic value/ amenity	10%	4	0.4	3	0.3	1	0.1	2	0.2
Cost - construction and constructibility	5%	3.5	0.175	4	0.2	3	0.15	3	0.15
Total	100%		**1.925**		**3.15**		**1.85**		**2**

The lowest score, which is an indicator of the lowest impact related to the identified range of criteria, for the western section was for Option W3. This reflected the limited impact on the trees, due to the retention of the majority of trees to the northern side of the laneway, the acceptable impacts on developable land, no requirement for land acquisition and acceptable impact on the scenic value and amenity provided by the trees that are retained. There will be some impact on traffic flow, due to the instigation of a one way system with traffic only travelling in a easterly direction.

The highest score, with the most impact was Option W2, due to the significant impacts on trees, combined with impacts on developable lands, potential costs for land acquisition, traffic flow and scenic value and amenity.

4-2 Scoring Matrix- East

	East Options											
	Weighting	E1	Weighted Score	E1a	Weighted Score	E2	Weighted Score	E3	Weighted Score	E4	Weighted Score	E5	Weighted Score
Impact on trees	35%	3	1.05	2	0.7	5	1.75	1	0.35	0	0	0	0
Impacts on land *	25%	1.7	0.425	1.7	0.425	0.7	0.175	3.3	0.825	3.3	0.825	3.3	0.825
Impact on traffic flow/ connectivity	20%	3	0.6	4	0.8	0	0	0	0	0	0	3	0.6
Cost - land acquisition	5%	4	0.4	2	0.2	2	0.2	5	0.5	5	0.5	5	0.5
Impact on scenic value/ amenity	10%	3	0.3	3	0.3	4	0.4	2	0.2	2	0.2	2	0.2
Cost - construction and constructibility	5%	5	0.25	5	0.25	3	0.15	4	0.2	2	0.1	1	0.05
Total	100%		**2.825**		**2.575**		**2.575**		**1.825**		**1.375**		**1.925**

The lowest score, which is an indicator of the lowest impact, as measured against the identified criteria for the eastern section, was for Option E4. This option relocates the access road between the URA and the FNC well to the south and west of Taylors Lane. The existing trees are retained, and the area is developed as a shared path for active transport, connected into a wider network.

Overall all three options that relocated the access road had higher impacts on land, as they required land in addition to that within the existing road reserve. Note also needs to be taken that these options are untested from a constructibility perspective, and other issues could arise due to constraints that are outside the purview of this report.

The current option proposed by Council did not present as having the greatest impact, but if compared to Option 1a, that utilises a raised surface that would limit the impact on the tree roots, would likely result in more significant impact on the trees. Of the two, Option 1A would be preferable if the trees are the deciding criterion.

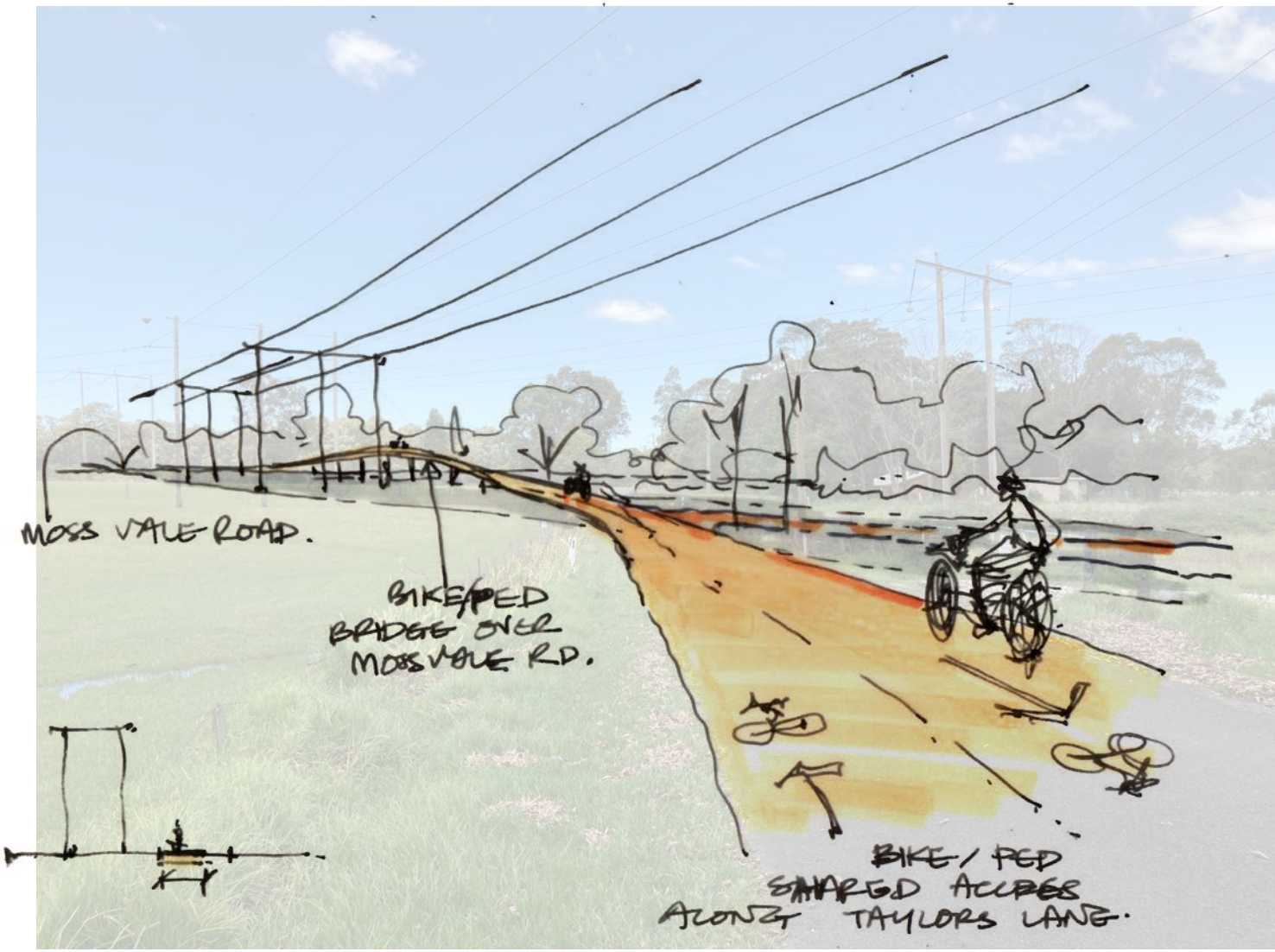
Impacts on land*	E1	E1a	E2	E3	E4	E5
Impact on non-developable (RU1) land	3	3	1	5	5	5
Impact on non-developable (RE1) land	0	0	0	0	0	5
Impact on developable (B1, R3 and SP2) land	2	2	1	5	5	0
Impacts = /3	**1.7**	**1.7**	**0.7**	**3.3**	**3.3**	**3.3**

Overall recommendation

The overall recommendation is a combination of Option W3 for the western section of Taylors Lane, and Option E4 for the eastern section. Combined these options provide for the retention of a very significant number of the existing mature trees in the road reserve, whilst also supporting the level of development proposed for this new urban release area.

In the future, the eastern section of Taylors Lane will be a well loved shared path used by pedestrians and cyclists to access across the area, including to neighbourhood retail opportunities proposed for the Moss Vale Rd North URA and recreational facilities to the south.

Traffic will be able to access the URA from the FNC, but this traffic will then divert as it enters the URA, so this route will not develop as a alternate access to that proposed in the URA strategy, but will instead be a back route used by some locals to access their homes. If there is a need for evacuation or emergency access, or access for short durations of road works etc, then the opportunity is still present to utilise this route.



CHAPTER 5

RECOMMENDATIONS

5-1 LEP amendments

The current land use zoning map (shown in Figure 57) appears to bear limited relationship to the breakup of land ownership, site boundaries or road network. There has been an inference that the boundaries used for the various land uses related to the proposed location of the FNC, and as such are no longer relevant, due to the revised road alignment.

The most significant impact on zoning within this area is the land that has been 'reserved' for a potential motorway bypass that may occur within the next few decades. In the interim this land retains its original zoning of Primary Production and is worked as rural land. The suitability of land of this nature in close proximity to what will be a growing community of new homes will require future consideration, especially if the bypass is eventually dismissed as an future option, or is re-routed.

The impact of the service easements is also significant. With a major regional gas line running through this area, there is limited options for any form of construction or development on or near this area. The use of this connected continuous strip of land, as a pedestrian / cyclist shared path is an obvious option as it retains the necessary accessibility for works to the services lines as required.

The impact of the proposed FNC works on flooding is also unknown at this time, but there is an assumption that the new road may have a 'damming' effect on flooding from the south east.

The areas identified for re-zoning, within flood impacted areas, are adjacent to land already so impacted. Further investigation would be required to determine how impacted this land would be, and its suitability for the proposed uses.

The provision of a zone for a school or educational establishment in this vicinity was an attempt to future proof the area, given the likely significant increase in school aged children as the URA is inhabited. Changes in the Department of Education's method of supporting additional students, from building new schools, to consolidating density on existing school sites, has possibly made this land use redundant in this location.

Even though the HillPDA report indicated that the provision of a B1 Neighbourhood Centre zone in this location was not necessary, this is not considered sufficient to support down-zoning of this area. Alternatively, this area could be rezoned to R3 Medium Density Residential in line with adjacent land either side of Taylors Lane.

There is also an acknowledgement that zones should be contiguous, and isolated sites with unrelated zonings are less likely to develop in an orderly or useful way.

For these reasons, the changes outlined on the following page have been proposed.

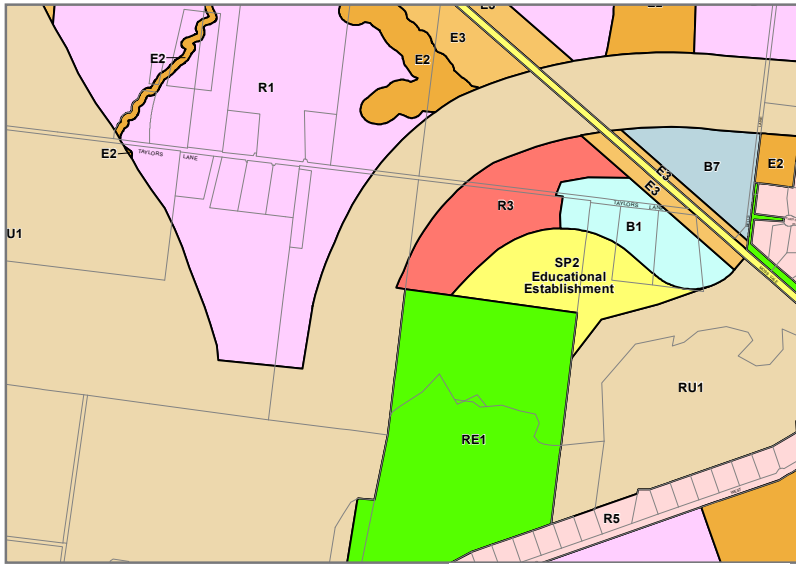


Figure 57 Diagram showing existing land zoning

B1	Neighbourhood Centre
B7	Business Park
E2	Environmental Conservation
E3	Environmental Management
R1	General Residential
R3	Medium Density Residential
RE1	Public Recreation
RU1	Primary Production
SP2	Infrastructure

5-2 Suggested LEP Amendments

1. Consider rezoning B1 Neighbourhood Centre and SP2 Educational Establishment to R3 Medium Density Residential to increase developable land area and consolidate residential uses north-west of the easement. Pending investigation of flood impacts. In particular, potential reduction in flood impact due to FNC construction.

2. Consider rezoning B1 Neighbourhood Centre (within the easement) to SP2 Infrastructure to acknowledge impact of service on future development. Alternatively, all SP2 Infrastructure land could be rezoned to RE1 Public Recreation.

3. Consider rezoning SP2 Educational Establishment and RU1 Primary Production to B1 Neighbourhood Centre to improve exposure to the Far North Collector Road and consolidate employment land. Council has advised SP2 Educational Establishment is no longer required. Pending investigation of flood impacts. In particular potential reduction in flood impact due to FNC construction. Alternatively, all B1 Neighbourhood Centre land could be rezoned to R3 Medium Density Residential.

4. Consider changing to RE1 Public Recreation to consolidate land south of the Far North Collector Road.

5. Consider changing SP2 Educational Establishment to RU1 Primary Production to consolidate land south of the Far North Collector Road.

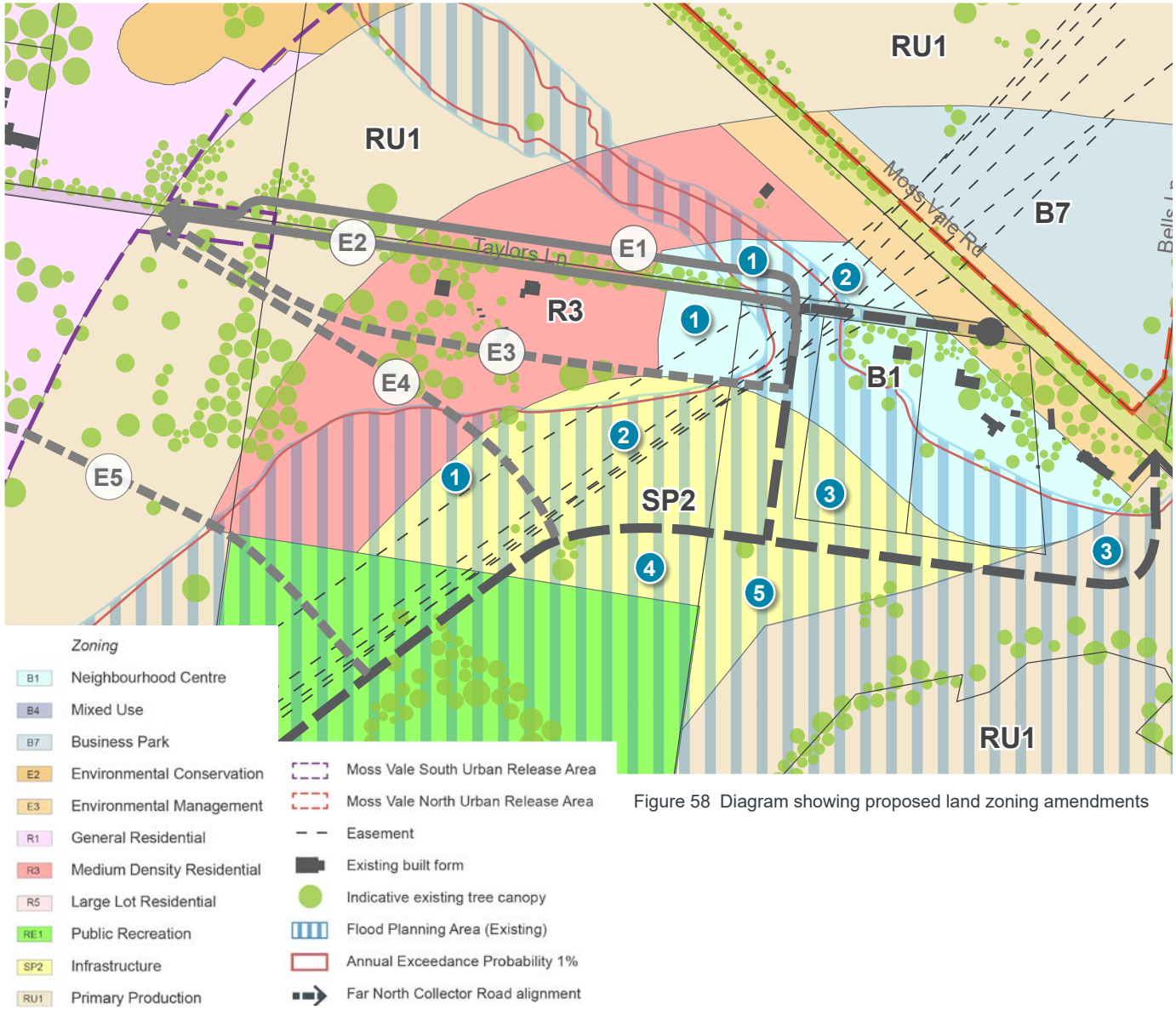


Figure 58 Diagram showing proposed land zoning amendments

5-3 Suggested DCP Amendments- East and West

In retaining the trees along Taylors Lane, on both sides within the eastern section, and on the northern side in the western section, consideration needs to be given to how the retained shared path will operate. In order to support this area as a safe, well maintained and activated area, for its full length, the following DCP amendments are proposed.

The following are issues illustrated in the adjacent diagrams:

- Taylors Lane reserve is to be expanded to include the required tree protection zone (TPZ) of approximately 13m beyond the edge of the existing trees to each side.
- The TPZ can be amended if evidence is available that sufficient distance has been provided to prevent damage or compaction of the tree roots of retained mature trees.

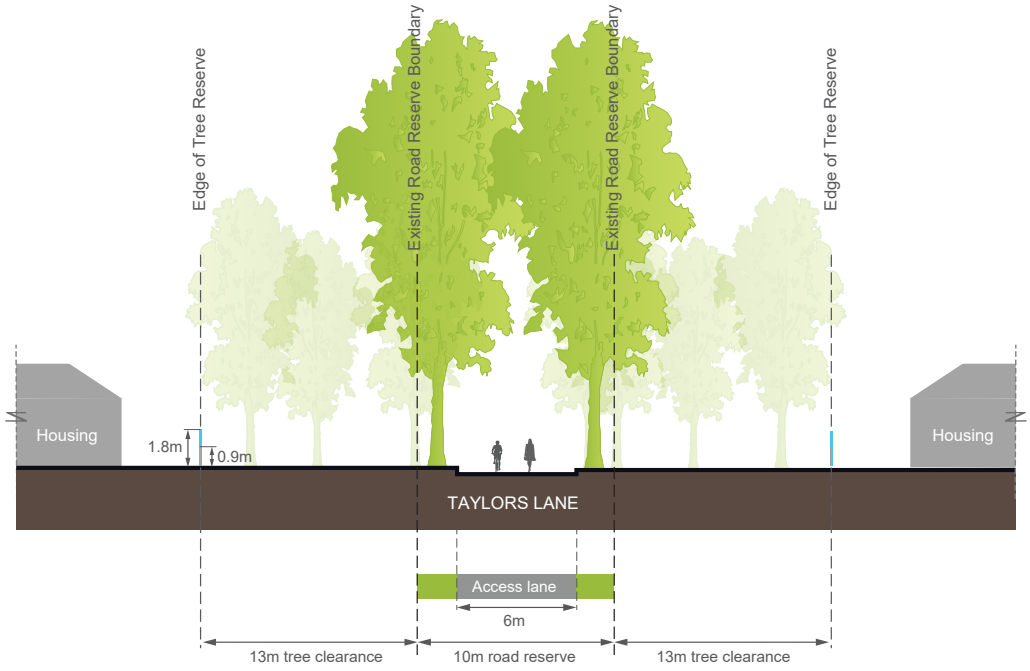


Figure 59 Street Section across Taylors Lane showing proposed DCP amendments

- Dwellings are to side on to the Taylors Lane treed zone, wherever trees are retained.
- No driveways are to cross the treed zone.
- Side fencing to be a maximum of 1800mm for a maximum of 50% of the length of the boundary. Remainder to be a maximum of 900mm, to ensure good surveillance and connection with the path or road.
- Dwellings adjoining the tree zone are to have a minimum of 2 windows into habitable rooms, facing the zone, whether this is to a shared path, a shared zone or a road way.
- Roads that run perpendicular to the treed zones are to terminate, and are not to cross this zone, to limit the impact on the tree root zone.

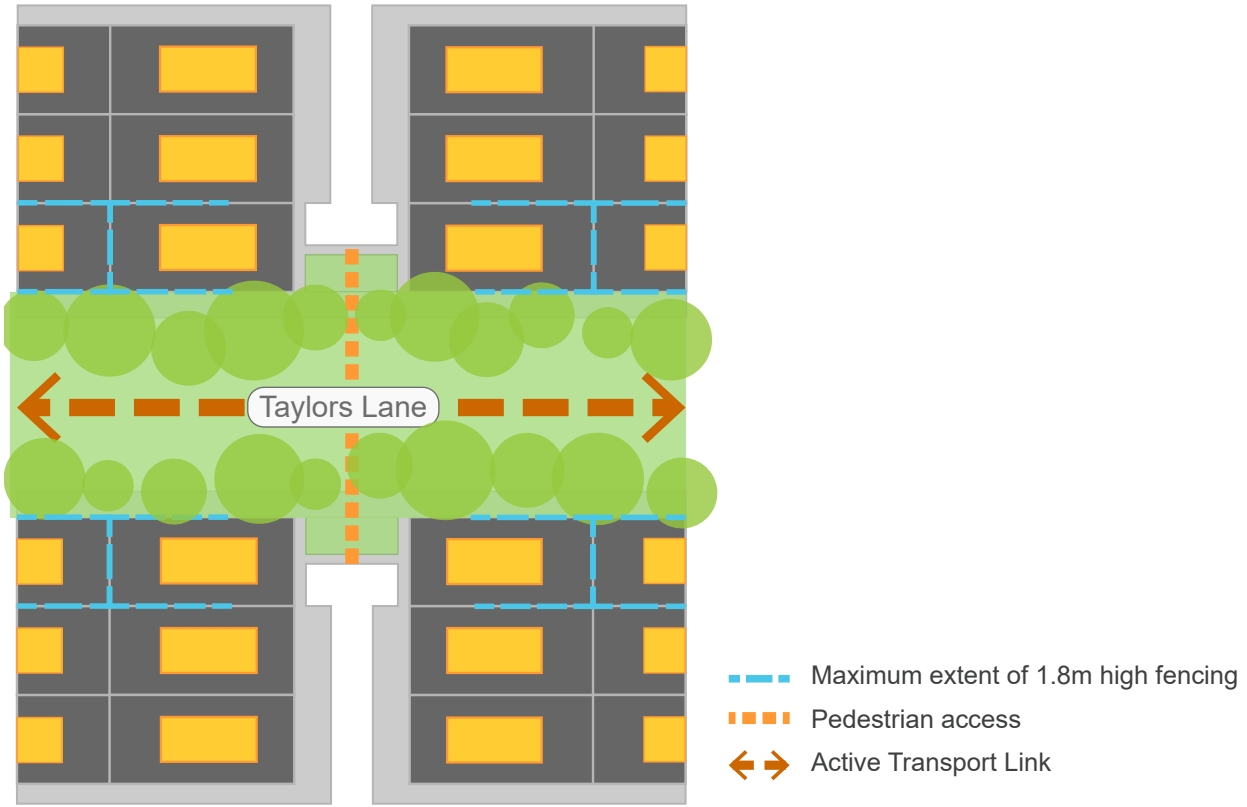


Figure 60 Diagram showing proposed urban structure

5-4 Further investigations

This report considers all these options at a conceptual level. No consideration has been given to the detailed design and practicalities of building these options in the locations indicated.

Further investigations would be required into the following:

- Impacts of crossing the service easements provided for electrical and gas supply.
- Potential geotechnical constraints.
- Detailed road design.
- Possibilities for alternate technologies, such as the potential for use of a raised surface system, which could be incorporated in any of the options.

This report also proposes general amendments to the LEP maps, at a conceptual level. Detailed studies, especially into the issue of flooding, would be required prior to any of these amendments being progressed. The impact of the construction of the FNC on the flood levels likely throughout this area would need to be determined, in detail, before any changes to land use on the identified flood impacted land could be considered.

The TPZ that has been used throughout this report is based on information provided by two Arborists. A detailed study of the trees, and a mapping of the tree roots would be advisable, to determine the extent of area to be protected, in order to maximise the long term health of the retained trees. The 13m indicated zone may be able to be reduced, if there are not areas of tree roots, or canopy, that would be compacted or damaged if development was allowed to be closer. Alternatively, further studies may identify that in certain circumstances additional distance is required to ensure no impact is inflicted.

If the trees are to be retained, care and consideration needs to be given to ensure that they remain in top condition, as their loss over time due to on-going impact of development would be unfortunate.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