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Knox Green Areas & Rural Strategy (GARS)

Draft Issues and Opportunities Report

Draft for Consultation - March 2020

Document Register					
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Acknowledgement of the Traditional Owners

Knox City Council acknowledges the traditional custodians of the City of Knox, the Wurundjeri and Bunurong people of the Kulin Nation.

Contributors

This document has been written by officers of the Knox City Council and is informed by a number of background technical reports. Knox City Council acknowledges the contribution of the following consultants to the background reports:

Hansen Partnership, Urban Enterprise, Context, RMCG, Ecology and Infrastructure International (EII), Urban Ecology in Action and EcoAerial.

Disclaimer for maps in this report:

Roads and Title Boundaries - State of Victoria, Knox City Council
 Planning Scheme Information - DELWP, Knox City Council
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Introduction

This report summarises the findings of Stage 2: Issues and Opportunities Analysis for the Green Areas and Rural Strategy (GARS) project. This paper follows from, and is to be read in conjunction with the GARS Setting the Scene Report (February 2019).

This Stage 2 report provides a summary of analysis undertaken and the key issues and opportunities identified for each GARS precinct. The last chapter of this report also provides recommendations for all precincts. The purpose of this report is to seek feedback on the recommendations arising out of the issues and opportunities analysis for each precinct. These findings are to be used in conjunction with Stage 3 Visioning to inform the development of strategic directions for the Study Area in Stage 4 of the project.

About the Project

The GARS project is a strategic review of five precincts within the Knox City Council (KCC) municipal boundaries. These precincts have high environmental and landscape significance within Knox and contain land predominantly used for rural, conservation, resources, open space, recreation and other public purposes.

The project will deliver a strategy that will provide objectives and strategic directions for each precinct within the Study Area. The key focus of this project is on land use planning in order to inform the planning framework, statutory instruments including the Knox Planning Scheme (the Scheme) and future decision making. However, the project also provides non-planning recommendations in the fields of environmental management, parks and recreation, utility services, land management and community partnerships, where appropriate.

Study Area

The Study Area, as indicated in Map 1, has been divided into the following five precincts based on location, landscape characteristics and existing planning controls:

Precinct 1: The Basin Rural Landscape

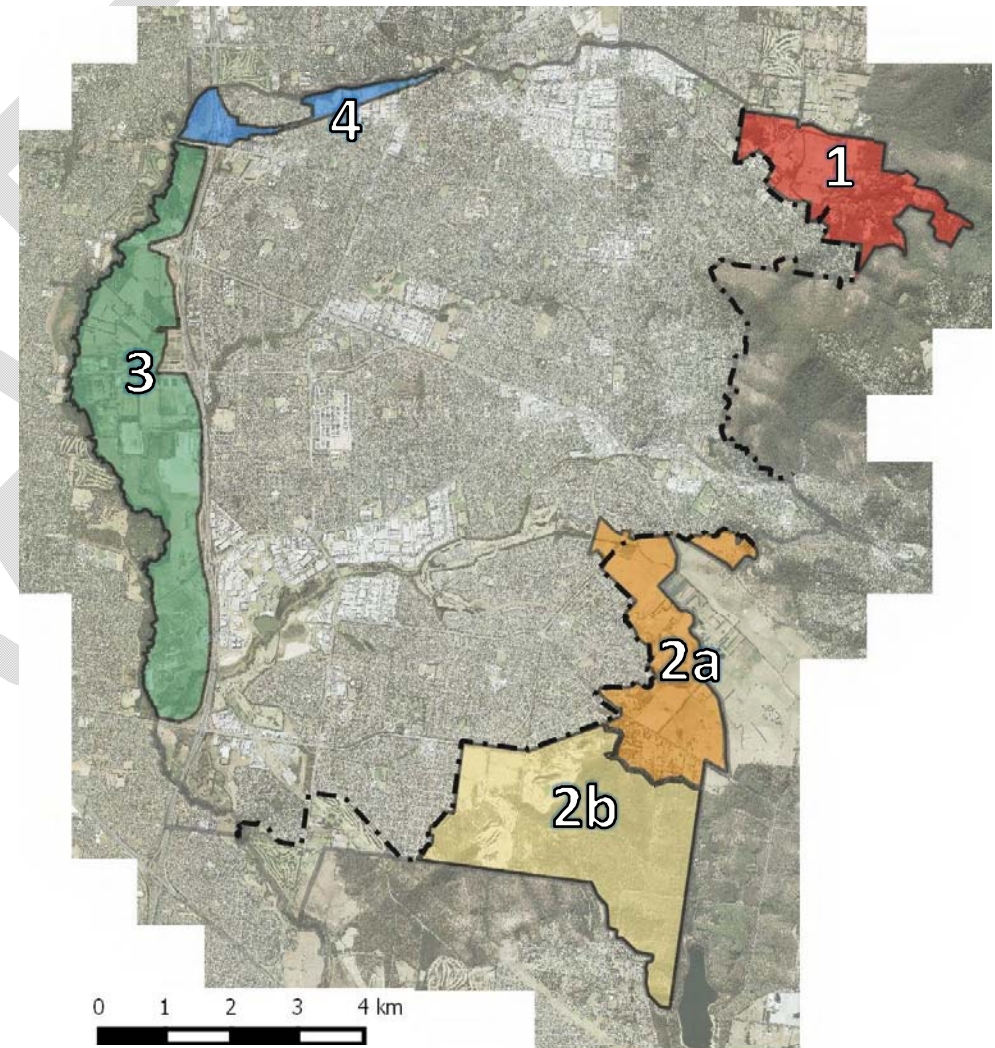
Precinct 2a: Lysterfield Valley and Hills

Precinct 2b: Lysterfield Quarries and Surrounds

Precinct 3: Dandenong Creek Valley Precinct

Precinct 4: Healesville Freeway Reservation and Surrounds

The Study Area comprises land outside the Urban Growth Boundary (UGB) in The Basin to the north east of the municipality, and in Lysterfield to the south east of the City, which provide a transition between suburban areas in Knox and Dandenong Foothills to the east. The Study Area also includes rural and parkland/conservation land in the Dandenong Creek Valley to the west of the City, as well as the area reserved for the proposed Healesville Freeway extension.

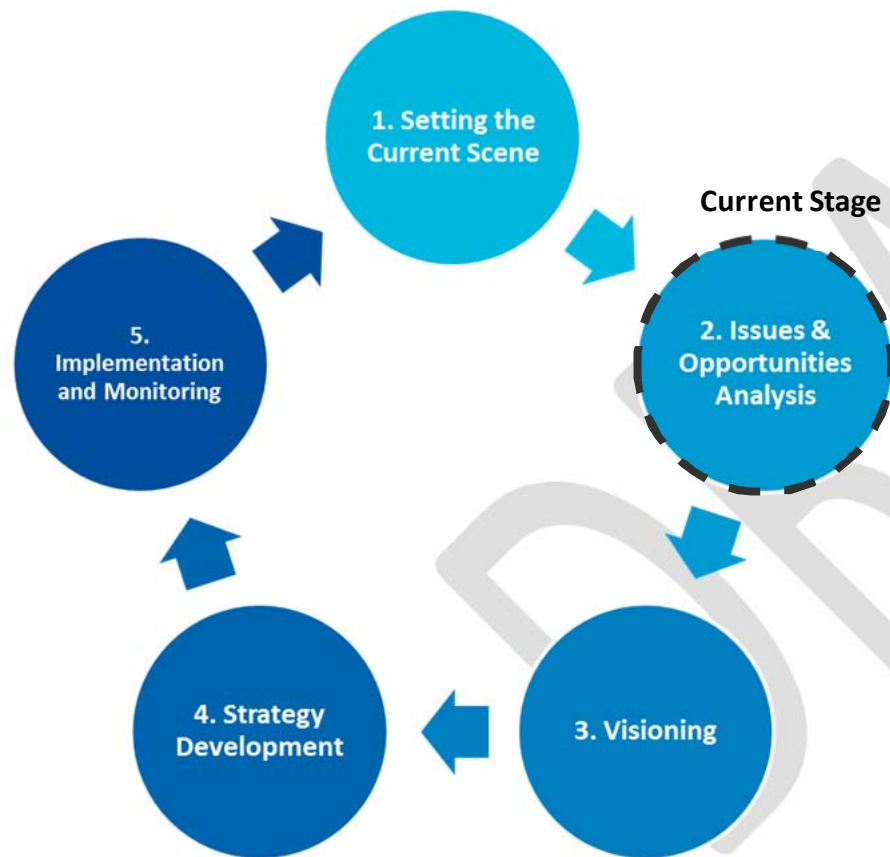


Map 1 – Study Area

Methodology

Project Methodology

The GARS project is being undertaken in five stages as depicted below and detailed in the Setting the Scene report. This paper summarises the findings of Stage 2 – Issue and Opportunities Analysis.



Stage 2 Methodology

The Stage 2 Issues and Opportunities Analysis has involved the following steps:

- i. Analysis of the information collated in Stage 1 - Setting the Scene
- ii. Review and extraction of issues and opportunities from the background studies
- iii. Engaging consultants to undertake additional assessment as identified through the Stage 1 gap analysis
- iv. Internal analysis and targeted consultation with internal and external stakeholders
- v. Compiling and synthesizing the key finding of the research and consultation
- vi. Collation and creation of GIS datasets; mapping and graphic representation of the issues and opportunities overlaid upon each other
- vii. Strategic assessment of competing issues and opportunities for precincts or specific places. For example, the assessment of economic potentials vs. environmental values vs. landscape sensitivities
- viii. Evaluating the recommendations in terms of reasonableness and practicality
- ix. Preliminary consideration of the recommendations in light of current provisions of the Scheme; translating the recommendations into planning language where required
- x. Summarising key issues and opportunities and providing a suite of “**Recommendations**” for each precinct. The recommendations have been organised under the following three themes:

Theme 1: Ecology

The recommendations under this theme are informed by internal analysis as well as the following consultant report:

- Knox Wildlife Conservation and Connectivity Report (Ecology and Infrastructure International (EII); Urban Ecology in Action; EcoAerial, 2017). This study also provided the GIS database for Knox Wildlife Atlas.

Theme 2: Landscape and Heritage

The recommendations under this theme are informed by internal analysis as well as the following consultant reports:

- Landscape Values and Character Assessment (Hansen Partnership, 2019)
- Preliminary Heritage Review: Knox Rural Heritage (Context, 2017)

Theme 3: land Use and Access

The recommendations under this theme are informed by internal analysis as well as the following consultant reports:

- Assessment of Agricultural Potential of Rural Land in Knox (RMCG 2016)
- GARS Economic Study (Urban Enterprise, 2019)

These recommendations will be tested through consultation prior to informing the draft GARS strategies.

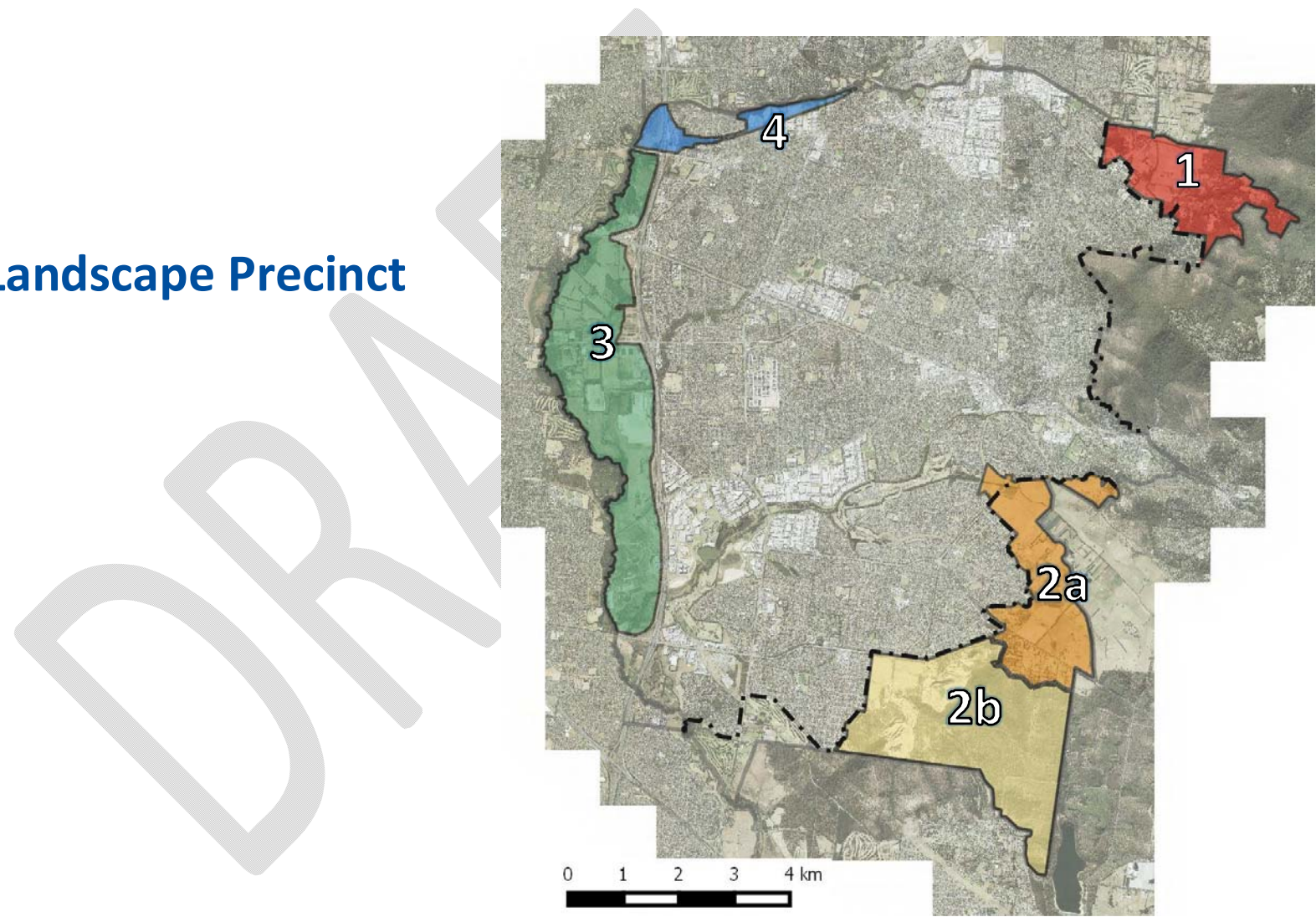
New PPF Framework

It is noted that the policy framework within the Scheme is currently undergoing a comprehensive review to organise the Scheme content in a new structure Planning Policy Framework (PPF). In addition the Municipal Strategic Statement (MSS) will evolve into a new Municipal Planning Strategy (MPS). This review is being led by the Department of Environment, Land, Water and Planning (DELWP).

Considering this translation work is currently in progress, this report bases its analysis of the Scheme on the existing structure. However, where recommendations have been made for amendments to the Scheme, efforts have been made to take into account the new format.

Precinct 1:

The Basin Rural Landscape Precinct



Theme 1: Ecology

Wildlife Habitat and Connectivity (Map 2)

The Knox Wildlife Conservation and Connectivity Report (2017) is a key technical report that informs the ecological considerations and recommendations for this precinct. The report concludes that the precinct plays a key role in wildlife habitat and movement as it contains large extents of Ecological Vegetation Class (EVC) groups and a high density of watercourses and remnant vegetation.

Being surrounded on the southern, eastern and north-eastern boundaries by the Dandenong Ranges National Park, the precinct provides an important consolidated link between Doongalla Forest and the Upper Ferntree Gully EVC blocks.

Wicks/Wicks East Reserves (owned by Knox City Council) and Liverpool Road Retarding Basin (owned by Melbourne Water) are public reserves which combine a drainage function with recreational and wildlife habitat opportunities. As seen from Map 2, numerous wildlife sightings have been recorded in these two reserves.

Opportunities:

1. Maintaining the continuous cover of vegetation will support the long-term viability of wildlife as they will support larger populations and offer greater opportunities for movement and dispersal in multiple directions.
2. The Salvation Army land in The Basin offers complementary and additional resources to wildlife and is likely to play an important role in protecting the adjacent Rural Conservation Zone, as well as providing opportunities for connectivity to the Liverpool Rd Retarding Basin. There are great opportunities to enhance Dobsons Creek as an ecological corridor to support wildlife connectivity between habitat areas.
3. The entire precinct is covered by the Environmental Significance Overlay (ESO1 and 2) which put strong controls in place for native vegetation removal and modification. The background analysis to the ESOs is provided in the Sites of Biological Significance in Knox (2010) study. The 2017 wildlife study confirms that these overlays should be retained and strengthened.
4. There are nine properties within the precinct that participate in the Knox Gardens for Wildlife program. The program assists Knox residents and businesses to create

an area in their garden to support local wildlife and provides residents with access to specialist advice.

Issues:

1. The sections of Dandenong Creek and Dobsons Creek within Precinct 1 and their riparian vegetation which are within private land are not protected through conservation zoning. This is whilst the majority of creek corridors elsewhere within Knox are protected by PCRZ. It is however noted that native vegetation controls apply under the ESO.
2. The Liverpool Road bridge over the Dandenong Creek acts as a barrier to wildlife movement.
3. Concerns exist regarding maintenance and weed control in Sugarloaf Hill bushland.

Recommendation 1. Continue the application of ESO1 and ESO2 within Precinct 1 to protect native vegetation and habitat values. When making discretionary decisions, note that vegetation retention in this precinct is of the highest priority.

Recommendation 2. Acknowledge the role of the existing vegetation and the Dandenong Creek and Dobsons Creek corridors in wildlife connectivity within the broader area.

Recommendation 3. Consult Melbourne Water regarding existing protections in place for the Creeks' Core Riparian Zone (CRZ) and the adjacent 10m vegetated buffers.

Recommendation 4. Within 200m of the Dandenong Creek and Dobsons Creek:

- a) Minimise development
- b) Support habitat restoration and revegetation

Recommendation 5. Investigate mechanisms to achieve an ecologically sensitive development approach to new development and the construction of linear infrastructure (e.g. roads, bridges) across the precinct.

Recommendation 6. Reduce the wildlife barrier effects at the following sites in accordance with the recommendations of Appendix 1 to this report:

- Dandenong Creek - Liverpool Road (ID: 1)
- Dandenong Creek – Dobson Lane (ID: 2)

Recommendation 7. Investigate opportunities in consultation with the Salvation Army to improve maintenance and weed control of Sugarloaf Hill.

Recommendation 8. Support the continuation of the Gardens for Wildlife program.

Water (Map 2)

Precinct 1 is within the Upper Dandenong Creek catchment and contains a section of Dandenong Creek and also Dobsons Creek which is a tributary to Dandenong Creek. The entire Precinct 1 is within the Upper Dandenong Creek catchment.

The Dobsons Creek catchment has been identified as the highest value waterway in Knox by *KCC's Water Sensitive Urban Design and Stormwater Management Strategy 2010*. Over the past 8 years, the City has undertaken Water Sensitive Urban Design (WSUD) initiatives in this catchment to improve catchment hydrology. This has included disconnecting impervious areas from the creek to improve its ecological health, providing stormwater tanks to residents and the construction of Wicks Reserve (Ferdinand Von Mueller) Rain garden. The City has also constructed swales in Basin-Olinda Road and a roadside retention facility along Sheffield Road. The WSUD project locations are indicated on Map 2.

Apart from the smaller rural lots north of Doongalla Road, the vast majority of lots in Precinct 1 are not connected to piped drainage. This is in line with the City's vision for disconnecting properties from the drainage network and promoting a water sensitive approach to drainage within this precinct.

Situated along the creek path is also the Liverpool Road Retarding Basin which was developed by Melbourne Water (MW) to provide for the storage of stormwater to prevent flooding downstream.

Opportunities:

1. There are opportunities to build upon the City's previous investments in improving water quality within the Dobsons Creek catchment and ensure future development and infrastructure construction practices protect these values.

Issues:

2. The precinct is affected by flooding from the Dobsons and Dandenong Creeks, however, the flood-prone areas are not accurately mapped and incorporated into the Knox Planning Scheme. For instance the Dobson Creek floodplain within the Salvation Army property has no flood overlays. It is noted that flood modelling is currently being undertaken by MW and KCC.

3. Incremental increases to impervious surfaces (e.g. house extensions, outbuildings, paved outdoor areas) places additional pressure on the drainage systems in this high value catchment.

Recommendation 9. Planning decisions to consider that the Dobsons Creek catchment is one of the highest value catchments in Knox.

Recommendation 10. Investigate opportunities to incorporate WSUD measures as part of new development in the Dobsons Creek catchment.

Recommendation 11. Support a WSUD approach to public works and infrastructure including the constructions or upgrade of roads within this precinct.

Recommendation 12. Following the completion of Council's flood modelling projects, apply appropriate Scheme controls to the areas affected by the 100% AEP flooding from the Dobsons and Dandenong Creeks.

Vegetation Canopy (Map 2)

Opportunities:

1. Apart from its biodiversity values, the vegetation canopy cover in Precinct 1 provides important cooling and amenity/greening values to the community. There are opportunities to better define and reflect these values in the Planning Scheme.

Issues:

2. The majority of Precinct 1 vegetation canopy is located on private property used for residential purposes. A key issue in this precinct is the conflict between bushfire management (BMO applies in the residential area) and vegetation protection. While significant vegetation clearing has not occurred since the implementation of ESOs and SLOs, incremental loss of vegetation has been observed. This is sometimes caused by increasing building and outbuilding footprints on rural lots where additional defensible space or fuel reduction is required around new or added structures.
3. A VPO anomaly exists at 1267 Mountain Highway. The location of the VPO does not correspond with the trees on the ground.

Recommendation 13. Investigate opportunities to recognise, protect and increase the trees and vegetation for their cooling and climatic effect.

Recommendation 14. Bushfire risk and management is to be considered from early stages of any development proposal and bushfire information is to be submitted with the proposal (cannot be conditioned). Development proposals need to demonstrate how bushfire has been considered in the siting and design of buildings in order to avoid vegetation loss.

Recommendation 15. Correct the VPO anomaly at 1267 Mountain Highway, The Basin. It is likely that the vegetation on the MW property at Lot P Mountain Highway, The Basin was originally intended for inclusion in the VPO.

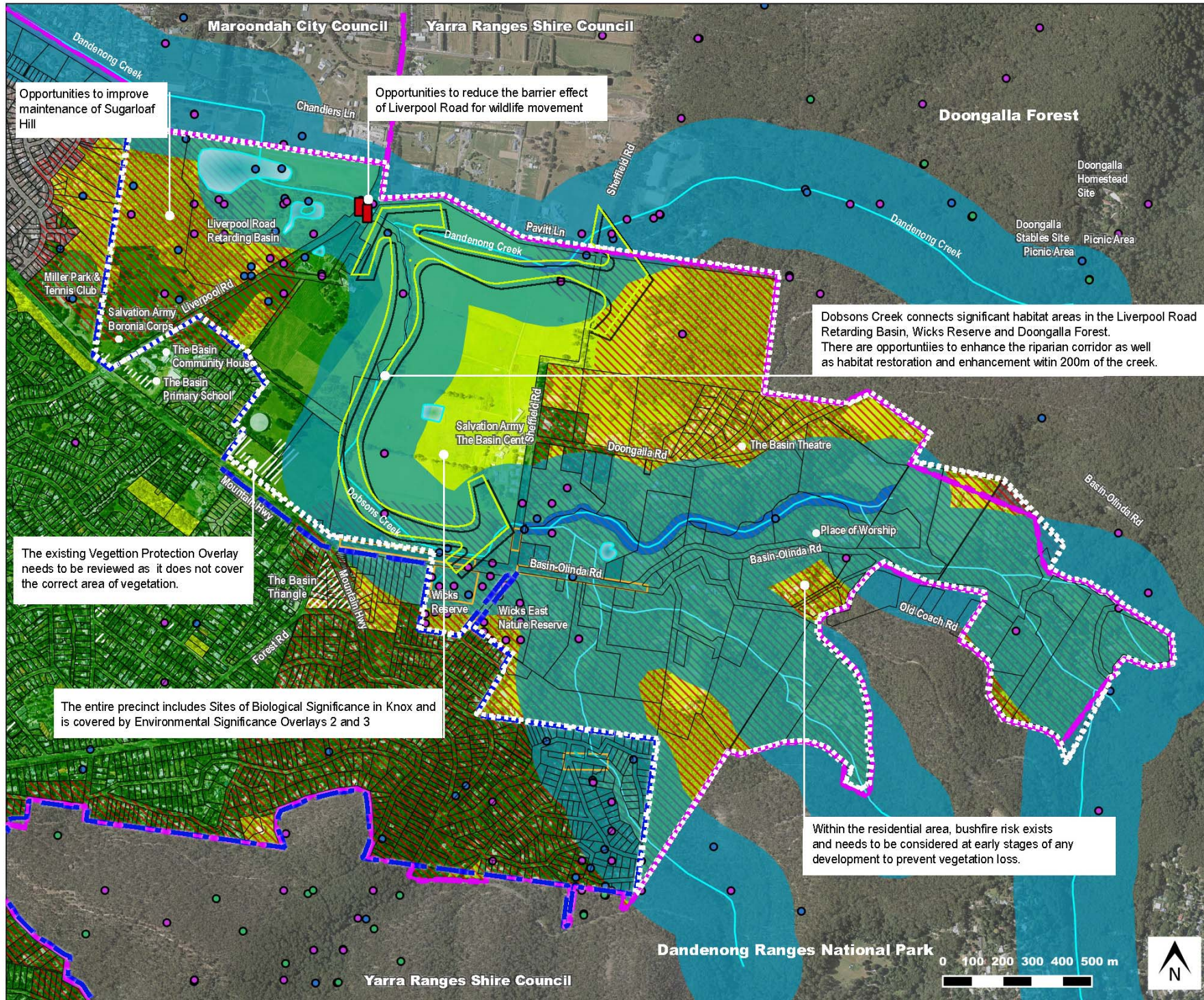
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Map 2

Precinct 1- The Basin Rural Landscape

Theme: Ecology

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis
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Legend

Knox Wildlife Atlas (1995-2017)

- Wildlife Records - Multiple Sources
- Wildlife Records - Victorian Biodiversity Atlas
- Knox Focal Species 2017
- Barriers to Wildlife Movement

Waterways 200m Buffer

Knox Planning Scheme

- Environmental Significance Overlay 2 (ESO2)
- Environmental Significance Overlay 3 (ESO3)
- Floodway Overlay (FO)
- Vegetation Protection Overlay (VPO)
- Bushfire Management Overlay (BMO)
- Urban Floodway Zone

Other

- Precinct Boundary
- Creeks and Lakes
- WSUD - Project Area
- Knox City Boundaries
- Urban Growth Boundary



Theme 2: Landscape and Heritage

Landscape Values (Map 3)

The GARS Landscape and Character Study (Hansen Partnership, 2019) has identified the Basin Rural Landscape precinct as a highly valued and diverse landscape. The Dobsons and Dandenong Creek Floodplain has significant character value within this precinct, is highly visible from public vantage points and is recommended for protection. The union between the heavily vegetated ridges, gullies and open uninterrupted flood plains are the important landscape for The Basin. The study identifies the following character areas (as shown on the map) and details key landscape values for each area:

No.	Description	Approach	Key Landscape Values
1	The Basin's Dobsons and Dandenong Creek Floodplain	Protection	Rural integrity and open character; Short and long open views from roads; Low-lying valley conditions
2	The Basin Township and Entry	Management	Corridor views; Roadside vegetation
3	The Western Isolated Hilltops	Monitoring	Vegetation; Views to hilltops
4	The Dandenong Foothills and Gullies	Management	Natural landscape condition

Opportunities:

1. In the current Scheme, the majority of Precinct 1 is covered by the Significant Landscape Overlay (SLO4) which sets controls applicable to vegetation, earthworks, building bulk, character and other scenic qualities. The Knox Municipal Strategic Statement (MSS) Clause 21.10 Local Areas also recognises the whole precinct as a significant landscape and provides high level strategic direction. There are opportunities to build upon these existing provisions and provide more specific guidance for the key character areas above.

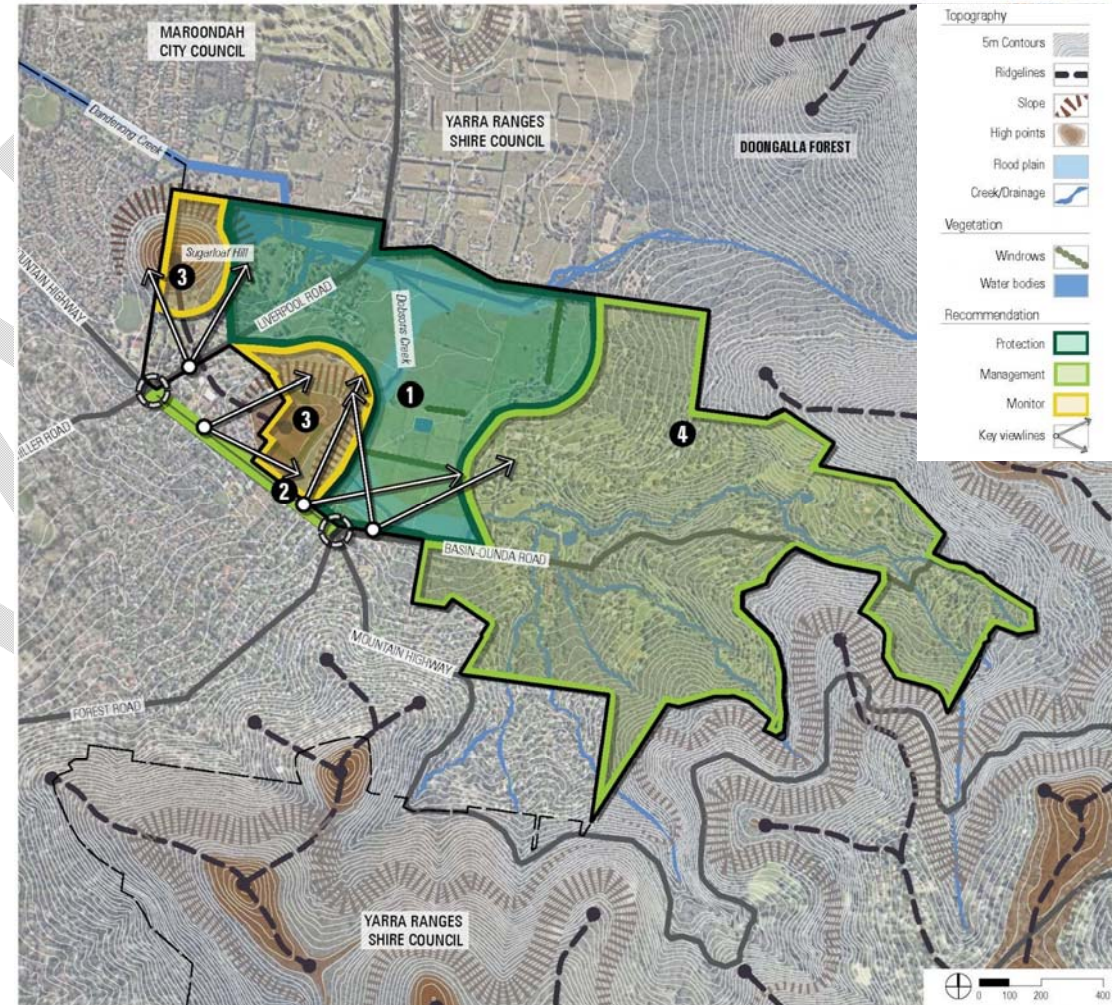
Issues:

1. No minimum subdivision area is specified in the Scheme for Special Use Zone 1 which covers parts of Area 1 above.

Recommendation 16. Review the existing Scheme provisions including the Municipal Planning Strategy (MPS), Planning Policy Framework (PPF) and the Significant

Landscape Overlay (SLO4) to recognise landscape values, in light of the findings of the GARS Landscape and Character Study.

Recommendation 17. Discourage fragmentation of land within the Dobsons Creek floodplain landscape area (Area 1).



Map 3 – Precinct 1 Landscape Assessment (Source: Hansen Partnership)

Heritage (Map 4)

Precinct 1 contains significant areas of Aboriginal Cultural Heritage Sensitivity associated with the creeks and native vegetation.

The precinct contains three non-Aboriginal heritage sites that are protected through the Scheme Heritage Overlay (HO), and seven places that are included in the City of Knox Heritage Study 1993 but are not protected through the Scheme.

The Preliminary Heritage Review: Knox Rural Heritage (Context, 2017) reviews the existing heritage sites within the precinct (HO items and non-HO items listed in Knox Heritage Study 1993) and provides recommendations for each place.

Recommendation 18. Ensure adequate consultation occurs prior to any proposals affecting the Aboriginal Places and Areas of Cultural Sensitivity as shown on the heritage map.

Recommendation 19. Review the places of heritage significance in accordance with the recommendations from the Knox Rural Heritage Report (Context, 2017), as summarised in the table below.

Site Name and Description	Heritage Review Recommendations (2017)
HO Places	
HO5 Wicks Reserve	<ul style="list-style-type: none"> • Of historic and social/recreational significance. • Well documented and part of the area ESO, SLO and HO – no further research / assessment required. • Retain Environment, Heritage and Significant Landscape Overlays.
HO54 One Oak Tree (Basin Olinda Road, The Basin)	<ul style="list-style-type: none"> • Intact and in good condition • Of historic and aesthetic significance • No further consideration required • Retain Heritage Overlay
HO8 Chandler Oak Tree, Sheffield Road, The Basin	<ul style="list-style-type: none"> • Of historic and aesthetic significance due to age and size. • Well documented and no further consideration required. • Retain Heritage Overlay
Non-HO Places	

Western face of the Dandenongs The whole of the western and part of the north-western slopes of the main Dandenong Range stretching from Montrose to the southern boundary of the Ferntree Gully National Park	Undertake an Integrated Aboriginal, Natural and cultural heritage assessment to explore these different aspects of significance in a holistic manner.
Dandenong Ranges The whole of the Dandenong Ranges form a backdrop to Knox but are predominantly in Yarra Ranges	Undertake an integrated Aboriginal, Natural and cultural heritage assessment would be appropriate for the Dandenong Ranges. This would involve an initial assessment at the state level (for inclusion in the Victorian Heritage Register) which would involve other municipalities. There may also be a case for the identified heritage values to be nominated for inclusion in national level listing.
Salvation Army site 1 Liverpool Road, The Basin	While there are no known archaeological reviews of the site, given that it contains 2 watercourses (Dobsons and Dandenong Creeks), it is identified as an area of cultural sensitivity. Recommended for both Aboriginal and non-Aboriginal cultural heritage assessment. Potential Aboriginal, historic, aesthetic and social values.
Clevedon Gardens	<ul style="list-style-type: none"> • Of historic significance as a site only. • Difficult to put forward as a HO without further investigation into the garden. • 'Tentative list' – although it's possibly too far removed from its historic origins (not a priority). • Recommended for further investigation. Potential historic aesthetic and social values.
Glen Elbourne Gardens	<ul style="list-style-type: none"> • Worth following up, either on an 'open day' or with the owner. • Note the large wholesale nursery next door and other properties going up the Dobson Creek valley to Olinda plus Old Coach Road – worth considering as part of a larger historic landscape unit.

	<ul style="list-style-type: none"> • Worthy of further research and consideration. • Recommended for heritage assessment. Potential historic aesthetic and social values.
Old Coach Road	<ul style="list-style-type: none"> • Of historic significance. • Recommended for heritage assessment. Potential historic and aesthetic values.
Mountain Highway The Basin	<ul style="list-style-type: none"> • Further investigation is required to confirm the nature of the structure. • Recommended for heritage assessment. Potential historic aesthetic and social values.

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Map 4

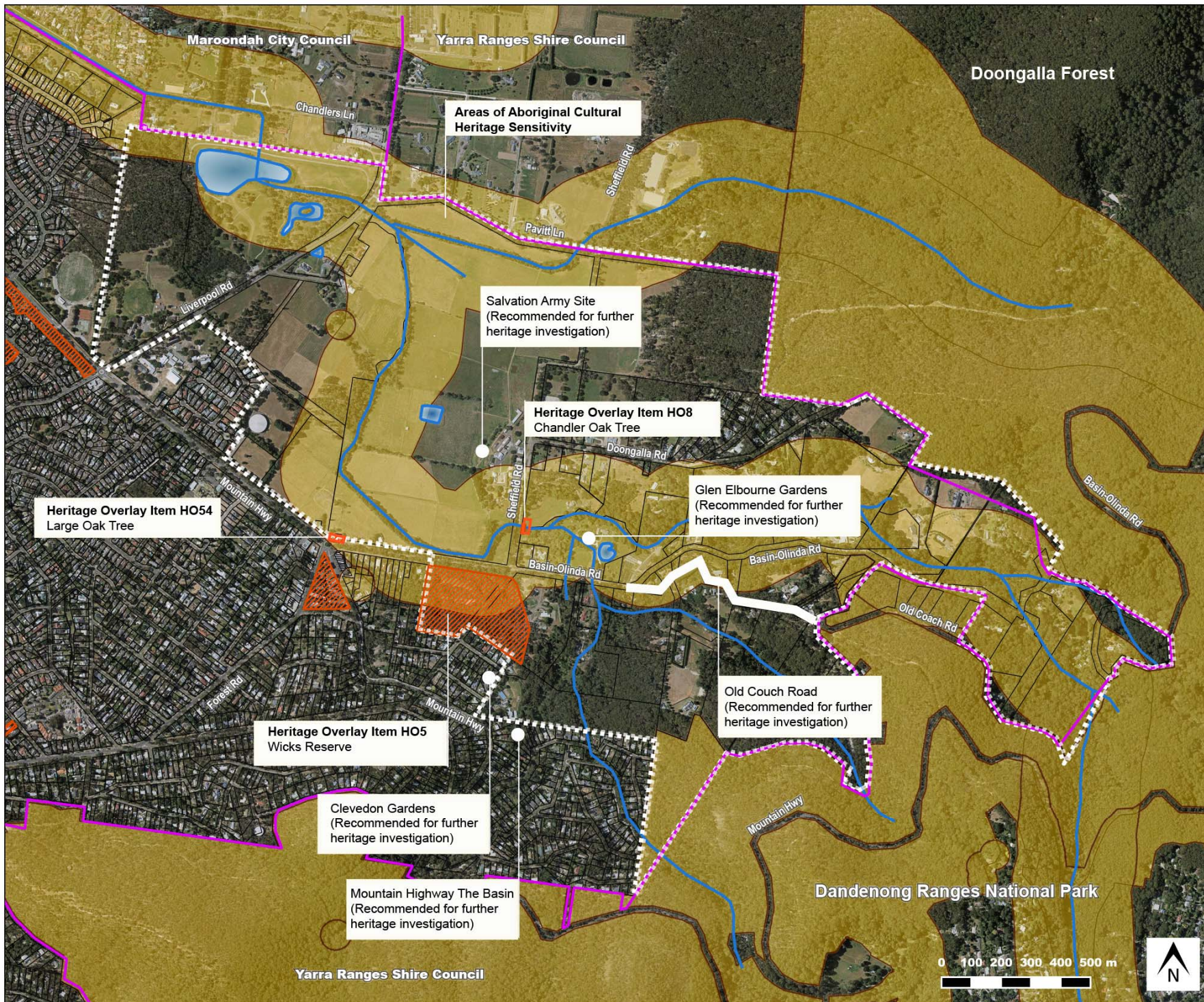
Precinct 1- The Basin Rural Landscape

Theme: Heritage

Knox Green Areas & Rural Strategy (GARS)
 Issues and Opportunities Analysis
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Legend

- Precinct Boundary
- Creeks and Lakes
- Heritage Overlay (HO)
- Areas of Cultural Heritage Sensitivity (Aboriginal Victoria)



Theme 3: Land Use and Access

Land Use and Economy (Map 6)

Rural Living Lots (Rural Conservation Zone (RCZ1))

The eastern half of Precinct 1 is characterised by rural residential use with relatively smaller lot sizes in the range of 4ha. This area also accommodates existing community uses such as The Basin Theatre and a place of worship. The rural residential use supports the protection of native vegetation and scenic landscape values. The area is home to a range of homebased businesses including consulting, creative industry and other professional services.

Larger Rural Properties (Green Wedge Zone 2 (GWZ2) and Special Use Zone 1 (SUZ1))

The western half of the Precinct contains a number of larger lots which are used for rural agriculture, grazing and special uses. Salvation Army is a key property owner in this area operating from two sites: The Basin Centre on Sheffield Road and Boronia Corps on Liverpool Road. The Basin Centre runs rehabilitation programs focused around the benefits of farming, growing crops, raising livestock, bakery and dairy activities. The Boronia Corps located adjacent to Miller Park and accommodates worship services, community activities, a thrift shop, laser strike and a community garden.

Parks and Reserves

The precinct contains Wicks Reserve and Wicks East Nature Reserve which are popular destinations with good recreational facilities in a bushland environment. Existing Facilities include toilets, picnic benches and shelter, children's play area and large area for car parking.

MW owns two parcels of land in Precinct 1. The Liverpool Road Retarding Basin serves an important drainage function in preventing flooding downstream by providing a considerable area for stormwater retention along the Dandenong Creek. In addition to its drainage function, the Liverpool Road Retarding Basin also provides recreational opportunities for the community including fishing, cycling and dog walks. Shared paths near the retarding basin provide panoramic views of the hills.

Opportunities:

1. Rainfall and good quality soils provide agriculture potential within the floodplains of the Dobsons Creek. This area has potential for livestock grazing, perennial horticulture or horse agistment. However, the site is limited in scale and isolated from other livestock producers meaning economies of scale are difficult to

achieve for a commercial operator. Agriculture use of this land is likely to be of a hobby farming nature used in conjunction with other uses.

2. The past and present involvement of the Salvation Army in The Basin is a major contributor to its current rural outlook.
3. Precinct 1 benefits from its location on routes that connect the urban areas to the west with the tourist and recreational destinations to the east. Mountain Highway, Basin-Olinda Road and Doongalla Road provide scenic routes with a unique rural character to destinations in the Dandenong Ranges National Park, Sassafras and beyond.
4. The high scenic amenity of the area provides opportunities for tourism uses incl. eco-tourism and agri-tourism which can benefit from and complement its high value landscape and environment.
5. The precinct benefits from proximity to the Basin Triangle, community and art facilities, parks and cycling trails. These destinations present opportunities for customer and visitor synergy. The Basin commercial centre has plenty of opportunity for more floor space if needed.
6. The Basin Triangle is recognised as a Knox Gateway in the Planning Scheme. There are opportunities to enhance this Gateway through strengthening commercial and tourism land uses to the south while protecting and facilitating more open range views to the north.
7. Existing trends indicate an appetite for home business from the smaller rural residential properties within the eastern part of the precinct.
8. For the larger land holdings within the western half of the precinct, there are opportunities for targeted business attraction such as restaurant, winery, visitor accommodation and eco-tourism uses. The larger property sizes within this area present unique opportunities for carefully sited buildings and activities which minimise negative impact on the environmental and landscape values of the locality and do not dominate the landscape. These sites can accommodate tourism/commercial uses in conjunction with agriculture/natural systems. For further detail and case studies refer to the report *Knox Green Areas and Rural Strategy Economic Study (Urban Enterprise, 2019)*.
9. Overall, the GARS Economic Study (Urban Enterprise, 2019) provides the following evaluation of economic, tourism, community and recreation potential for Precinct 1:

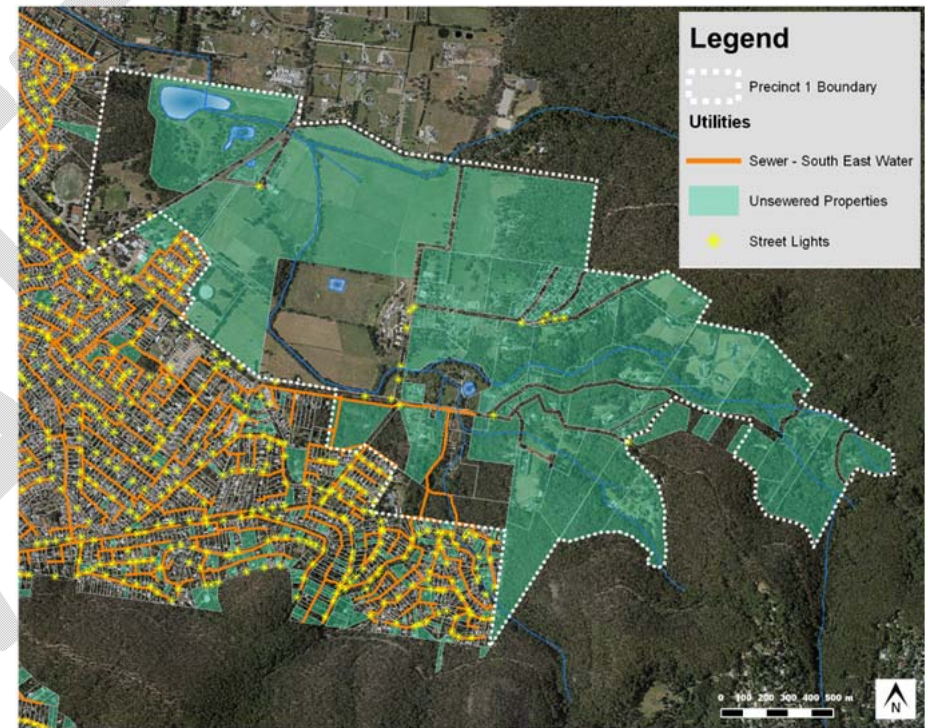
Summary of Economic, Tourism, Community and Recreation Potential

Suitability for agriculture intensification	Medium
Suitability for agri- tourism	High
Suitability for standalone tourism uses	High
Suitability for community / social enterprise	High
Accessible to population catchments	Medium
Accessible by public transport	Low
Accessible by bike/hiking/ walking	Low
Suitability for active recreation	Medium
Suitability for other intensive industry	Low
Suitability for passive recreation	Low

Issues:

1. The zoning which applies to the two areas of land owned by the Salvation Army (Special Use Zone 1) is not supportive of a number of tourism uses including visitor accommodation and restaurant, which are identified as some of the best fit uses for the precinct. The land uses allowed under the SUZ1 conflict with both the Green Wedge objectives and the use table under the Core Planning Provisions (Clause 51.02 of the Scheme) which allows for a more diverse range of uses. For example, a restaurant (subject to conditions) could be considered under the Green Wedge provisions but has been prohibited under the SUZ1.
2. In the RCZ1 zone, more direction is required when making decisions on discretionary (Section 2) uses. While economic and tourism potentials exist for this area, consideration must be given to matters such as traffic, car parking, bushfire management and the impact on the general amenity of the locality as a predominantly residential area.
3. Limited street lighting is available within the precinct. However, additional street lighting is not desirable due to its potential impact on wildlife.
4. Access and car parking needs careful consideration for the emerging tourism demand.

5. Complaints have been received regarding car parking on Basin-Olinda Road around the place of worship.
6. The majority of the precinct is not connected to reticulated sewer (See Map 5). Servicing needs to be considered as part of any proposal.



Map 5 – Unsewered properties in Precinct 1

Recommendation 20. Protect agricultural land in the floodplains of Dobsons Creek.

Recommendation 21. For the larger rural properties within the western half of the precinct, support discretionary uses (i.e. Section 2 uses) that are for tourism, agri-tourism, educational and commercial purposes, where proposals are well designed to protect and enhance the environmental, agriculture and landscape values of this precinct, and do not increase bushfire risk.

Recommendation 22. Enhance Basin Triangle as a Knox Gateway through strengthening commercial and tourism land uses to the south while protecting and facilitating more open range views to the north

Recommendation 23. There are opportunities to establish parkland to the north of the Basin Triangle roundabout for views out over The Basin to Mt Dandenong; and to open up views from this location through removal of shrub, particularly those on Council owned land parcel to the east.

Recommendation 24. Support a zoning review of the Special Use Zone (SUZ1) to enable the economic and tourism potentials generally in line with what would be permissible in a Green Wedge Zone 1.

Recommendation 25. Maintain the current minimum subdivision area of 4ha in the Green Wedge and Rural Conservation Zone 1.

Recommendation 26. Prevent fragmentation of land over the Dobson's Creek and Dandenong Creek.

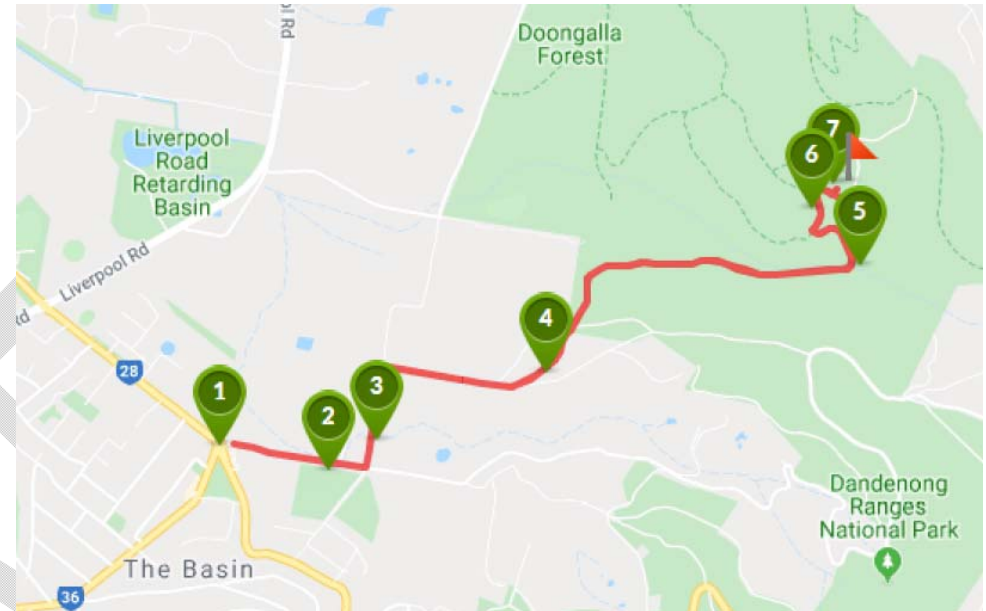
Access and Connectivity (Map 6)

Opportunities:

1. Due to its general amenity and proximity to recreational and tourist opportunities in the Dandenong Ranges National Park and Doongalla Forest, Precinct 1 presents great opportunities for recreational walking and cycling. Map 4 indicates the existing trails and tracks within and around Precinct 1, including:
 - Existing tracks in the Doongalla Forest. Some of these tracks are also used for horse riding.
 - The Dandenong Creek Trail to the north-west of the precinct.
 - Off-road paths along Mountain Highway and dedicated on-road cycle lanes along Forest Road.
2. The precinct has a good level of access and permeability for vehicular movement. Mountain Highway and Basin-Olinda Road, and to some extent Old Coach Road, provide connectivity to destinations to the east and serve as tourist routes for visitors to the Dandenong Ranges. Liverpool Road and Sheffield Road provide the essential north-south connectivity between the suburban areas to the south and Kilsyth/Kilsyth South to the north of the precinct. The precinct also contains some local roads, some of them being unsealed. It is noted that the unsealed roads contribute to the rural natural character of the precinct and are not considered an issue.

Issues:

1. There is limited connectivity between the urban area to the south west of Precinct 1, and the tracks in Doongalla Forest to the east/north east.
2. There is a conflict between walking/cycling and vehicle traffic on some local roads where no paths are provided. Existing roads are currently being used by pedestrians in the absence of segregated paths. Victoria Walks features the Doongalla Homestead walk which runs through this precinct as shown below. The walk starts at the Basin shopping centre and visits multiple points of interest including Wicks Reserve, Chandler Oak heritage site and The Basin Theatre before heading into the forest. This walk uses Basin Olinda Road, Sheffield Road and Doongalla Road within Precinct 1.



Doongalla Homestead Walk (Source: Victoria Walks website)

3. The only public transport service in the area is the bus route 755 which runs along Mountain Highway and connects the Bayswater Station and Knox City Shopping Centre via Boronia, The Basin and Ferntree Gully. Other than the areas within the catchment of this route, the rest of Precinct 1 is not within walkable distance to public transport.

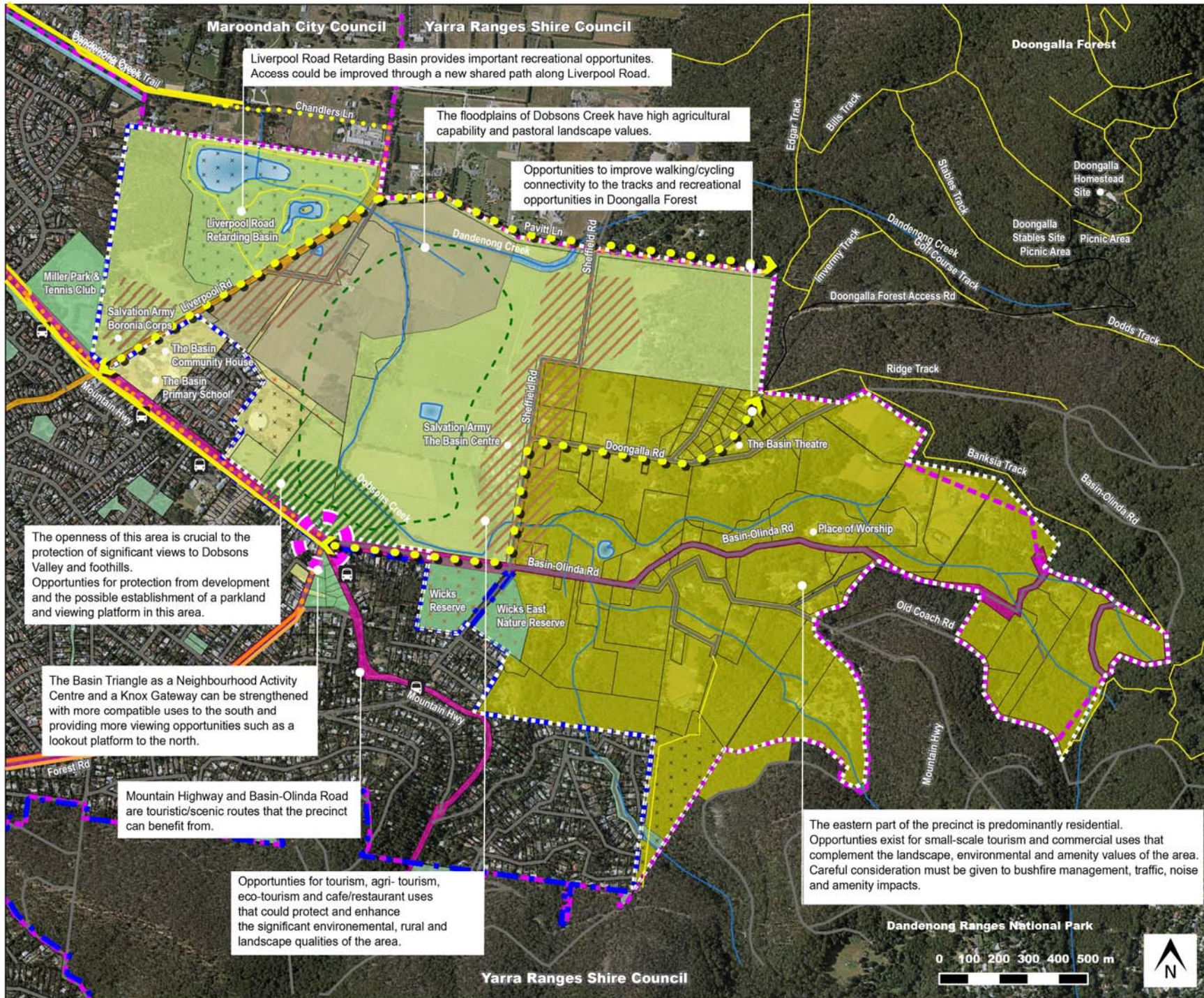
Recommendation 27. Improve pedestrian and cyclist connectivity between The Basin residential areas to the west/south-west of Precinct 1, and the Doongalla Forest tracks to the north-east. Two potential routes for improved connectivity have been identified on Map 6.

Map 6

Precinct 1- The Basin Rural Landscape

Theme: Land Use and Access

Knox Green Areas & Rural Strategy (GARS)
 Issues and Opportunities Analysis
DRAFT FOR CONSULTATION



Legend

- Precinct 1 Boundary
- Urban Growth Boundary copy
- Knox Council Boundaries
- Creeks and Lakes Areas
- Cadastral

Land Ownership

- Local Government
- State Government/Agencies

Roads

- Local Streets/Rds

Zones - Knox Planning Scheme

- GWZ2
- PCRZ
- PPRZ
- PUZ (Multiple)
- RCZ1
- RDZ1
- RDZ2
- SUZ1
- UFZ

Principal Bicycle Network (PBN)

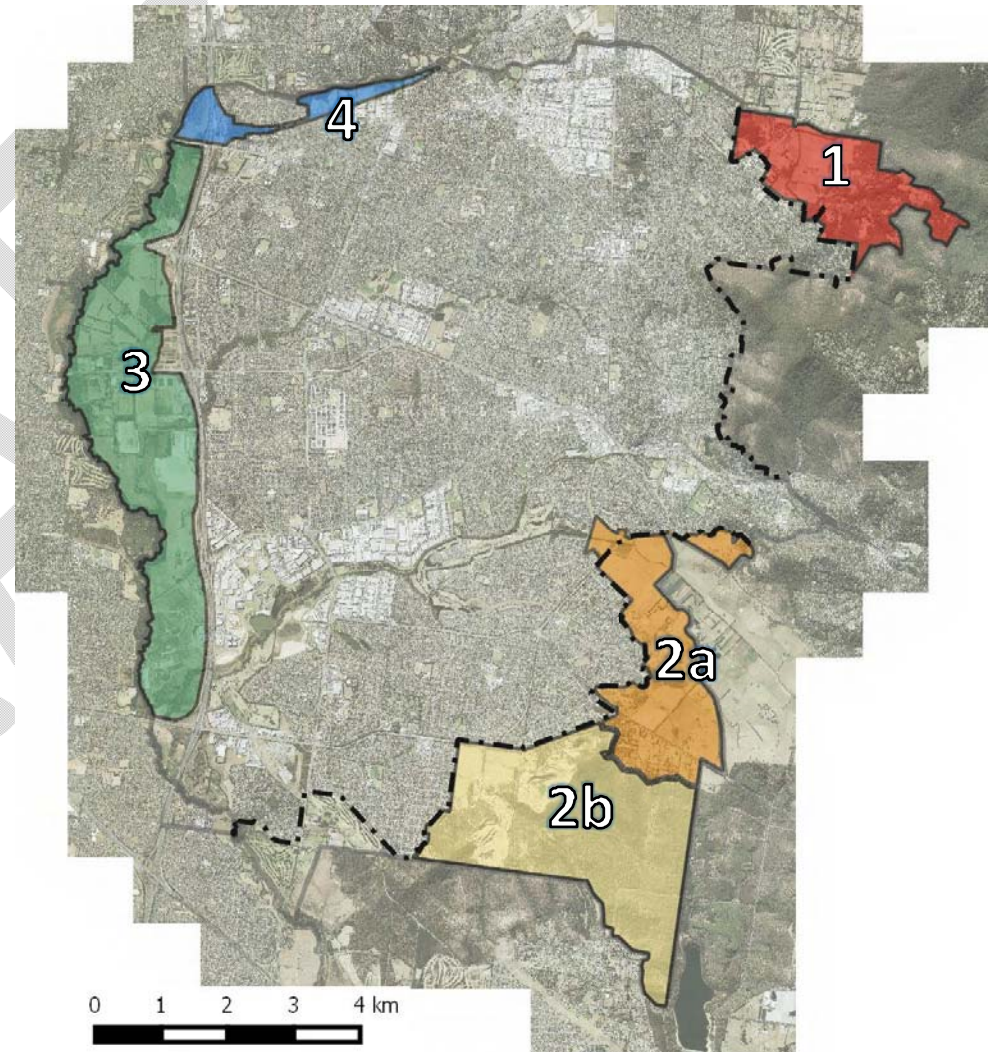
- Existing On Road
- Proposed On Road
- Existing Off Road
- Proposed Off Road
- Proposed Walking/Cycling Improvements (GARS)
- Knox Gateways



Yarra Ranges Shire Council

Precinct 2a:

Lysterfield Valley and Hills



Theme 1: Ecology

Wildlife Habitat and Connectivity (Map 7)

Due to its creeks, pockets of native vegetation, farm dams and lack of intense development, Precinct 2a provides an important connection for wildlife movement between Lysterfield National Park and the Upper Ferntree Gully block of the Dandenong Ranges National Park.

The southern two-thirds of this precinct contains well connected farm dams and is likely to provide important overland connections for water-dependent species such as the Southern Bullfrog and Eastern Snake-necked Turtle, as well as other ground dwelling amphibians such as the EPBC-listed Growling Grass Frog *Litoria raniformis*, which was historically recorded in this area.

Opportunities:

1. Currently Monbulk Creek is covered by a 20m wide ESO2. ESO2 also covers pockets of native vegetation across the precinct. It is understood that Yarra Ranges Amendment C148 is proposing a 30m wide ESO over the stretch of Monbulk Creek to the east of Precinct 2a. There are opportunities for connectivity/consistency with this adjoining overlay and to work with the property owners to improve the riparian corridor.
2. While existing Scheme controls support wildlife conservation and connectivity, there are opportunities for strengthening habitat values in particular in the vicinity of Monbulk Creek (The Knox Wildlife Conservation and Connectivity Report (2017) suggests a 200m corridor).

Issues:

1. Six barriers to wildlife movement have been identified within or abutting Precinct 2a as shown on the map, generally where roads intersect the creeks.
2. The proposed Dorset Road Extension reservation runs through the floodplains of Monbulk Creek. This extension is a State Government proposal with no specified timelines for design and construction. Should the road be constructed in traditional ways, it is likely to have a negative impact on the wildlife conservation and connectivity values of this precinct. However, there are opportunities to approach this road project in ways that deliver improved connectivity benefits for

both wildlife and people. A case study example of how this project could be undertaken to deliver both a transport and a wildlife corridor is presented in Appendix 8 of *Knox Wildlife Conservation and Connectivity Report*.

3. Parts of the Site of Biodiversity area protected by ESO2 are being used for sheep grazing.

Recommendation 1. Support enhancements to the riparian corridor of Monbulk Creek and strengthen habitat values and connectivity within 200m of the creek.

Recommendation 2. Consult Melbourne Water regarding the protections in place for the Core Riparian Zone (CRZ) of Monbulk Creek and the adjacent 10m vegetation buffers.

Recommendation 3. Review the existing ESO over Monbulk Creek to ensure it properly covers the riparian zone and any required protection areas.

Recommendation 4. Should the proposed Dorset Road Extension be pursued by the State Government, advocate for a concept of a multi-modal road/pedestrian and nature conservation corridor that supports both wildlife and human connectivity and contributes to habitat restoration within 200m of Monbulk Creek.

Recommendation 5. Reduce the wildlife barrier effects at the following sites in accordance with the recommendations of Appendix 1 to this report:

- Monbulk Creek – Blackwood Park (ID 19)
- Monbulk Creek – Napoleon Road (ID 20)
- Monbulk Creek – Lysterfield Road (ID 21)
- Monbulk Creek – Dorset Road Extension (ID 40)
- Drainage Channel - Dorset Road Extension (ID 41)
- Drainage Channel – Lysterfield Road (ID 42)

Recommendation 6. Undertake initiatives for supporting/partnering with rural land-holders to protect and enhance the ecological values including the riparian vegetation, and ensuring grazing practices do not damage habitat values.

Water (Map 7)

The main waterway in Precinct 2a is the Monbulk Creek which connects to Corhanwarrabul Creek to the west. The entire precinct is within the Corhanwarrabul Creek catchment.

Opportunities:

1. The floodplains of the Monbulk Creek are currently protected by a 400m wide Land Subject to Inundation Overlay (LSIO).
2. Further protection and enhancement in the northern section of this precinct could help strengthen the resilience of this area. For example, creek embankment and vegetation restoration within the 200m zone adjacent to Monbulk Creek are likely to reduce the risk of flooding in the downstream Urban Flood Zones. This is something that will become increasingly important once construction has been completed in the Comprehensive Development Zone in Waterford Valley to the north-west of this precinct and when the future climate includes more extreme rainfall events.
3. A small section of Ferny Creek runs through Gilmour Park which is owned by Melbourne Water and publicly managed.

Issues:

1. The proposed Dorset Road extension alignment is located in proximity to Monbulk Creek within an areas affected by the 1% AEP flooding from the creek.

Recommendation 7. Should the proposed Dorset Road extension be progressed by the State Government, consider the flooding from Monbulk Creek and apply a water sensitive design approach to minimise any negative impact on the natural flow of water and wildlife connectivity.

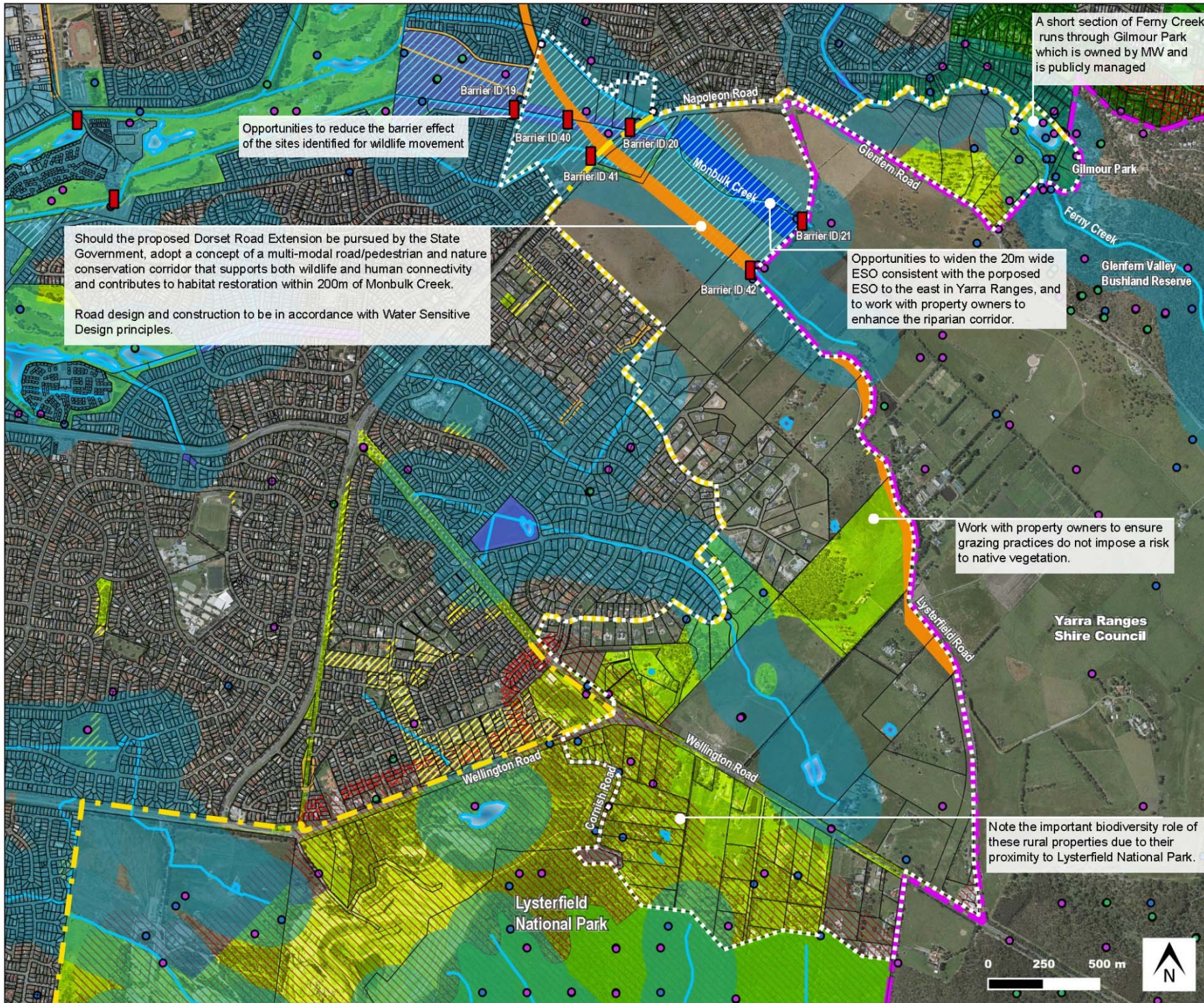
Recommendation 8. Review the Floodway Overlay over Monbulk Creek to ensure it covers the correct extension.

Map 7

Precinct 2a - Lysterfield Valley and Hills

Theme: Ecology

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis
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A short section of Ferny Creek runs through Gilmour Park which is owned by MW and is publicly managed

Opportunities to reduce the barrier effect of the sites identified for wildlife movement

Should the proposed Dorset Road Extension be pursued by the State Government, adopt a concept of a multi-modal road/pedestrian and nature conservation corridor that supports both wildlife and human connectivity and contributes to habitat restoration within 200m of Monbulk Creek.
Road design and construction to be in accordance with Water Sensitive Design principles.

Opportunities to widen the 20m wide ESO consistent with the proposed ESO to the east in Yarra Ranges, and to work with property owners to enhance the riparian corridor.

Work with property owners to ensure grazing practices do not impose a risk to native vegetation.

Note the important biodiversity role of these rural properties due to their proximity to Lysterfield National Park.

Legend

Knox Wildlife Atlas (1995-2017)

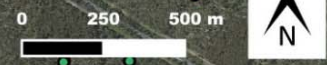
- Wildlife Records - Multiple Sources
- Wildlife Records - Victorian Biodiversity Atlas
- Knox Focal Species 2017
- Barriers to Wildlife Movement
- Waterways 200m Buffer

Knox Planning Scheme

- Environmental Significance Overlay 2 (ESO2)
- Environmental Significance Overlay 3 (ESO3)
- Floodway Overlay (FO)
- Vegetation Protection Overlay (VPO)
- Bushfire Management Overlay (BMO)
- PCRZ
- Urban Floodway Zone
- Public Acquisition Overlay (Vic Roads)
- Land Subject to Inundation Overlay (LSIO)

Other

- Precinct 2a Boundary
- Creeks and Lakes
- WSUD - Project Area
- Urban Growth Boundary
- Knox City Boundaries



Theme 2: Landscape and Heritage

Landscape Values (Map 8)

The GARS Landscape and Character Study states that open views towards the bare Lysterfield ridgeline are particularly prominent landscape elements in the local and regional panorama. The study recommends that the ridgeline and the associated slopes be recognised as an important scenic feature. The study identifies the following character areas and details key landscape values for each area:

No.	Description	Approach	Key Landscape Values
1	The Lysterfield Foothills Open Ridgelines	Protection	Bare open ridgelines and saddles, Panoramic views from roads, Windrow and vegetation clusters
2	The Wellington Road Flood Plain and Flats	Management	Rural integrity and open character, Windrows, vegetation clusters, Low-lying valley conditions
3	The Monbulk Creek Valley (Eastern Slopes)	Protection	Bare open ridgelines and saddles, Panoramic Views from roads, Windrow and vegetation clusters
4	The Monbulk Creek Floodplain	Monitoring	Open rural character, Riparian vegetation, Low-lying valley conditions

Opportunities:

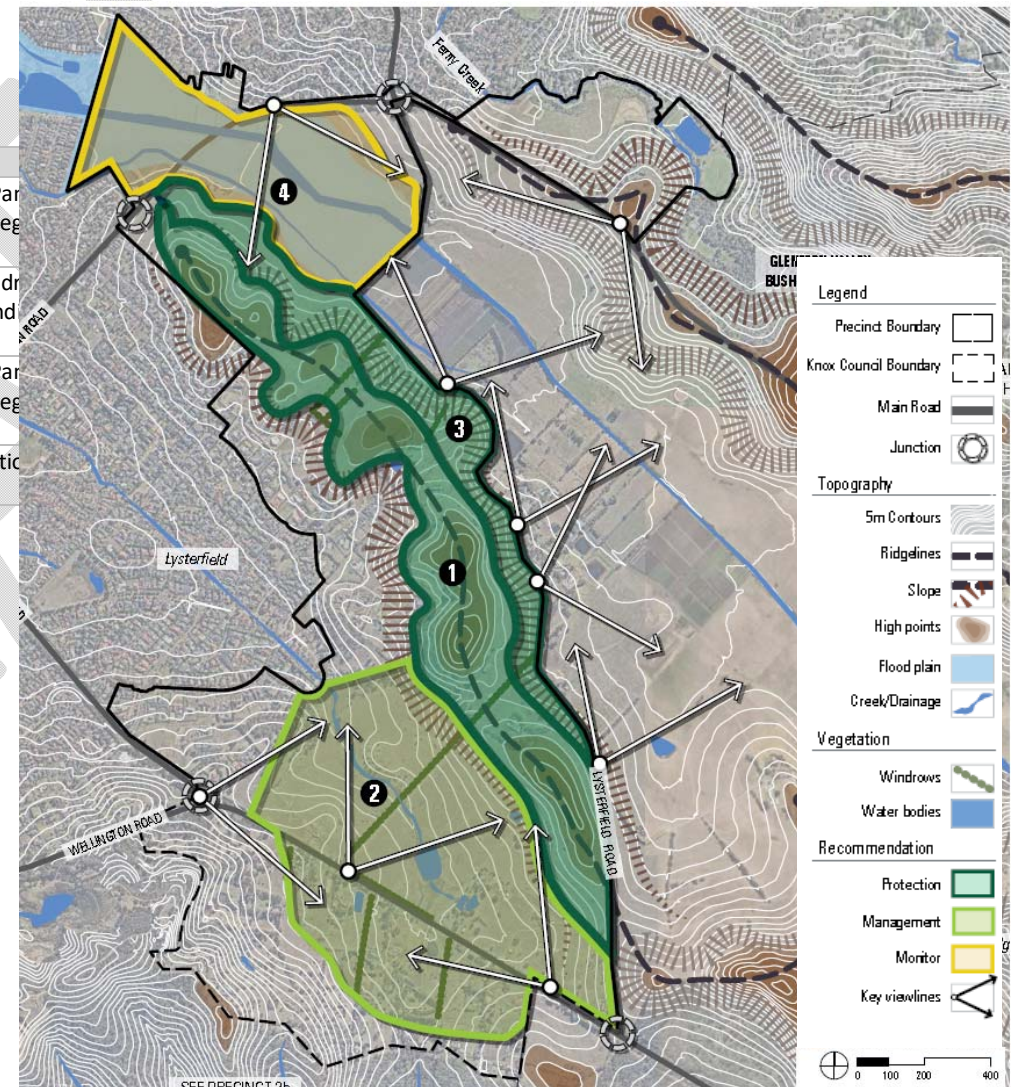
1. The majority of Precinct 2a is covered by SLO1 which protects vegetation and viewlines and controls building heights, development above 115m AHD, colours and materials. Clause 21.10 of the MSS also provides strategic direction to protect landscape values in this precinct. There are opportunities to build upon these existing provisions and provide specific guidance for the character areas above.
2. The minimum subdivision area of 20ha in GWZ1 is an important factor to help protect the topographic landscape values.

Issues:

1. In the Rural Conservation Zone 2 (RCZ2) to the west of the precinct, several properties have subdivision potential given the minimum subdivision size is 0.5ha. Some of these are in critical areas higher than 115AHD.
2. The proposed Dorset Road Extension will have a significant impact on Area 4 and long range views to the ridgeline in Areas 3 and 4.

Recommendation 9. Review the existing Scheme provisions including the MPS, PPF and SLO1 in light of the findings of the GARS Landscape and Character Study.

Recommendation 10. Ensure the future Dorset Road Extension design respects the landscape character, does not pose a negative impact, but rather celebrates and emphasizes key views and the open rural character of the valley.



Map 8 – Precinct 2a Landscape Assessment (Source: Hansen Partnership)

Heritage (Map 9)

Precinct 2a contains areas of Aboriginal Cultural Heritage Sensitivity associated with Monbulk and Ferny creeks and native vegetation. The precinct contains one place listed in the Heritage Overlay (HO) and five places from Heritage Study 1993 that are not included in the HO.

The Preliminary Heritage Review: Knox Rural Heritage (Context, 2017) reviews the existing heritage sites within the precinct (HO items and items listed in Knox Heritage Study 1993) and provides recommendations for each place.

Recommendation 11. Ensure adequate consultation occurs prior to any proposals affecting the Areas of Cultural Sensitivity as shown on the heritage map.

Recommendation 12. Review the places of heritage significance in accordance with the recommendations from the Knox Rural Heritage Report (Context, 2017), as summarised in the table below.

	<ul style="list-style-type: none"> • Need for more research to establish the historic landscape character and to help define significant sites and boundaries.
Lysterfield Boys' Farm site, Powells Road Lysterfield	<ul style="list-style-type: none"> • Recommended for heritage assessment. • Potential historic, aesthetic and social values. • Potential archaeological value. • High level of historical and archaeological research potential.
Former Lysterfield School, 1430 Wellington Road Lysterfield	<ul style="list-style-type: none"> • Recommended for heritage assessment. • Potential historic, aesthetic and social values.
Lysterfield cheese factory, Lysterfield Road	<ul style="list-style-type: none"> • Place is also part of the Lysterfield valley landscape. • Recommended for heritage assessment. • Potential historic, aesthetic and social values.

Site Name and Description	Heritage Review (2017) Recommendations
HO Places	
HO43 Avenue of Honour, Lysterfield Road (ten Silky Oaks, two English Oaks)	<ul style="list-style-type: none"> • Of historic and social significance • Consider updating the heritage citation to incorporate the description provided in the Knox Heritage Study. • Retain Heritage and Significant Landscape overlays.
Non-HO Places	
Lysterfield Valley Lysterfield	<ul style="list-style-type: none"> • Recommended for heritage assessment for sites within the landscape. • Recommended for Significant Landscape Assessment.
Fern Tree Gully Market Gardens (Remnant green corridor)	<ul style="list-style-type: none"> • Recommended for heritage assessment for sites within the landscape. Recommended for significant landscape assessment.





Map 9

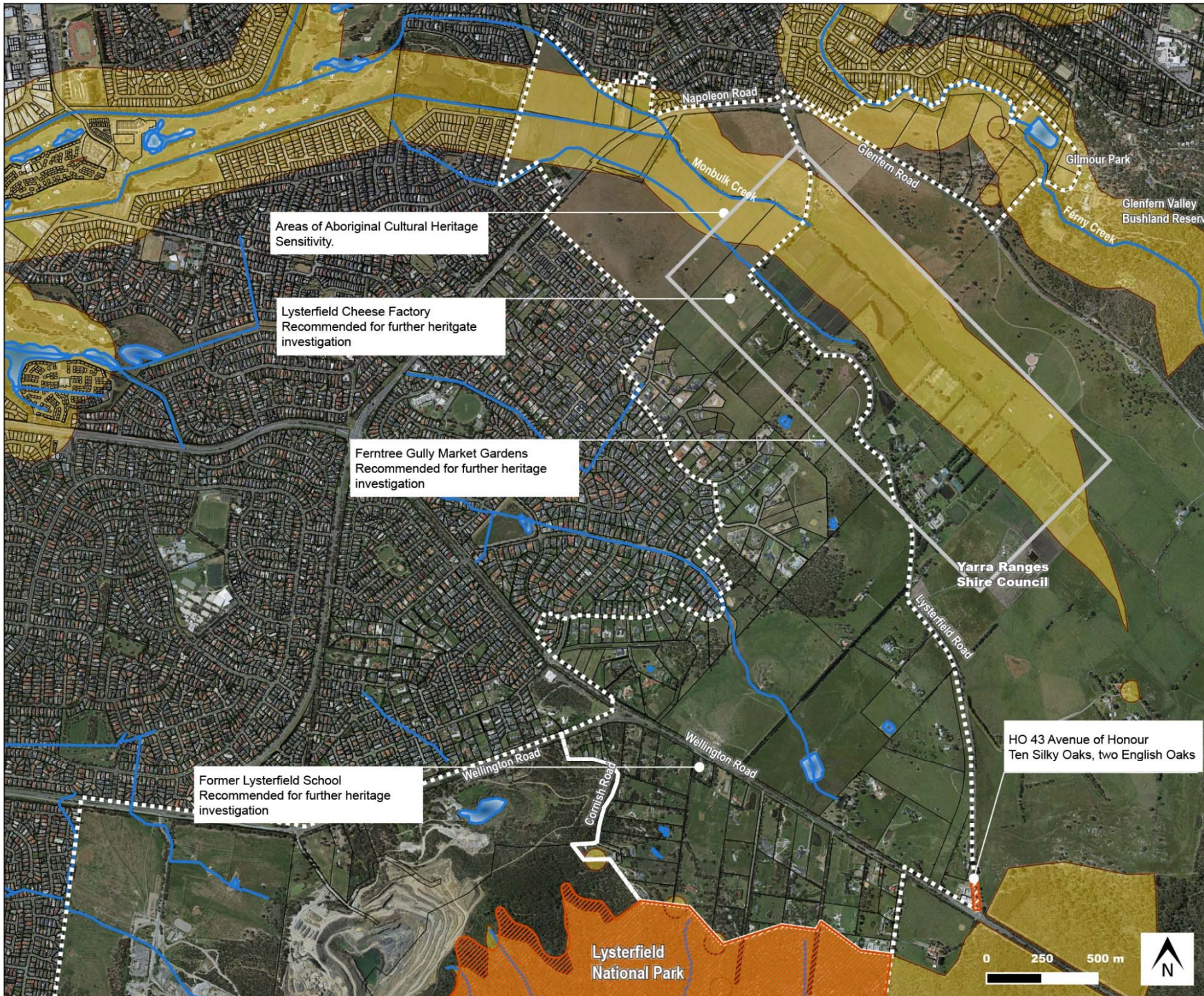
Precinct 2a - Lysterfield Valley and Hills

Theme: Heritage

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis
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Legend

-  Precinct Boundary
-  Creeks and Lakes
-  Heritage Overlay (HO)
-  Areas of Cultural Heritage Sensitivity (Aboriginal Victoria)



Areas of Aboriginal Cultural Heritage Sensitivity.

Lysterfield Cheese Factory
Recommended for further heritage investigation

Ferntree Gully Market Gardens
Recommended for further heritage investigation

Former Lysterfield School
Recommended for further heritage investigation

HO 43 Avenue of Honour
Ten Silky Oaks, two English Oaks

Lysterfield National Park

0 250 500 m



Theme 3: Land Use and Access

Land Use and Economy (Map 10)

The central valley area within Precinct 2a is characterised by larger landholdings which contain hobby farms, lifestyle properties, horse agistment, horticulture and rural stores along Lysterfield Road. The northern part of this area is affected by the floodplains of the Monbulk Creek extending to the east into Yarra Ranges. There is a minimum Subdivision of 20ha in the Green Wedge Zone 1 (GWZ1).

Relatively smaller rural residential lots in the range of 2-4ha are located in the northern and southern part of the precinct in Green Wedge Zone 2 (GWZ2). This zone consist of grazing land on the hillside to the north of Glenfern Road, as well as smaller lots in the range of 2-3ha to the south of Wellington Road. These lots provide for a variety of rural uses including lifestyle living, hobby farming and dog kennels.

The western part of the precinct contains an area of smaller Rural Conservation Zone (RCZ1) lots in the range of 0.5ha to 2ha which are located in proximity to the suburban residential areas of Lysterfield. These lots currently provide for lifestyle living options and most of them contain large single houses with large outbuildings. Some of these properties have subdivision potential to a minimum 0.5ha size.

A small area in the north of the precinct is within the Urban Growth Boundary. This area is zoned Rural Living (RLZ) however is highly affected by flooding from Monbulk Creek and is currently used for farming (incl. brussel sprouts) and rural living purposes.

Opportunities

1. Medium agricultural capability exists in the low lying areas of the Monbulk Creek floodplain.
2. Elsewhere, agriculture potential is lower due to soil types and steep slope. However, opportunities exist for livestock grazing, growing of low water crops, nurseries and other large format supplies.
3. Larger land holdings in the Lysterfield Valley (GWZ1) provide for the agricultural uses while maintaining the open rural landscape character of the valley. The minimum subdivision of 20ha which applies in the Green Wedge Zone (GWZ1) is considered appropriate in this area.

4. The relatively smaller lots sizes in GWZ2 have provided for a different range of rural economy within the precinct. Site layouts and considerable building setbacks from Wellington Road have provided for a high quality scenic amenity and rural character in this area. These lots also have an important biodiversity role due to their proximity to Lysterfield National Park
5. The rural residential uses support home based business of varying typologies including creative businesses, construction trades and other professional services.
6. Potential uses for this precinct are livestock grazing, perennial horticulture, nursery, large format supplies and restaurants if co-located with and ancillary to other uses such as a vineyard or garden centre.
7. The GARS Economic Study suggests that the economic potential for this area is achievable under the current Planning Scheme controls.
8. Overall, the GARS Economic Study (Urban Enterprise, 2019) provides the following evaluation of economic, tourism, community and recreation potential for Precinct 2a:

Summary of Economic, Tourism, Community and Recreation Potential

Suitability for agriculture intensification	Medium
Suitability for agri- tourism	Medium
Suitability for standalone tourism uses	Low
Suitability for community / social enterprise	Low
Accessible to population catchments	Medium
Accessible by public transport	Low
Accessible by bike/hiking/ walking	Low
Suitability for Active Recreation	Low
Suitability for other intensive industry	Low
Suitability for Passive Recreation	Low

Issues

1. Agricultural production in the precinct is currently limited due to fragmentation of land. There are water supply issues for commercial farming.
2. High land values and encroachment issues threaten long term viability of commercial horticulture enterprises.
3. Dorset Road extension would lead to further fragmentation of agriculture land.

Recommendation 13. Maintain the current zoning regime.

Recommendation 14. Support the continuation of agriculture within the floodplains of Monbulk Creek.

Recommendation 15. Acknowledge and support the different role of each zone within this precinct to enable a diversity of rural economy and character.

Recommendation 16. Maintain the current minimum subdivision lot size requirements to support landscape values and agricultural potential of land.

Recommendation 17. Support land use which respects the rural and pastoral landscape character of the valley and hills, maintains key viewlines and provide a high quality design.

Recommendation 18. Support tourism, agri-tourism and restaurant/café uses where they are accompanied by agriculture or natural systems and protect the landscape and character values.

Access and Connectivity (Map 10)

Opportunities:

1. The precinct is well connected for vehicular movement through a network of arterial roads (Wellington Road, Lysterfield Road, Napoleon Road, Glenfern Road and Kelletts Road) and local roads within the precinct.
2. These roads also provide important routes for visitors to the Dandenong Ranges including Wellington Road which serves as a key gateway and touristic corridor into the hills.
3. Bus Route 691 runs along Napoleon Road connecting the local residents to Boronia and Waverley Gardens. Routes 681 and 682 which are loop services to the Knox City Shopping Centre run via Kelletts Road, Rosewood Boulevard and Heritage Way. Some of the smaller Rural Conservation lots are within walking distance to these bus routes.
4. Precinct 2a is in proximity to Lysterfield Park, which contains very popular and highly used bushwalking and mountain biking trails. There are opportunities to improve connectivity and access to these trails.
5. As indicated on the map, the Principal Bicycle Network (PBN) proposes new on-road bicycle lanes along Wellington Road, Kelletts Road and Napoleon Road.
6. Precinct 2a benefits from proximity to Lysterfield Park, which contains very popular and highly used bushwalking and mountain biking trails. There are opportunities to improve connectivity and access to these trails.

Issues:

1. Roads in/abutting Precinct 2a do not provide segregated bike lanes or shared paths.
2. Overall, public transport connectivity is limited to Precinct 2a.

Recommendation 19. Liaise with the State Government to implement the PBN proposals for on-road bicycle lanes along Wellington Road, Kelletts Road and Napoleon Road.

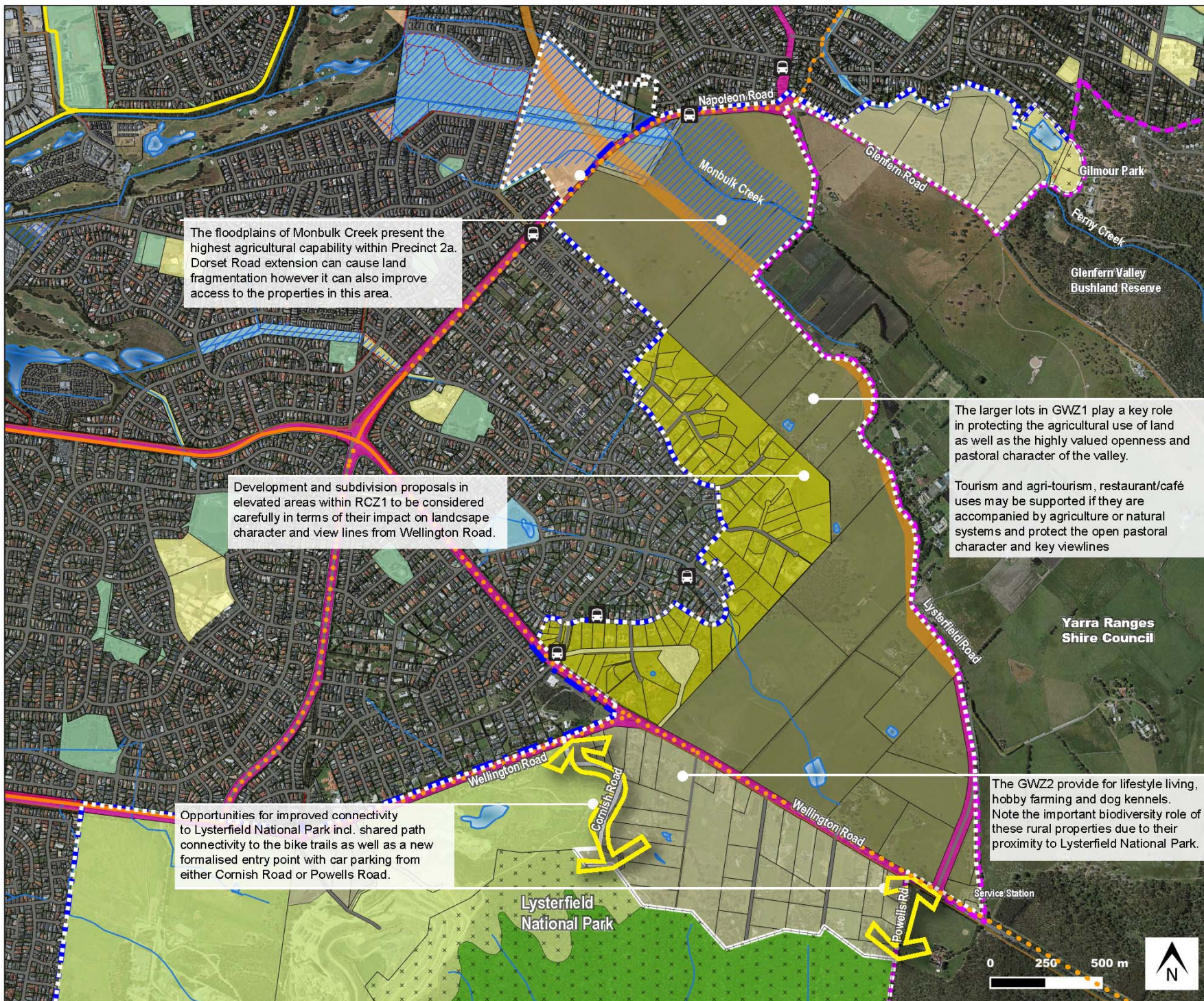
Recommendation 20. Improve connectivity to Lysterfield National Park including shared path connectivity to the bike trails as well as a new formalised entry point with car parking from either Comish Road or Powells Road.

Map 10

Precinct 2a - Lysterfield Valley and Hills

Theme: Land Use & Access

Knox Green Areas & Rural Strategy (GARS)
 Issues and Opportunities Analysis
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The floodplains of Monbulk Creek present the highest agricultural capability within Precinct 2a. Dorset Road extension can cause land fragmentation however it can also improve access to the properties in this area.

Development and subdivision proposals in elevated areas within RCZ1 to be considered carefully in terms of their impact on landscape character and view lines from Wellington Road.






Opportunities for improved connectivity to Lysterfield National Park incl. shared path connectivity to the bike trails as well as a new formalised entry point with car parking from either Cornish Road or Powells Road.

The larger lots in GWZ1 play a key role in protecting the agricultural use of land as well as the highly valued openness and pastoral character of the valley.












Tourism and agri-tourism, restaurant/café uses may be supported if they are accompanied by agriculture or natural systems and protect the open pastoral character and key viewlines

The GWZ2 provide for lifestyle living, hobby farming and dog kennels. Note the important biodiversity role of these rural properties due to their proximity to Lysterfield National Park.


Legend

-  Precinct Boundary
-  LGA Boundaries
-  Urban Growth Boundary
-  Creeks and Lakes Areas
-  Cadastre






Zones - Knox Planning Scheme

-  GWZ1
-  GWZ2
-  PCRZ
-  PPRZ
-  PUZ1
-  RCZ2
-  RDZ1
-  RLZ
-  UFZ
-  Land Subject to Inundation Overlay (LSIO)
-  Public Acquisition Overlay (Vic Roads)

Road Centrelines

-  Local Streets/Rds

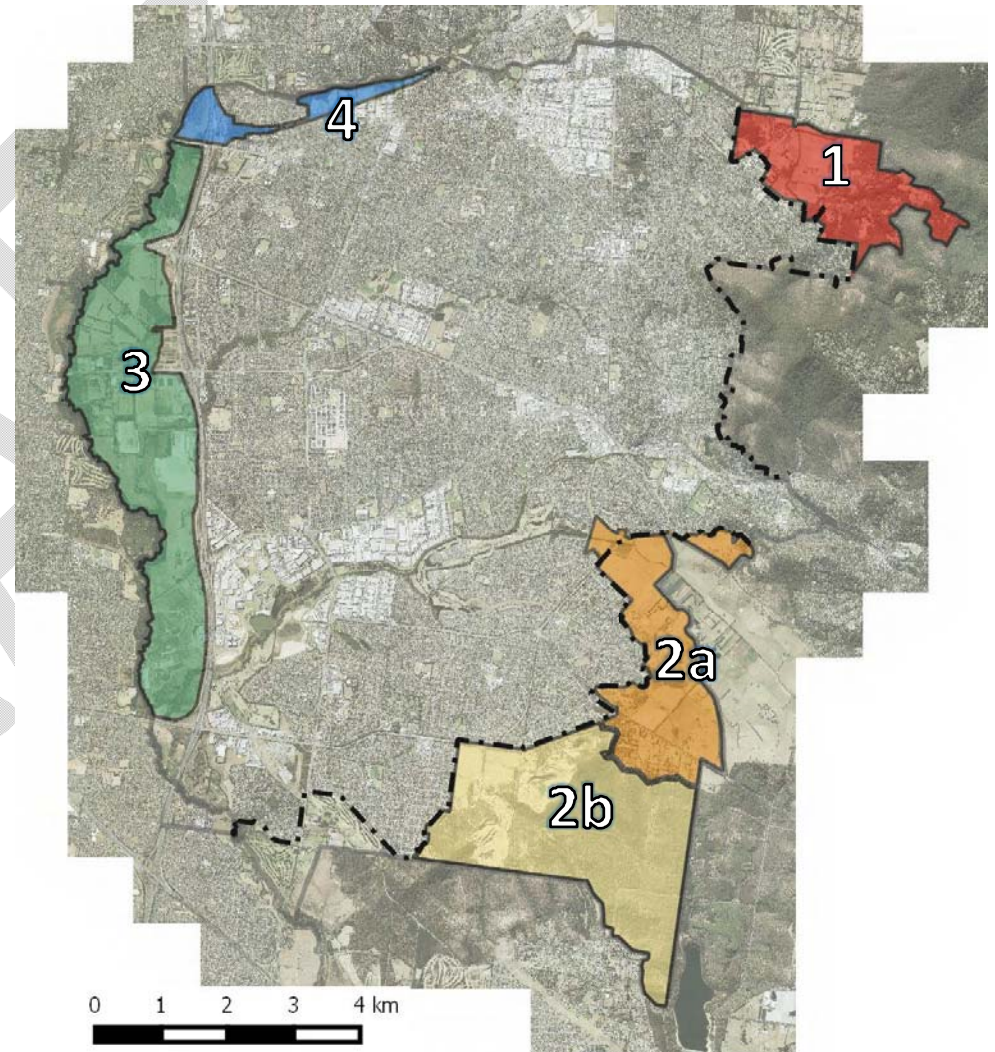
Principal Bicycle Network (PBN)

-  Existing On Road
-  Proposed On Road
-  Existing Off Road
-  Proposed Off Road
-  Potential for improved connectivity



Precinct 2b:

Lysterfield Quarries and Surrounds



Theme 1: Ecology

Wildlife Habitat and Connectivity (Map 11)

Opportunities:

1. Precinct 2b contains portions of Lysterfield National Park and Churchill Park that hold significant ecological and biodiversity values.
2. The north-east section of this precinct abuts rural land in Precinct 2a, with the many farm dams and the adjacent catchment of Monbulk Creek. Maintaining this connection between the native vegetation and the adjacent agricultural lands will help preserve the populations of Short-beaked Echidna, Southern Bullfrog, Black Wallaby, and the four bird focal species that occur in this landscape.
3. The national park areas are well protected through a combination of zoning (PCRZ, PPRZ), public ownership, environmental (ESO) and heritage (HO) overlays.
4. The vegetation outside the parkland is also protected by the ESO.
5. Clause 21.10 of the MSS requires 80% of all new vegetation (both canopy trees and understorey) to be indigenous.
6. The northern part of Precinct 2b serves as an important buffer between the Rowville residential areas to the north and the significant habitat areas in Churchill and Lysterfield National Parks. It is important that this rural buffer is protected and maintained. The fact that this area is outside the Urban Growth Boundary helps with the protection of this buffer from intense development.

Issues:

1. While the majority of existing vegetation in Precinct 2b is protected by ESO, exemption from Council Planning Permit processes may apply within the scope of the approved work plans for the two quarries. This makes some of the sites of biodiversity in Precinct 2b vulnerable to future clearing in case of extensions to quarry activities. Hanson Quarry has indicated of its intension to expand the quarry activities to the west of the existing quarry area. This is likely to impact native vegetation in this area.

Recommendation 1. Maintain the northern area within Precinct 2b as a low density, rural, open space area to create a buffer between the Rowville residential areas and the sensitive habitat areas in Lysterfield and Churchill Parks.

Recommendation 2. Maintain the current Urban Growth Boundary to prevent intense development within Precinct 2b.

Recommendation 3. Undertake vegetation/revegetation within Precinct 2b, with the objective of maintaining and strengthening wildlife connectivity and linkages to the bushland areas within Churchill Park and Lysterfield National Park.

Recommendation 4. Compensate any vegetation removal required for the quarries by native vegetation planting to achieve wildlife connectivity to Churchill Park and Lysterfield National Park.

Water (Map 11)

The precinct contains a number of streams and much of the catchment for these streams which feed into Lysterfield Lake. The majority of Lysterfield Park is within the Eumemmerring Creek catchment with the north western part the precinct being within the Dandenong Creek (Police Rd to Bayswater Rd) catchment.

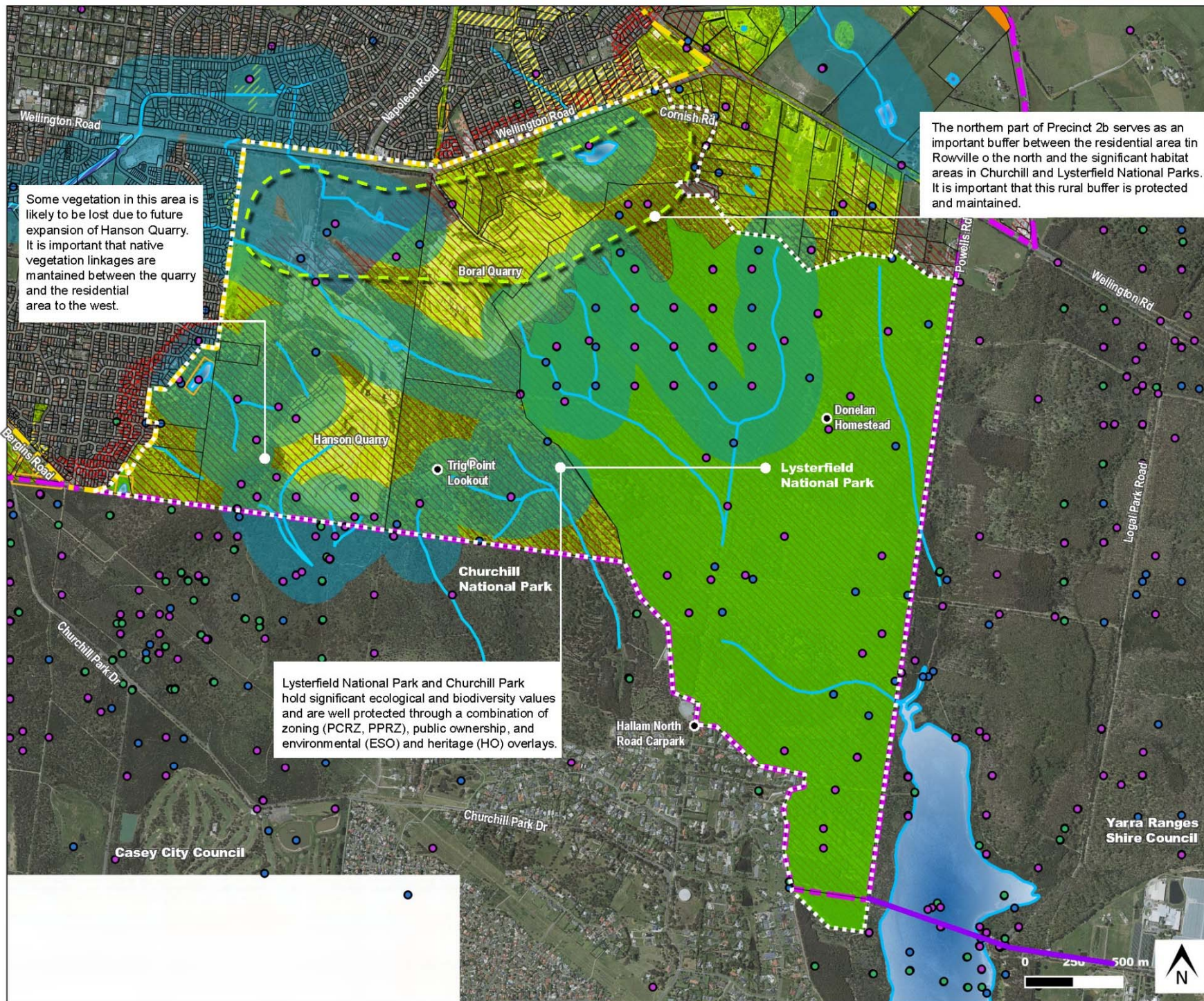
A number of small lakes exist in the precinct, including one within Heaney Park.

Map 11

Precinct 2b - Lysterfield Quarries and Surrounds

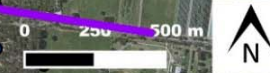
Theme: Ecology

Knox Green Areas & Rural Strategy (GARS)
 Issues and Opportunities Analysis
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Legend

- Knox Wildlife Atlas (1995-2017)**
 - Wildlife Records - Multiple Sources
 - Wildlife Records - Victorian Biodiversity Atlas
 - Knox Focal Species 2017
- Waterways 200m Buffer
- Knox Planning Scheme**
 - Environmental Significance Overlay 2 (ESO2)
 - Vegetation Protection Overlay (VPO)
 - Bushfire Management Overlay (BMO)
- Zones - Areas**
 - PCRZ
 - UFZ
- Other**
 - Creeks and Lakes
 - WSUD - Project Area
 - Precinct 2b Boundary
 - Urban Growth Boundary
 - Knox City Boundaries



Theme 2: Landscape and Heritage

Landscape Values (Map 12)

The GARS Landscape and Character Study recommends that the defining forested edge of this part of the City be recognised. Topography and native vegetation cover are important features in this precinct with key view corridors along Wellington Road to both the east and west. The study identifies the following character areas (as shown on the map) and details key landscape values for each area:

No.	Description	Approach	Key Landscape Values
1	The Rising Wellington Road Ridgelines	Management	Native bushland condition
2	The Lysterfield Park and Bushland Silhouette	Protection	Native bushland condition
3	The Extractive Industries and Works	Management	N/A
4	The Open Grazing Land	Monitoring	Rural integrity and open character

Opportunities:

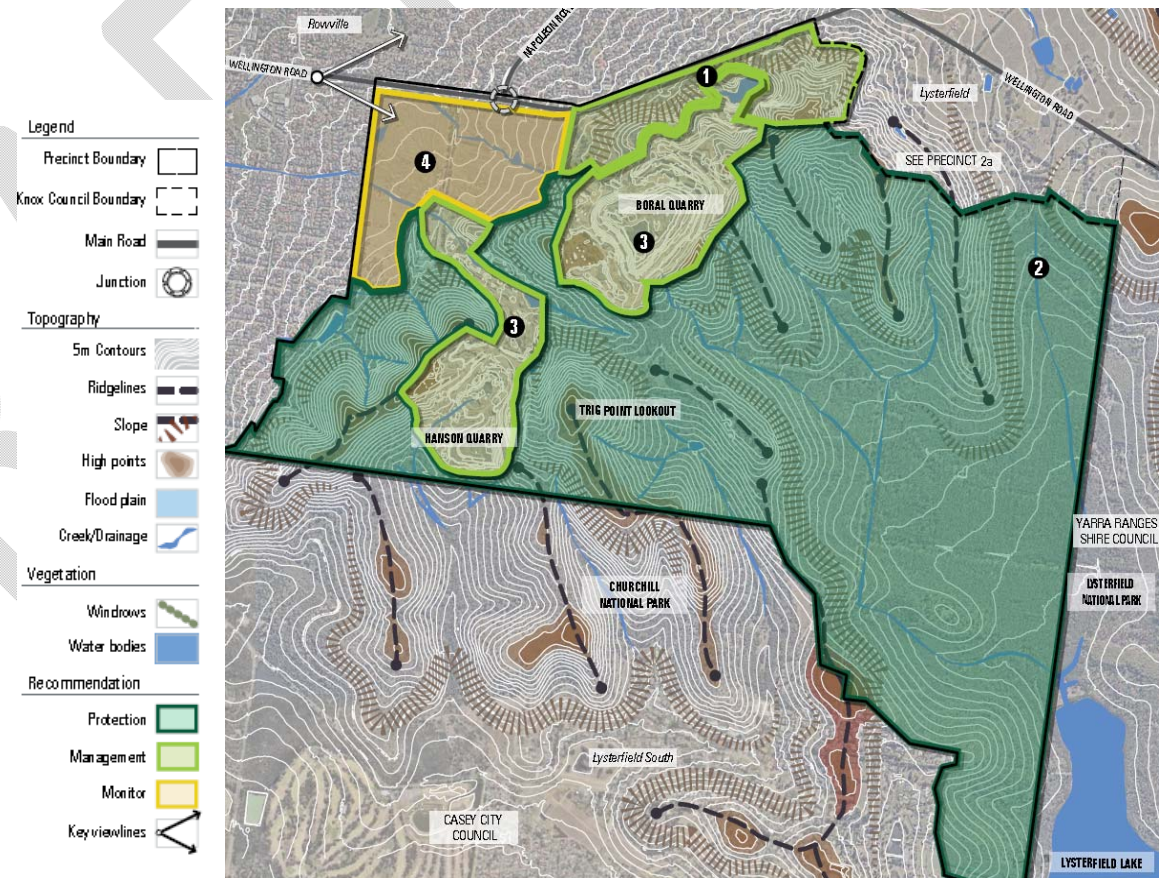
1. The vegetation and landscape qualities of Lysterfield Park are well protected through zoning and public ownership of land. The majority of Precinct 2b is covered by SLO1 which protects vegetation and viewlines. SLO1 also controls building heights, development above 115m AHD, colours and materials.
2. The north-western corner of the precinct (within Area No 4) is covered by SLO5 which requires that development is sensitive to the natural characteristics of the land including slope, terrain and any remnant vegetation, and that development minimises impact on views of the Dandenong Ranges, Lysterfield Valley, Lysterfield Hills and significant ridgelines.
3. The MSS at 21.10 provides strategic direction to protect landscape values.

Issues:

1. Hanson quarry extension to the west is likely to affect parts of Area 2 which is recommended for protection. It is important to manage the expansion so key view lines are not affected.

Recommendation 5. Review the existing Scheme provisions including the MPS, PPF and SLO1 and SLO5 in light of the findings of the GARS Landscape and Character Study.

Recommendation 6. Ensure the extension of Hanson Quarry does not impact key viewlines from Wellington Road.



Map 12 – Landscape Assessment (Source: Hansen Partnership)

Heritage (Map 13)

Precinct 2b contains areas of Aboriginal Cultural Heritage Sensitivity associated with Lysterfield Park.

Precinct 2b includes two heritage sites listed in the HO and two non-listed places listed in Knox Heritage Study 1993. The Preliminary Heritage Review: Knox Rural Heritage (Context, 2017) reviews the existing heritage sites within the precinct (HO and non-HO items) and provides recommendations for each place.

Recommendation 7. Ensure adequate consultation occurs prior to any proposals affecting the Aboriginal Places and Areas of Cultural Sensitivity as shown on the heritage map.

Recommendation 8. Review the places of heritage significance in accordance with the recommendations from the Knox Rural Heritage Report (Context, 2017), as summarised in the table below.

Table 4. Heritage sites in Precinct 2b

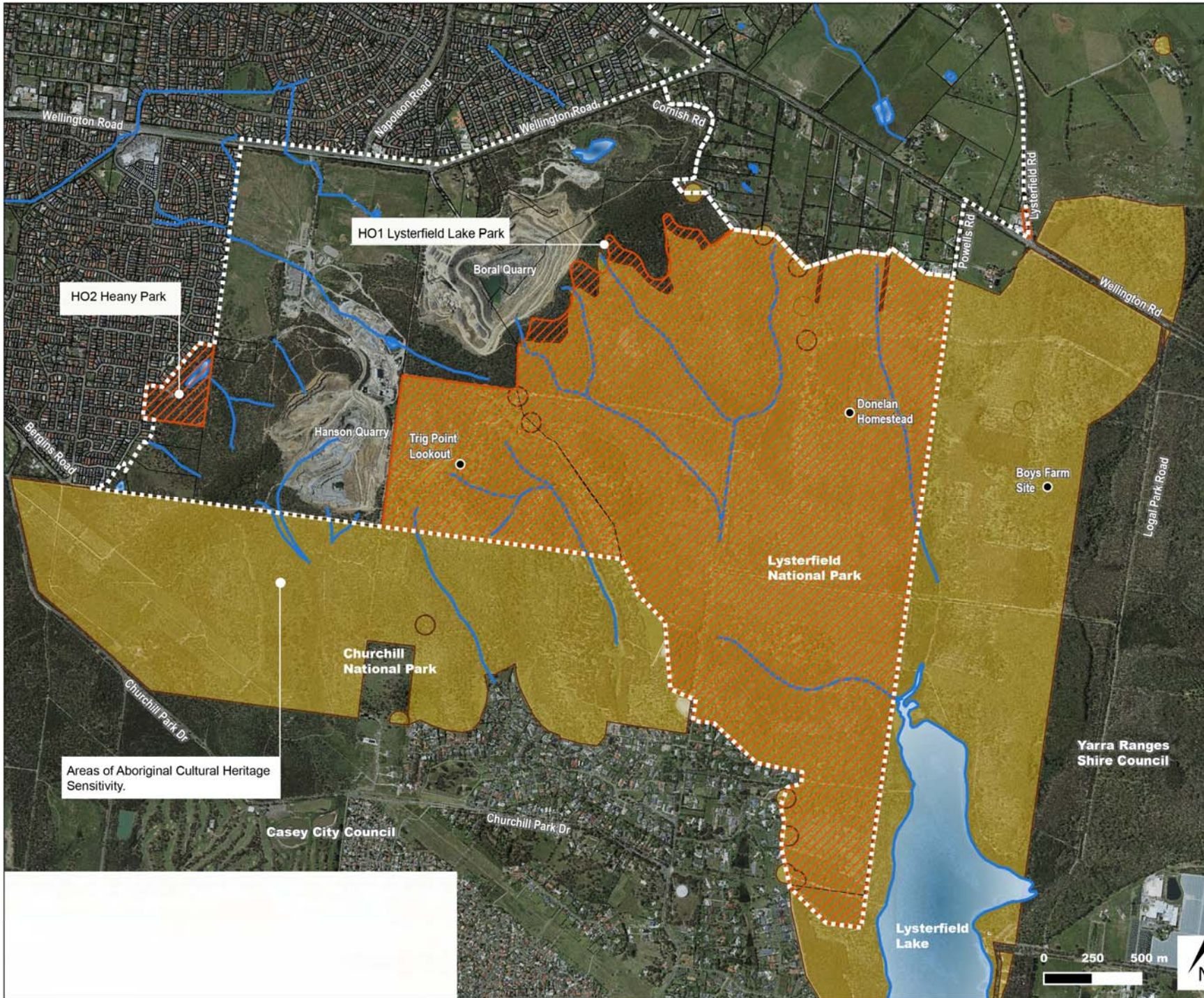
Site Name and Description	Heritage Review (2017) Recommendations
HO Places	
HO1 Lysterfield Lake Park	<ul style="list-style-type: none"> • Of historic (HO1) and environmental significance (ESO2) • Public land, recommend co-ordination with Parks Victoria for assessment of individual sites
HO2 Heany Park	<ul style="list-style-type: none"> • Well documented, no further consideration • Retain heritage and other overlays
Non-HO Places	
Churchill National Park, Churchill Road Rowville	<ul style="list-style-type: none"> • Public land, co-ordinate with Parks Victoria. • Recommend heritage assessment for specific sites within the Park
Lysterfield Quarries	<ul style="list-style-type: none"> • Heritage assessment not recommended

Map 13

Precinct 2b - Lysterfield Quarries and Surrounds

Theme: Heritage

Knox Green Areas & Rural Strategy (GARS)
 Issues and Opportunities Analysis
DRAFT FOR CONSULTATION



Legend

- Precinct Boundary
- Creeks and Lakes
- Heritage Overlay (HO)
- Areas of Cultural Heritage Sensitivity (Aboriginal Victoria)

Areas of Aboriginal Cultural Heritage Sensitivity.

Yarra Ranges Shire Council

Casey City Council

0 250 500 m



Theme 3: Land Use and Access

Land Use and Economy (Map 14)

Public Parks

Precinct 2b covers parts of the Lysterfield Park and Churchill National Park. The parks contain sloped areas of forest and woodland which are owned and managed by Parks Victoria and are used by the community for a variety of recreational activities including walking, cycling, picnic, horse riding, mountain biking and orienteering.

Lysterfield Park is one of the best places to mountain bike close to Melbourne. It contains parts of the State Mountain Bike Course which was used for the 2006 Commonwealth Games. The course consists of a network of well connected trails which flow up and down steep hills and through native vegetation. A short diversion from the top of the State Mountain Bike Course provides access to Trig Point Lookout which offers views across to Melbourne's CBD.

The management framework for the area is outlined in Parks Victoria's document "Churchill National Park and Lysterfield Park Management Plan" which was prepared in 1998 and evaluated in 2009.

Heany Park is also a smaller park along the western boundary of Precinct 2b which is owned by KCC. The Park consists of a bushland and a lake, accommodates scout camps and is home to Heany Park Scout Group.

Extractive Industries

The two quarries in Precinct 2b (Boral and Hanson) place Knox as the 4th most critical resource location for hard rock and clay in Victoria. These quarries are significant suppliers to the Melbourne construction industry and are well located for supplying the Melbourne region.

The quarries have operated for over 30 years, and are currently operating pursuant to Work Authorities issued by the State Government. Hanson seeks to expand its existing extraction limits which would extend the operating life of the quarry by five to ten years, with potential cessation of quarrying activities at the site in 25-30 years.

The quarries are located on two large parcels of land zoned Special Use Zone (SUZ2).

Rural Use

The northern strip of Precinct 2b is currently used for rural purposes including grazing and horse agistment on parts of the Hanson quarry land. The precinct also includes a number of smaller privately held Green Wedge Zone (GWZ2) lots abutting Wellington Road and to the south of Heany Park.

Opportunities:

1. The quarries provide a significant economic role within Metropolitan Melbourne as well as the broader region, providing employment and economic output. The quarries are likely to continue operation for another 20-30 years.
2. KCC has been liaising with Hanson regarding the potential development of the north eastern portion of the Hanson property for community facilities including sporting ovals.
3. Lysterfield Parks has great tourism values that could be enhanced and made more accessible to the community.
4. Economic opportunities in Precinct 2b will be based on those uses that can build upon and complement the existing land uses such as recreation and education opportunities including outdoor education.
5. There are opportunities for outdoor education uses that can leverage from the extensive mountain biking activity that takes place in the precinct of Lysterfield Park.
6. Heany Park and the Green Wedge lots to its south provide an important vegetated buffer between the Hanson Quarry lot and the residential areas to the west.
7. There are opportunities to guide the future use of the quarries following the cessation of operation. While such development will be outside the life of his strategy, it is considered that the sustainable long term use of the land should avoid creating a lake following the completion of quarrying and aim for an improved community outcome, including ongoing protection of remaining significant vegetation outside the extent of extraction, and the provision of active and passive recreation opportunities.
8. The northern part of the Hanson Quarry land is clear of vegetation and is currently used for grazing/agistment. There are opportunities to use this land to provide community benefits during the ongoing operation of the quarry through the

provision of an active recreation complex of multiple sporting ovals, with associated change facilities, club rooms, car parking and associated facilities.

- Overall, the GARS Economic Study (Urban Enterprise, 2019) provides the following evaluation of economic, tourism, community and recreation potential for Precinct 2b:

Summary of Economic, Tourism, Community and Recreation Potential

Suitability for agriculture intensification	Low
Suitability for agri- tourism	Low
Suitability for standalone tourism uses	Low
Suitability for community / social enterprise	Low
Accessible to population catchments	Medium
Accessible by public transport	Low
Accessible by bike/hiking/ walking	Medium
Suitability for Active Recreation	High
Suitability for other intensive industry	High
Suitability for Passive Recreation	High

Issues:

- The boundary of land owned by Parks Victoria is inconsistent with the boundary of Lysterfield Park as per the PCRZ zone. Parts of the Boral Quarry are currently within Parks Victoria land.
- One area is a portion of Churchill National Park is zoned PPRZ, whereas the portion of Churchill Park within Casey and the adjoining Lysterfield Park within Yarra Ranges are zoned PCRZ. It is not clear why a different zone has been applied to this area within Knox.
- Due to existing land use patterns and constraints, there are limited opportunities in Precinct 2b for other land uses including agriculture.

Recommendation 9. Support the ongoing operation of the Boral and Hansen Quarries within the approved work plan areas.

Recommendation 10. Investigate and support the use of the northern part of the Hanson quarry land for active recreation and sporting facilities.

Recommendation 11. The use of the quarry land following the completion of quarrying to aim for an improved community outcome, protection of significant vegetation, and the provision of active and passive recreation opportunities.

Recommendation 12. Liaise with Parks Victoria regarding potential enhancements to tourism/recreational opportunities within Lysterfield Park and making them more accessible by to surrounding community.

Recommendation 13. Liaise with Parks Victoria to ensure the boundaries between the quarries and the National Park are rationalised.

Recommendation 14. Liaise with Parks Victoria regarding the rationale behind PPRZ zoning for the portion of Churchill Park in Knox, as opposed to PCRZ applied to the surrounding area.

Access and Connectivity (Map 14)

Opportunities:

- Precinct 2b can provide a positive role in improving trail linkages including between Lysterfield Park and the residential areas to the north.

Issues:

- Access to the Lysterfield Park and its highly valued trail network is quite limited for the nearby residents in Knox. This is due to the quarries acting as a physical barrier and lack of connecting shared paths/tracks or a formalised entry point from Knox.
- The lack of a formal entry point to the Lysterfield Park has resulted in informal car parking issues in the vicinity including on Lysterfield Road approaching the Wellington Road intersection.
- The precinct is not within walking catchment of public transport.

Recommendation 15. Provide shared path connectivity between the Lysterfield Park trail network and the suburban areas in Knox.

Recommendation 16. Investigate opportunities for a formalised entry point and car parking to provide access to Lysterfield Park from Wellington Road (potentially via Powells Road or Cornish Road).

Map 14

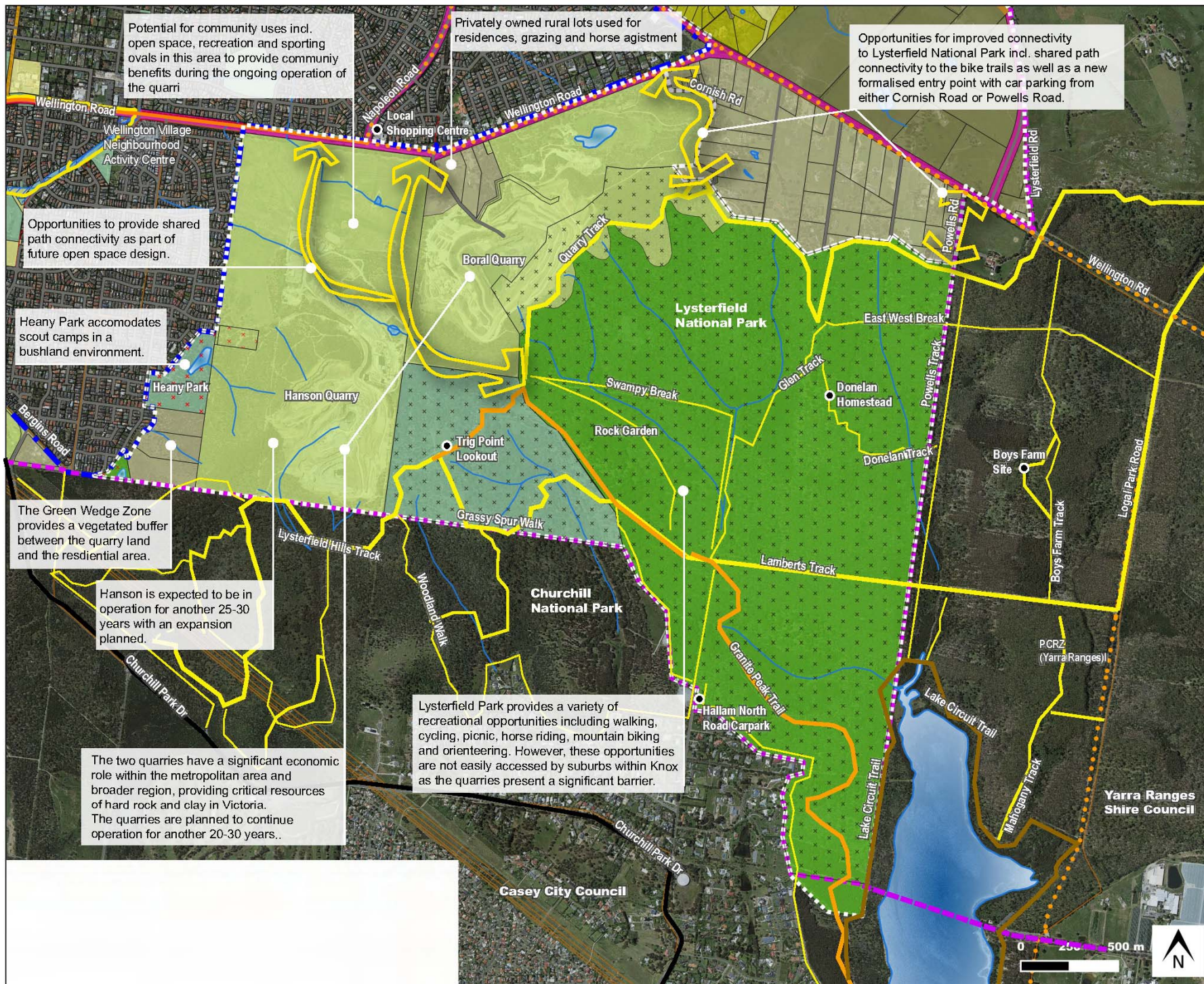
Precinct 2b - Lysterfield Quarries and Surrounds

Theme: Land Use & Access

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis
DRAFT FOR CONSULTATION

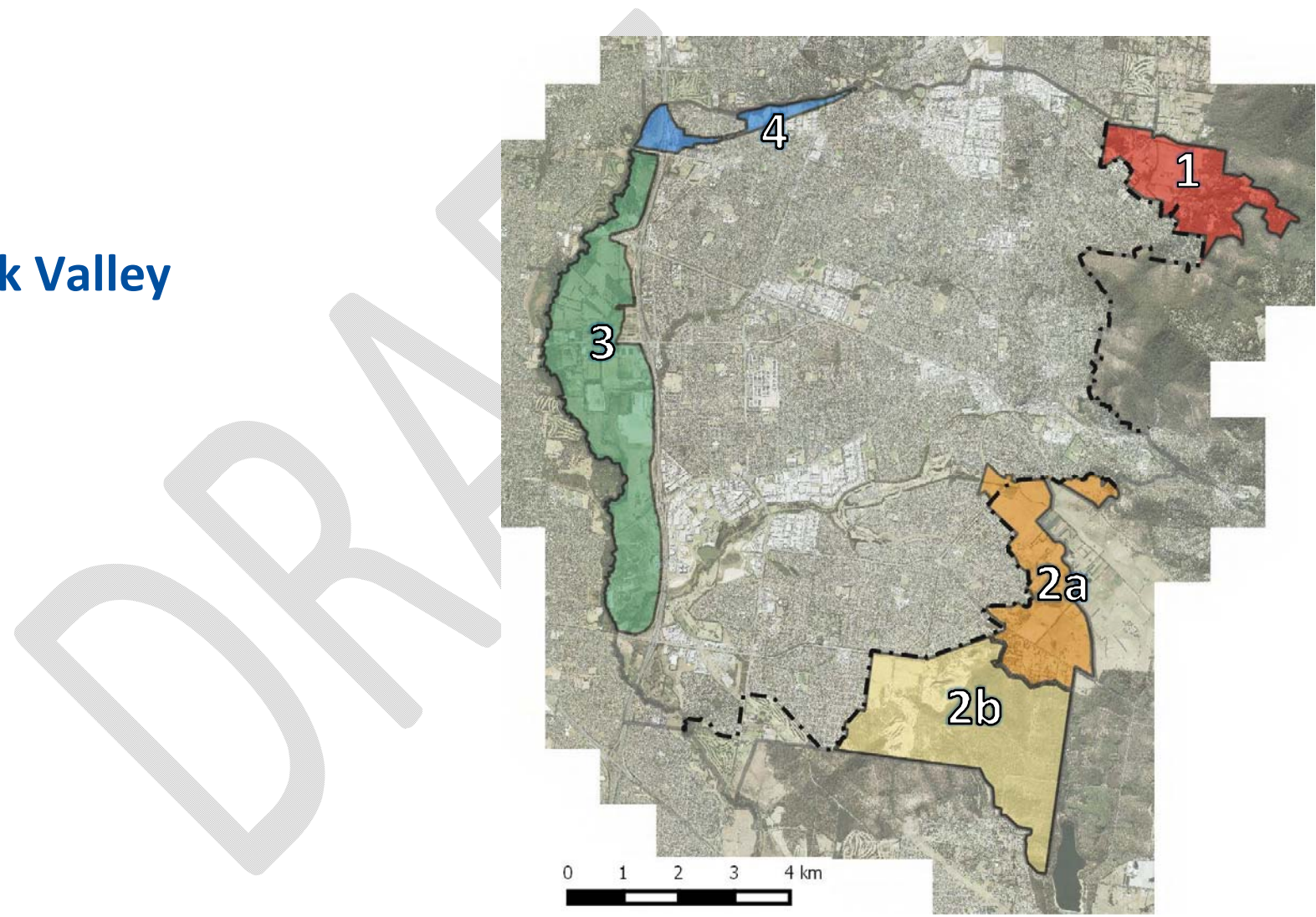
Legend

-  Precinct Boundary
 -  LGA Boundaries
 -  Urban Growth Boundary
 -  Creeks and Lakes Areas
 -  Cadastre
- Zones - Knox Planning Scheme**
-  GWZ2
 -  PCRZ
 -  PPRZ
 -  RDZ1
 -  RDZ2
 -  SUZ2
 -  UFZ
 -  Public Acquisition Overlay (PAO2)
- Land Ownership**
-  Local Government
 -  State Government/Agencies
- Road Centrelines**
-  Local Streets/Rds
- Principal Bicycle Network (PBN)**
-  Existing On Road
 -  Proposed On Road
 -  Existing Off Road
-  Potential for improved connectivity



Precinct 3:

Dandenong Creek Valley



Theme 1: Ecology

Wildlife Habitat and Connectivity (Map 15)

Precinct 3 offers significant habitat values as it contains the widest core riparian zones of the Dandenong Creek, many well-connected billabongs, large extents of flood plains, as well as a relatively consistent spread of remnant vegetation along the length of the precinct.

Knox Wildlife Atlas has recorded high levels of wildlife sightings along the Dandenong Creek, Blind Creek and Corhanwarrabul Creek which indicate that these creek systems provide key corridors for wildlife connectivity. The pockets of remnant vegetation scattered across the precinct also provide important habitat and linkages for wildlife movement.

Opportunities:

1. Parks Victoria is a key landowner in Precinct 3 and a key contributor to the protection of habitat values.
2. Melbourne Water also contributes to the health and habitat values of the Dandenong Creek. As part of the Enhancing Our Dandenong Creek project, KCC has been working with Melbourne Water and Environment Protection Authority (EPA) to identify projects including constructing new habitats for threatened fish species, increasing the natural amenity, pollution prevention and detection.
3. There is a high level of community involvement in environmental management including by the Friends of Dandenong Valley Parklands, individual volunteers, students and other community groups.
4. Significant investment into the natural assets in this precinct were made by a number of agencies during the construction of the EastLink Freeway.
5. The majority of the identified habitat areas including the riparian vegetation are well protected through the Scheme either through PCRZ zoning or ESO overlays.
6. The Boral development provides a significant opportunity to enhance connectivity along the Blind Creek and incorporate habitat restoration into master planning and open space design.

Issues:

1. Two parcels of land have been identified along the Dandenong Creek corridor that are not zoned for conservation purposes:
 - 115-123 Axford Road, Wantirna South – This area of crown land is densely vegetated and the Rural Living Zoning seems to be an anomaly. KCC has raised this issue with DELWP and recommended rezoning to Public Conservation and Resource Zone (PCRZ).
 - 1A Burwood Highway, Wantirna – This is a legacy issue where the area has been cleared and developed for retail purposes (gardening and landscaping supplies). It is recommended that any future redevelopment of the area incorporates habitat restoration.
2. Poor maintenance of orchards and weed control have the potential to reduce the wildlife connectivity and conservation values of this precinct if they encroach upon areas of native vegetation or other areas of habitat. However, in some cases areas of existing weeds may provide habitat values for wildlife. Therefore, any actions to remove or reduce weed cover should be undertaken in a staged basis, alongside active planting of native vegetation as replacement habitat.
3. Six barriers to wildlife movement have been identified within or abutting Precinct 2a as shown on the map, generally where roads intersect with the creeks.

Recommendation 1. Acknowledge the significant role of this precinct in providing wildlife habitat and connectivity at a regional scale which is due to the integrity of existing native vegetation and the creek corridors.

Recommendation 2. Continue the application of ESO2 across the precinct to protect native vegetation and habitat values.

Recommendation 3. Consult Melbourne Water regarding existing protections in place for the Creeks' Core Riparian Zone (CRZ) and the adjacent 10m vegetated buffers.

Recommendation 4. Within 200m of the Dandenong Creek:

- a) Prevent intense development.
- b) Support habitat restoration and revegetation.

Recommendation 5. Provide for habitat restoration and connectivity along Blind Creek as part of future development of the Boral Quarry site.

Recommendation 6. Investigate mechanisms to achieve an ecologically sensitive development approach to new development and the construction of linear infrastructure (e.g. roads, bridges) within Precinct 3.

Recommendation 7. Reduce the wildlife barrier effects at the sites indicated on the map in accordance with the recommendations of Appendix 1 to this report.

Recommendation 8. Rezone land at 115-123 Axford Road, Wantirna South to PCRZ to enable the protection of the creek riparian corridor.

Recommendation 9. As part of any future redevelopment or change of use at 1A Burwood Highway, Wantirna, incorporate revegetation and habitat restoration in proximity to the Dandenong Creek.

Recommendation 10. Enhancements within this precinct are to connect with and continue along the creek corridor south of Wellington Road.

Water (Map 15)

Precinct 3 supports important waterbodies including the Dandenong Creek, Blind Creek and Corhanwarrabul Creek and their tributaries. The precinct is within the Blind Creek and Dandenong Creek catchments, which flows from the Dandenong Ranges to Port Phillip Bay via Patterson River.

Opportunities:

1. The billabongs and wetlands in Precinct 3 play a key role in water quality of the creek system while providing significant habitat for aquatic species.
2. The upstream section of Blind Creek in Boronia (outside study area) is identified as a "High Value" waterway in Knox as part of the Knox WSUD and Stormwater Management Strategy.
3. The southern part of the precinct accommodates the floodplain wetlands associated with the Corhanwarrabul Creek. This area has a major impact on flows and water quality in Dandenong Creek.
4. Melbourne Water works with KCC to manage these creek systems including ongoing monitoring of water quality and sediment control at Corhanwarrabul Creek and Dandenong Valley treatment wetlands.
5. Precinct 3 contains large flood plains associated with the creeks. Large open space areas in Precinct 3 assist with flood mitigation. The areas affected by flooding are protected by the Land Subject to Inundation Overlay (LSIO).

Issues:

1. The flood overlay that currently applies is due for review. Melbourne Water and KCC are currently undertaking the 1%AEP flood modelling using the most recent techniques and methodology. Once this work is completed it is essential that the results are incorporated into the Scheme to ensure adequate development controls apply within floodplains.
2. Future redevelopment of the Boral quarry site will have to ensure that stormwater impacts are minimised and managed properly to prevent any negative impacts on the waterways or surrounding area.
3. The section of Blind Creek that runs through the Boral quarry site was realigned from its original route and currently presents poor conditions. The future redevelopment of the Boral quarry site presents great opportunities for re-establishment of the creek's natural corridor and enhancement of its condition as a healthy waterway.

Recommendation 11. Following the completion of the flood modelling projects by MW and KCC, incorporate the relevant recommendations into the Scheme.

Recommendation 12. Future redevelopment of the Boral quarry site is to ensure that stormwater impacts are minimised and managed to the satisfaction of the relevant agencies.

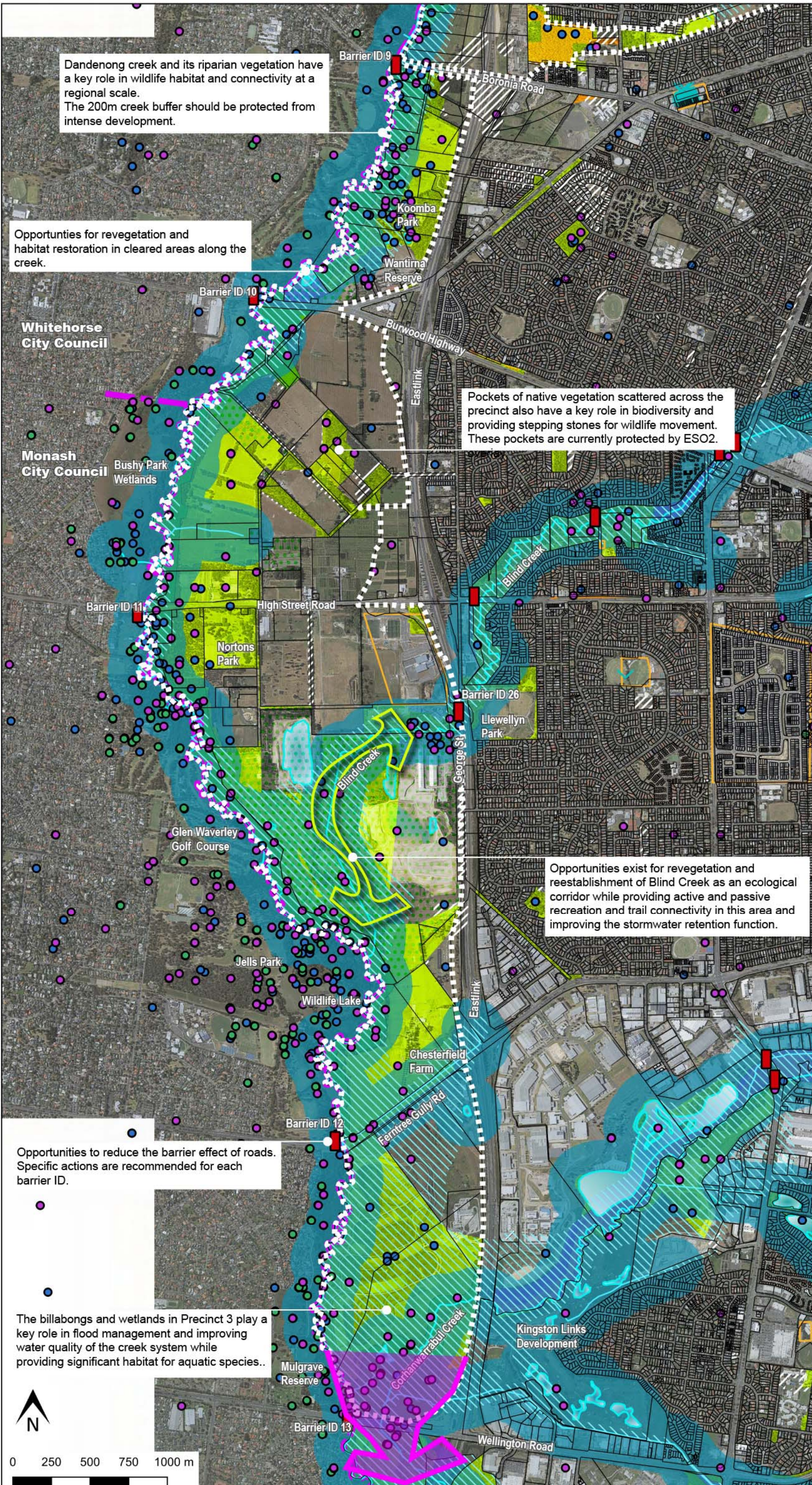
Recommendation 13. Re-establish and enhance the condition of Blind Creek as a natural waterway corridor as part of the future development of the Boral quarry site.

Recommendation 14. Continue the KCC/MW collaboration to improve water quality and sediment control in Precinct 3.

Map 15
Precinct 3 - Dandenong Creek Valley Parklands

Theme: Ecology
 Knox Green Areas & Rural Strategy (GARS)
 Issues and Opportunities Analysis

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Legend

- Knox Wildlife Atlas (1995-2017)**
- Wildlife Records - Multiple Sources
 - Wildlife Records - Victorian Biodiversity Atlas
 - Knox Focal Species 2017
- Barriers to Wildlife Movement**
- Barriers to Wildlife Movement
- Knox Planning Scheme**
- Waterways 200m Buffer
 - Environmental Significance Overlay 2 (ESO2)
 - Vegetation Protection Overlay (VPO)
 - PCRZ
 - Urban Floodway Zone
- Other**
- Creeks and Lakes
 - Floodplains
 - WSUD - Project Area
 - Precinct 3 Boundary
 - Knox City Boundaries
- Enhancements within this precinct are to continue along the creek corridor south of Wellington Road**

Theme 2: Landscape and Heritage

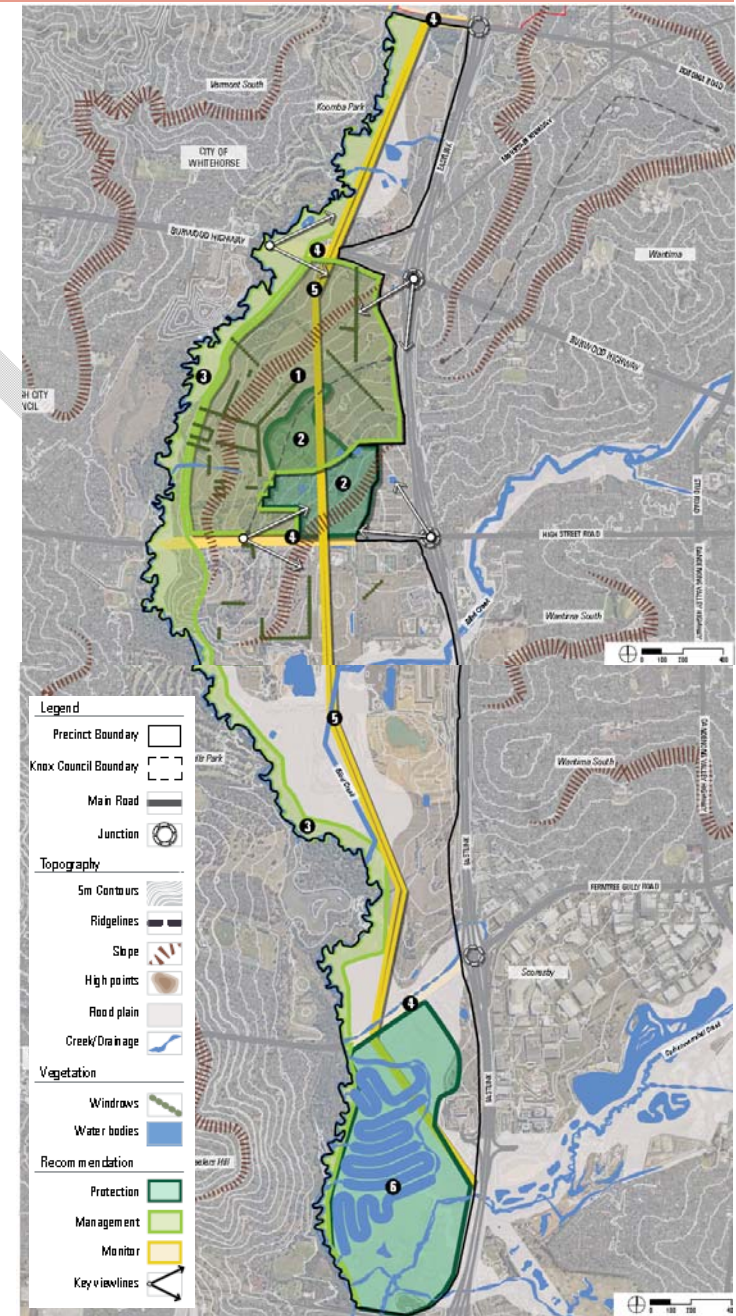
Landscape Values (Map 16)

The GARS Landscape and Character Study (Hansen Partnership) states that while the corridor is a single entity, there is a notable distinction between the character of its northern sector (with elevated land between the Blind and Dandenong Creeks - immediately north of High Street Road) and its low southern wetlands. The openness and mixed vegetated quality of the valley is important to its character, in particular the elevated Wantima South Ridgeline and cultivated hilltop. The study identifies the following character areas (as shown on the map) and details key landscape values for each area:

No.	Description	Approach	Key Landscape Values
1	The Wantima South Ridge	Management	Rural character on rising land; Roadside/windrow vegetation; Native bushland patches
2	The Central Cultivated Hilltop	Protection	Rural character; Panoramic views from roads; Roadside / windrow vegetation; Native bushland patches
3	The Dandenong Creek Riparian Corridor	Management	Riparian vegetation; Low-lying valley conditions
4	The East-West Aligned Road Corridors	Management	Framed/ open views from roads
5	The High Voltage Power Line Infrastructure	Management	The mitigating effect of vegetation
6	The Dandenong Valley Park and Wetland	Protection	Wetland vegetation; Low-lying valley conditions

Opportunities:

1. Most vegetation within the precinct including the Dandenong Creek riparian corridor are protected through a combination of ESO2 and VPO2. The predominant PPRZ and PCRZ zoning also provides general protection from intense development.
2. Clause 21.03 of the MSS refers to the precinct as a significant landscape and sets high level strategies to protect and enhance the landscape qualities. However, these strategies are not translated into any overlays. There are opportunities to build upon these existing directions and provide more direction/controls in the Scheme for the key identified areas.



Map 16 – Precinct 3 Landscape Assessment (Source: Hansen Partnership)

Recommendation 15. Review the existing Scheme provisions including the MPS and PPF in light of the findings of the GARS Landscape and Character Study. New strategic policy direction for landscape values of the precinct and a new SLO are to be investigated.

Heritage (Map 17)

Precinct 3 contains areas of Aboriginal Cultural Heritage Sensitivity associated with Dandenong Creek, Blind Creek and Corhanwarrabul Creek. It also includes a number of Aboriginal Places featuring artefact scatter and scarred.

The precinct includes three heritage sites listed in the HO and three non-listed places. The Preliminary Heritage Review: Knox Rural Heritage (Context, 2017) reviews the existing heritage sites within the precinct (HO and non-HO items) and provides recommendations for each place.

Recommendation 16. Ensure adequate consultation occurs prior to any proposals affecting the Aboriginal Places and Areas of Cultural Sensitivity as shown on the heritage map.

Recommendation 17. Review the places of heritage significance in accordance with the recommendations from the Knox Rural Heritage Report (Context, 2017), as summarised in the table below.

Table 5. Heritage sites in Precinct 3

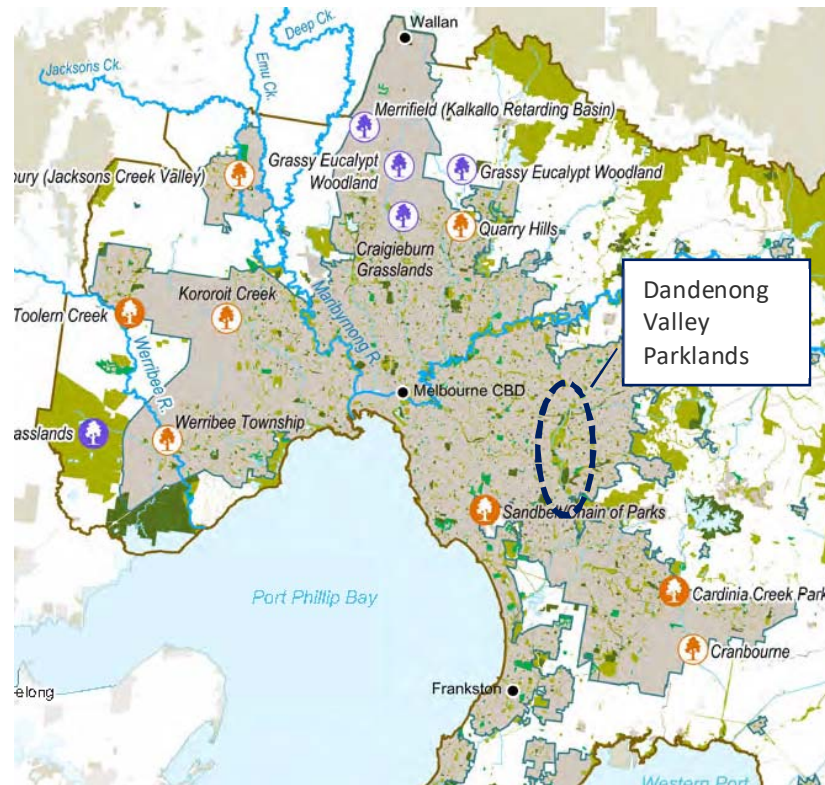
Site Name and Description	Heritage Review (2017) Recommendations
HO Places	
HO36 Clow Cottage, Dandenong Valley Parklands	<ul style="list-style-type: none"> • Retain heritage overlay. • Recommend heritage assessment to inform current listings.
HO10 Chesterfield Farm, Ferntree Gully Road Scoresby	<ul style="list-style-type: none"> • Retain heritage and other overlays.
HO50 Boronia Road Wantima (west of Eastlink) - Trees	<ul style="list-style-type: none"> • Further investigation required to determine extent.

	<ul style="list-style-type: none"> • Retain heritage and other overlays.
Non-HO Places	
Axford Road Ruin, Axford Road Wantirna	<ul style="list-style-type: none"> • Recommend further investigation and heritage assessment.
Bushy Park, 3 Bushy Park Lane Wantirna South	<ul style="list-style-type: none"> • Recommended for heritage assessment.
Norton Park and Shepherds Bush, Wantirna South	<ul style="list-style-type: none"> • Public land. Co-ordinate with Parks Victoria. • Recommend heritage assessment for specific sites within the Park.

Theme 3: Land Use and Access

Land Use and Economy (Map 19)

The Dandenong Valley Parklands play a key role within the broader open space network as a large scale consolidated corridor of land reserved for open space purposes, within the eastern suburbs catchment. A large portion of the parkland is owned by Parks Victoria and is zoned Public Parks and Recreation (PPRZ). Some areas of this corridor have been developed for parkland, sport and recreation purposes. The other areas are leased by Parks Victoria to private operators who use the land for a variety of purposes including horticulture, fresh produce markets, horse agistment and cattle grazing.



Map 18: Dandenong Creek Valley Parklands in the metropolitan open space context (Source of base map: Plan Melbourne)

Parks Victoria prepared the Dandenong Valley Parklands Future Directions Plan in 2006. This document sets out Parks Victoria's vision, management framework and implementation actions for the wider Dandenong Valley Parklands area. The plan is due for review as it was intended as a 10-15 year plan.

Opportunities for rural lots to the north of High Street Road

1. As the population increases in Knox and the broader region, there is increasing demand for public open space and recreation opportunities. The Dandenong Valley Parklands provide unique opportunities for becoming a more useable and accessible area for the public, providing a variety of active or passive recreation opportunities. The commercial aspect is recognised, however, it needs to be secondary to the public purpose function of the land. This would be in line with Plan Melbourne vision for an integrated and high quality open space network, as well as the purpose of the PPRZ zoning.
2. There are areas in particular to the north of High Street Road (to the north of the orchards and the winery) which are predominantly used for horse agistment and cattle grazing purposes. These areas are not open to the public, are poorly maintained in some instances and are accessed via rough surface unsealed roads.
3. With the future development of Jenkins Orchard, the current rural/horticultural character of High Street Road may be compromised. The other parcels of land on this corridor will have a key role in maintaining the unique rural/horticultural character of this corridor as a gateway to Knox.

Recommendation 18. Acknowledge the important role of the Dandenong Creek Valley Parkland as a significant green corridor within the eastern region.

Recommendation 19. In partnership with stakeholders incl. Parks Victoria, prepare a masterplan for the parkland, focusing on the area between High Street Road and Burwood Highway, to investigate the following opportunities:

- a) Activating the parkland as a high quality open space enabling active and passive recreational use of land to the north of the orchards.
- b) Improved access and connectivity to and through the area (vehicular, walking and cycling) including trails to connect to the Dandong Creek Trail and EastLink Trail
- c) Opportunities for tourism, agri-tourism, urban agriculture and cafes

- d) Community partnerships with opportunities for Council to connect community businesses and commercial partners with Parks Victoria
- e) Protecting and enhancing the existing rural/horticultural character along High Street Road while incorporating aesthetic elements and public art along this corridor as an important gateway to Knox
- f) Investigate education opportunities such as nature-based education
- g) Urban agriculture models such as city farms/community gardens, community nurseries and plant exchanges, edible landscapes, food forests, indigenous food production, institutional and demonstration gardens and restaurant gardens (refer case study of CERES in the Economic Study)

High Street Road Corridor

- 4. High Street Road corridor serves an important role as a gateway to Knox with a distinct rural, horticultural character. With upcoming changes associated with the Jenkins Orchard development, it would be important to protect and enhance this rural character.

Recommendation 20. Define this corridor as a Gateway to Knox. Protect the rural, horticultural character of this corridor and seek opportunities to enhance its aesthetics through landscaping, building design and public art which respond to and complement the rural, horticultural and bushy character of this corridor.

Boral Quarry Site

The Boral Quarry site at 191 George Street, Wantirna South has been designated as a Strategic Investigation Site in the Scheme for future residential and employment uses. There are opportunities to influence future design and character of the development which involves a large area of land stretching from EastLink to the Dandenong Creek reservation.

- 5. There are opportunities to locate residential and employment areas to the east closer to Eastlink and provide for nature conservation and passive recreation uses to the west in proximity to the Dandenong Creek riparian corridor. This will also assist with bushfire management as the entire site is a Declared Bushfire Prone Area.
- 6. Blind Creek is a modified creek. The development presents opportunities to realign the creek and undertake revegetation and habitat restoration to revitalize its function as an ecological corridor.

Recommendation 21. Develop the west part of the Boral Quarry land for nature conservation and passive recreation purposes in proximity to the Dandenong Creek corridor.

Recommendation 22. Future development of the Boral Quarry site to provide for the revegetation and restoration of Blink Creek to revitalize its function as an ecological corridor.

Opportunities for Existing Parks

- 7. **Koomba Park** is a popular destination for birdwatching and incorporates both the Dandenong Creek Trail which branches off to a boardwalk section and the Eastlink Trail that continues on to follow the Eastlink Freeway. An area of land zoned Road Zone 1 (RDZ1) exists within Koomba Park. This area could be investigated for potential rezoning and inclusion in Koomba Park.
- 8. **Wantirna Reserve** is currently managed by KCC by agreement with Parks Victoria. A Masterplan is currently being prepared for Wantirna Reserve.
- 9. The approved masterplan for the expansion of **Knox Regional Sports Park** presents great opportunities for the surrounding area, including for allied health and sports medicine.
- 10. **Nortons Park** (also a dog park) presents opportunities for enhancements.

Recommendation 23. Investigate the area within Koomba Park which is zoned for road purposes for potential rezoning and inclusion in the park.

Recommendation 24. Undertake a review the current state of Norton Park, and identify opportunities for enhancements, though a possible master planning process.

Recommendation 25. Support complementary uses in proximity to the Knox Regional Sports Park including allied health and sports medicine.

Cathies Land Landfill Site

- 11. **Cathies Lane** landfill site is currently vacant. It has been designated for overflow car parking from the adjacent Knox Regional Sports Park as part of the approved masterplan. Land use opportunities for the site are limited due to applicable buffers and soil condition.

Recommendation 26. Investigate suitable alternative land uses for the Cathies Lane landfill site including renewable energy production.

Other

Recommendation 27. Protect and support urban agriculture and food production activities within The Dandenong Creek Valley.

Recommendation 28. Promote agri-tourism initiatives based on existing high recreational values and existing agricultural infrastructure at Chesterfield Farm.

Recommendation 29. Along the bike routes, support opportunities for cycling-oriented activities/businesses such as bike shops, storage, organic trails and food trails.

Overall, the GARS Economic Study (Urban Enterprise, 2019) provides the following evaluation of economic, tourism, community and recreation potential for Precinct 3:

Summary of Economic, Tourism, Community and Recreation Potential

Suitability for agriculture intensification	High
Suitability for agri- tourism	High
Suitability for standalone tourism uses	High
Suitability for community / social enterprise	High
Accessible to population catchments	High
Accessible by public transport	Medium
Accessible by bike/hiking/ walking	High
Suitability for Active Recreation	High
Suitability for other intensive industry	Medium
Suitability for Passive Recreation	High

Access and Connectivity (Map 19)

Opportunities:

1. Precinct 3 is well served by the arterial road network including the Eastlink, Boronia Road, Burwood Highway, High Street Road, Ferntree Gully Road and Wellington Road.
2. The precinct is surrounded by an excellent network of trails including the Dandenong Creek Trail and the EastLink Trail. These trails provide strong linkages with surrounding municipalities and other recreational areas.
3. The PBN proposes on-road cycle lanes on Burwood Highway and the section of Eastlink south of Ferntree Gully Road.
4. The Boral Quarry development site presents opportunities to integrate shared paths into the design and improve connectivity through the site

Issues:

1. The area to the north of High Street Road presents a barrier to connectivity, both for vehicular movement and walking /cycling connectivity. Road access is limited to a number of cul-de-sacs, mostly unsurfaced and rough. Overall this area does not provide much permeability.
2. Multiple bus services run along Boronia Road, Burwood Highway, High Street Road, Ferntree Gully Road and Wellington Road. However, a large area internal to the precinct, including the Boral development site is not within walkable catchment of public transport.
3. High Street Road has no cycle lanes or shared paths. Considering the future developments at Jenkins Orchard and Boral and the expansion of the Knox Regional Sports Parks, there will be more demand for pedestrian and cyclist movement on this road.
4. EastLink (near Kingston Links) represent a barrier to pedestrian/cyclist connectivity. This area has been identified as a missing link by the Eastern Regional Trail Strategy’s Ferny Creek Trail extension to the Dandenong Creek Trail.

Recommendation 30. Support the on-road and off-road cycling proposals of the PBN.

Recommendation 31. Provide a shared path along High Street Road connecting with the Eastlink Trail with the Dandenong Creek Trail.

Recommendation 32. Undertake comprehensive planning for the area between High Street road and Burwood Highway to improve access and connectivity through this area including for vehicular and active transport.

Recommendation 33. The Boral Quarry development to provide for shared path connectivity through the site including along the realigned Blind Creek linking to existing trails and Jells Park which is a popular destination.

Recommendation 34. Investigate options to provide public transport connectivity to the Boral development.

Recommendation 35. Support shared path connectivity to Kingston Links through a bridge over EastLink.

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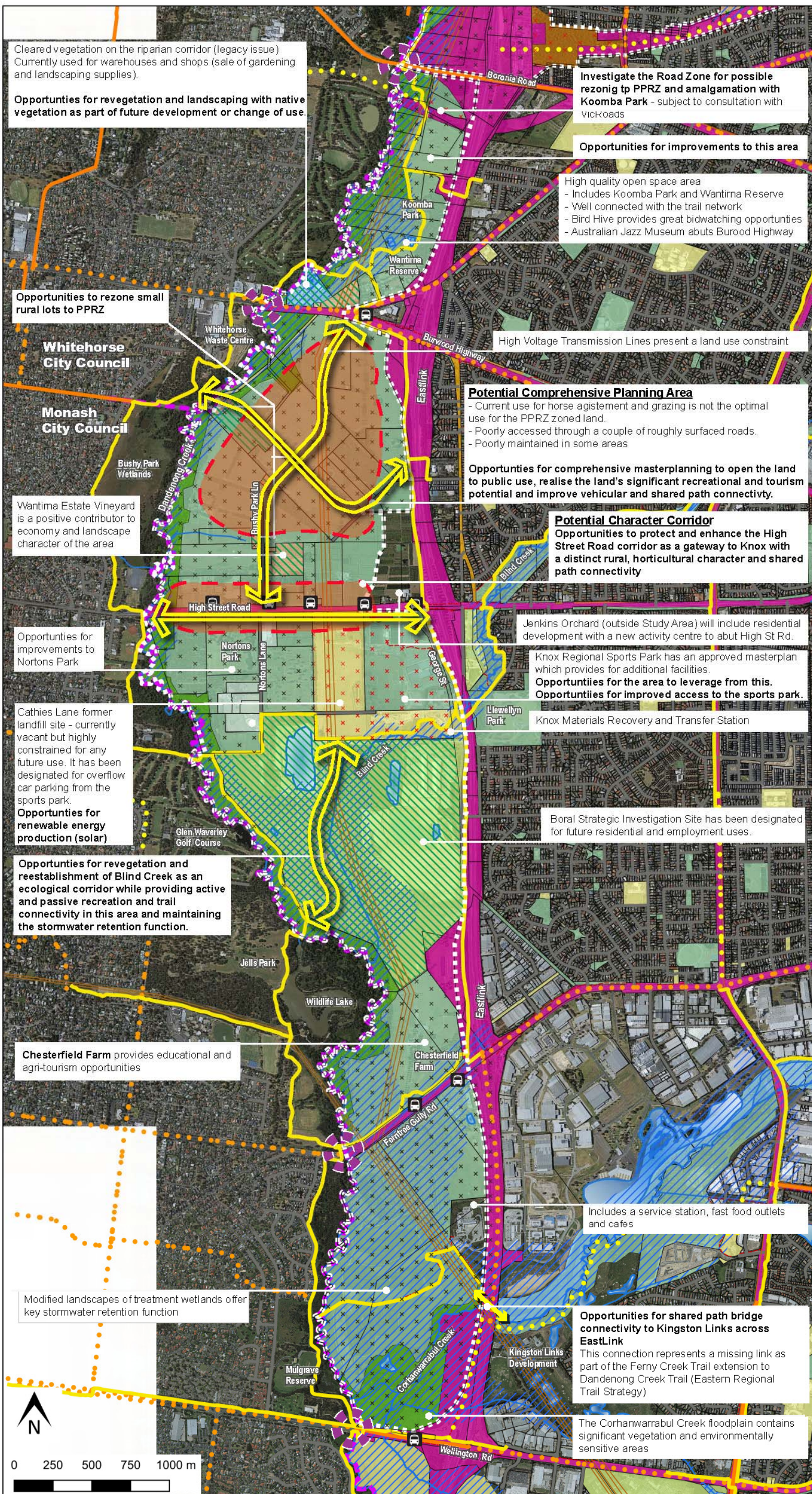
Map 19

Precinct 3 - Dandenong Creek Valley Parklands





















Theme: Land Use & Access

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis

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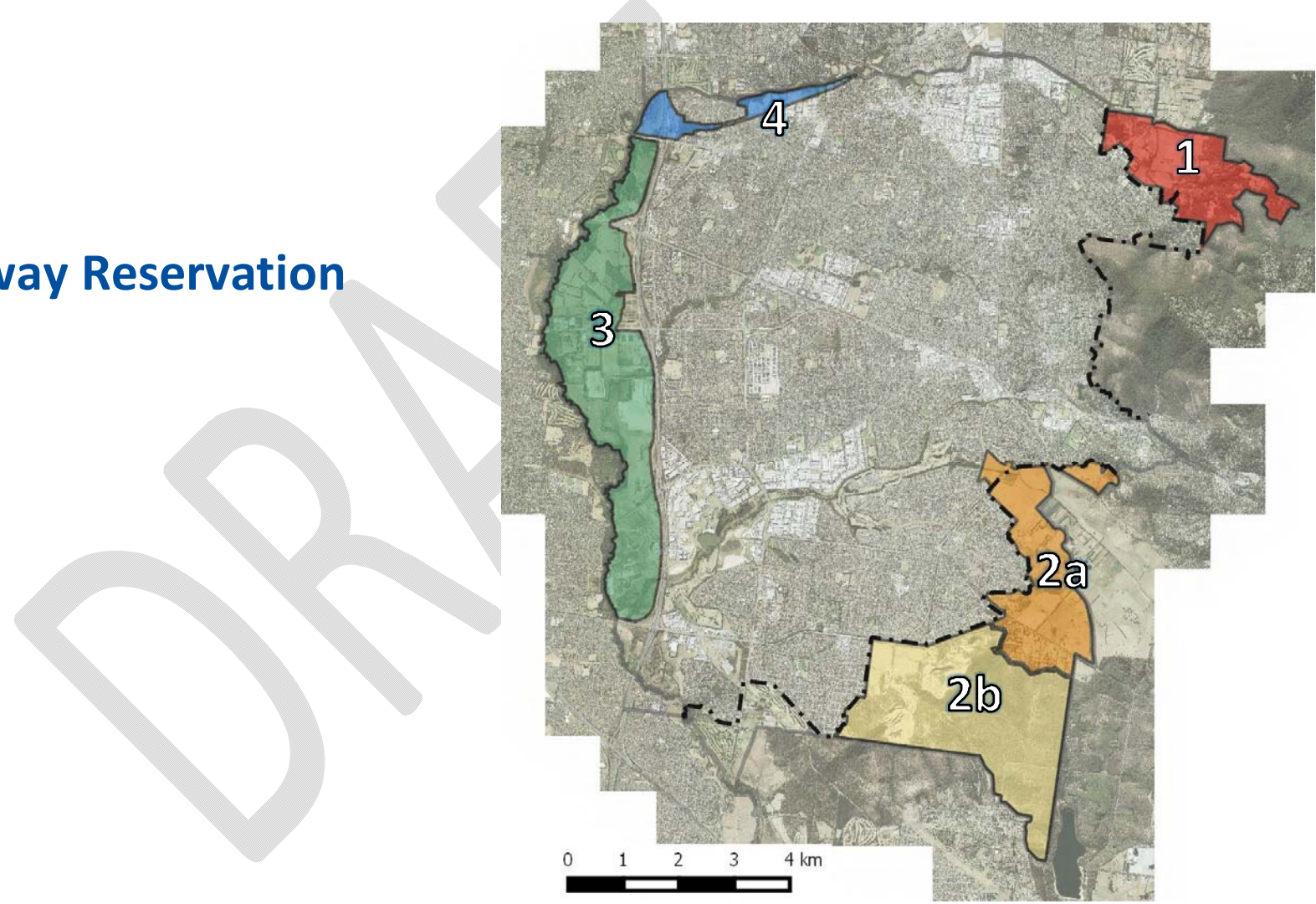


Legend

-  Precinct 3 Boundary
 -  LGA Boundaries
 -  Creeks and Lakes Areas
 -  Cadastre
- Zones - Knox Planning Scheme**
-  FZ
 -  PCRZ
 -  PPRZ
 -  PUZ6
 -  RDZ1
 -  RDZ2
 -  RLZ
 -  SUZ2
 -  UFZ
 -  HV Transmission Lines
- Scheme Overlays**
-  Land Subject to Inundation Overlay (LSIO)
 -  Public Acquisition Overlay PAO1
 -  Public Acquisition Overlay PAO2
- Land Ownership**
-  Local Government
 -  Local Government Other
 -  State Government/Agencies
- Principal Bicycle Network (PBN)**
-  Shared paths - existing
 -  Shared paths - proposed
 -  On-road cycleways - existing
 -  On-road cycleways - proposed
 -  Proposed walking/Cycling connectivity (GARS)
 -  Knox Gateways (existing)

Precinct 4:

Healesville Freeway Reservation and Surrounds



Precinct 4 contains the land corridor reserved by the State Government for the potential extension of the Healesville Freeway to connect to Eastlink. Plans for this road corridor to the west of Knox in Whitehorse were cancelled a few years ago and the reservation area was declared surplus. The land was rezoned, master planned and redeveloped subsequently.

The stretch of the reservation within Knox, however, has been maintained by VicRoads with no timelines for design or construction. The uncertainty surrounding the road has resulted in a lack of clear direction or long term purpose for the reserved land as well as the surrounding area.

To accommodate this uncertainty, the issues and opportunities presented in this section are formulated under two scenarios: a “**Road Scenario**” and a “**No-Road Scenario**”.

Theme 1: Ecology

Wildlife Habitat and Connectivity (Map 20)

Opportunities:

1. The precinct includes parts of the Dandenong Creek and its 200m buffer zone which has significant biodiversity values.
2. Knox Wildlife Atlas indicates high levels of wildlife records in proximity to the creek and within areas of native vegetation.
3. Previous revegetation and restoration efforts by the Knox and Maroondah City Councils and community groups such as Friends of Dandenong Creek have greatly added to the wildlife habitat and dispersal opportunities.
4. The creek and its riparian vegetation are well protected through the Scheme. The Urban Floodway Zone (UFZ) covers the Dandenong Creek and the Public Conservation and Resource Zone (PCRZ) protects the adjoining riparian corridor.
5. There are great opportunities within 200m of the creek to improve habitat through revegetation which would also provide passive recreation opportunities.
6. Compatible land-uses for this precinct are: nature-based health activities to complement and strengthen health outcomes, nature-based or open air sports and recreation, bush playgroups and community gardens.

Issues:

1. The reservation affects some areas of native vegetation located on land parcels either zoned for road purposes or affected by a Public Acquisition Overlay.
2. Bateman Street Bushland is a Site of Biodiversity of state-level significance and contains one of the largest and most intact areas of Valley Heathy Forest in the Melbourne region. Valley Heathy Forest is an endangered vegetation type. This bushland is protected by ESO2, however, is at the risk of loss due to its location on the Freeway reservation corridor. The area is subject to a Public Acquisition Overlay (PAO1).
3. Winton Wetlands has high habitat values, with significant wildlife sightings recorded. Although the vegetated area is protected by PCRZ zoning, it abuts land zoned Road Zone. This area requires careful protection in case of future road construction to minimise wildlife exposure to traffic. Should the adjoining land not be required for road purposes, the land within 200m of the Creek is to be recommended to be rezoned to PCRZ to facilitate protection and revegetation.

Recommendation 1. Continue the application of ESO2 in Precinct 4 to protect native vegetation and habitat values.

Recommendation 2. Acknowledge the role of the Dandenong Creek corridor and previous investments in bushland restoration along the creek in wildlife connectivity within the broader region.

Recommendation 3. Prohibit development within the Melbourne Water’s Core Riparian Zone (CRZ) and the adjacent 10m vegetation buffers.

Recommendation 4. Within 200m of the creek:

- a) Prevent intense development
- b) Encourage land consolidation
- c) Support habitat restoration and revegetation

Recommendation 5. Investigate mechanisms to achieve an ecologically sensitive development approach to new development and the construction of linear infrastructure (e.g. roads, bridges) across the precinct.

Recommendation 6. Reduce the wildlife barrier effects of EastLink over the Dandenong Creek corridor in accordance with the recommendations of Appendix 1 to this report.

Recommendation 7. Review the VPO in Precinct 4 to ensure it covers all the intended vegetation.

Road Scenario

Recommendation 8. Advocate for an underpass design to protect Bateman Street bushland.

Recommendation 9. Minimise the risk of exposure of wildlife to vehicular traffic from the future freeway through adequate buffer areas.

Recommendation 10. Design and construction in proximity to Winton Wetlands should be sensitive to the ecological values of this wetland and minimise wildlife exposure to works or traffic.

No-Road Scenario

Recommendation 11. Protect the Bateman Street Bushland and enhance its environmental and passive recreation values.

Recommendation 12. Support future uses of the reservation corridor that can protect and enhance the ecological function of the precinct.

Recommendation 13. The Road Zone land in the vicinity of Winton Wetlands which is within 200m of the Creek is recommended for rezoning to PCRZ to protect habitat values and facilitate revegetation.

Water (Map 20)

Precinct 4 contains parts of the Dandenong Creek and the entire precinct is within the Dandenong Creek catchment.

1. The strip of land to the north of Healesville Reservation, including Manson Reserve and the golf driving range have a key role in the storage and retention of flooding from the Dandenong Creek.

2. Wetland building has recently been undertaken at JW Manson Reserve to improve stormwater management and water quality.

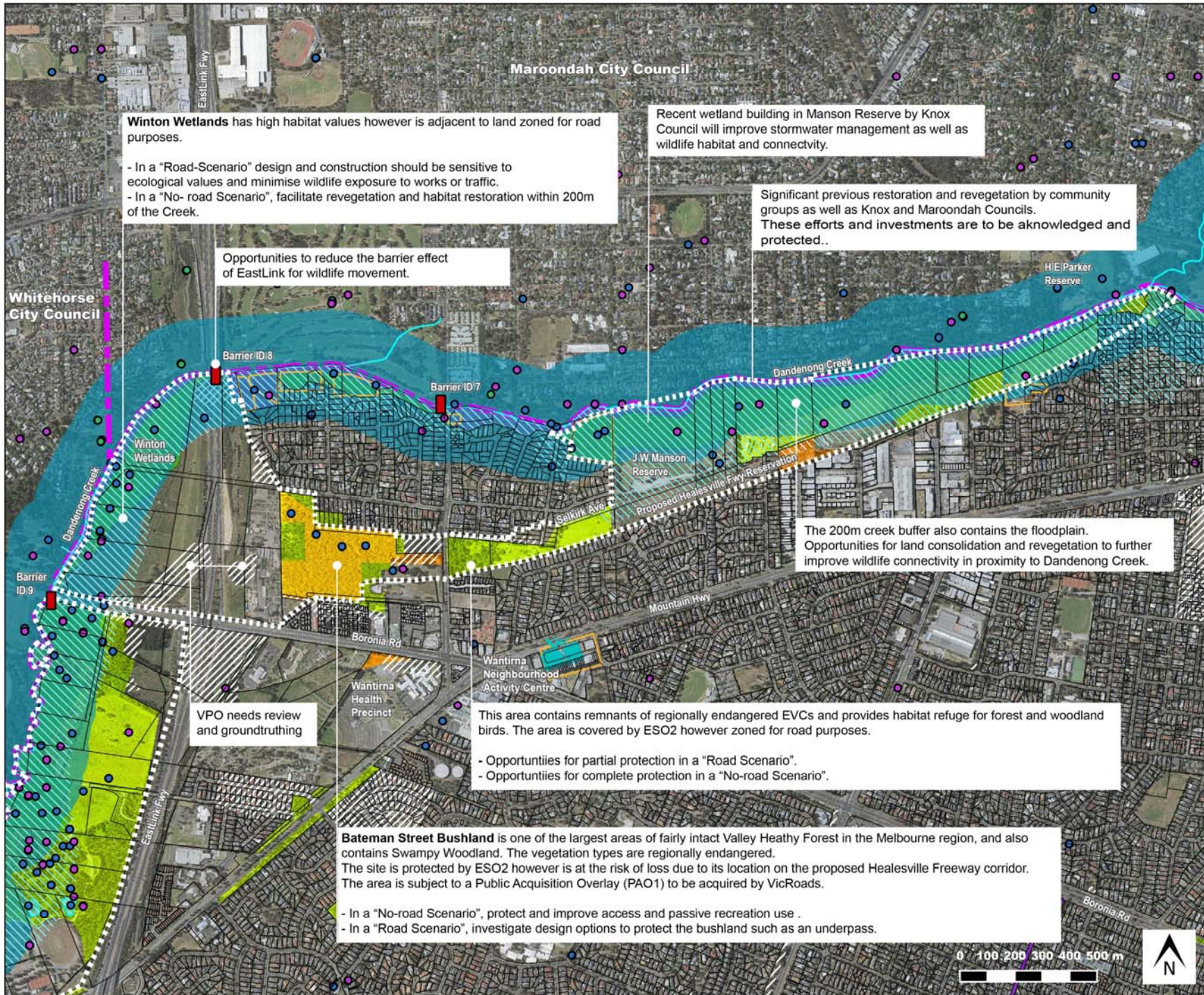
Recommendation 14. Any development or the addition of impervious surfaces in the flood affected area (1% AEP level) needs to be accompanied by adequate studies and plans to demonstrate how flooding can be managed in particular through WSUD measures.

Map 20

Precinct 4 - Healesville Freeway Reservation & Surrounds

Theme: Ecology

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis
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Winton Wetlands has high habitat values however is adjacent to land zoned for road purposes.

- In a "Road-Scenario" design and construction should be sensitive to ecological values and minimise wildlife exposure to works or traffic.
- In a "No- road Scenario", facilitate revegetation and habitat restoration within 200m of the Creek.

Recent wetland building in Manson Reserve by Knox Council will improve stormwater management as well as wildlife habitat and connectivity.

Significant previous restoration and revegetation by community groups as well as Knox and Maroondah Councils. These efforts and investments are to be acknowledged and protected..

Opportunities to reduce the barrier effect of EastLink for wildlife movement.

The 200m creek buffer also contains the floodplain. Opportunities for land consolidation and revegetation to further improve wildlife connectivity in proximity to Dandenong Creek.

VPO needs review and groundtruthing

This area contains remnants of regionally endangered EVCs and provides habitat refuge for forest and woodland birds. The area is covered by ESO2 however zoned for road purposes.

- Opportunities for partial protection in a "Road Scenario".
- Opportunities for complete protection in a "No-road Scenario".

Bateman Street Bushland is one of the largest areas of fairly intact Valley Heathy Forest in the Melbourne region, and also contains Swampy Woodland. The vegetation types are regionally endangered. The site is protected by ESO2 however is at the risk of loss due to its location on the proposed Healesville Freeway corridor. The area is subject to a Public Acquisition Overlay (PAO1) to be acquired by VicRoads.

- In a "No-road Scenario", protect and improve access and passive recreation use .
- In a "Road Scenario", investigate design options to protect the bushland such as an underpass.

Legend

Knox Wildlife Atlas (1995-2017)

- Wildlife Records - Multiple Sources
- Wildlife Records - Victorian Biodiversity Atlas
- Knox Focal Species 2017
- Barriers to Wildlife Movement

Knox Planning Scheme

- Waterways 200m Buffer
- Environmental Significance Overlay 2 (ESO2)
- Vegetation Protection Overlay (VPO)
- Urban Floodway Zone
- Public Acquisition Overlay (Vic Roads)

Other

- Creeks and Lakes
- Floodplains
- WSUD - Project Area
- Knox City Boundaries
- Precinct 4 Boundary

Theme 2: Landscape and Heritage

Landscape Values (Map 21)

The GARS Landscape and Character Study states that the key landscape character of the Healesville Freeway Reservation and Surrounds relates to the natural native vegetation corridor along the Dandenong Creek and the Bateman Street Bushland. The area has a modest profile suitable for future recreation activities and facilities if required.

The study identifies the following character areas (as shown on the map) and details key landscape values for each area:

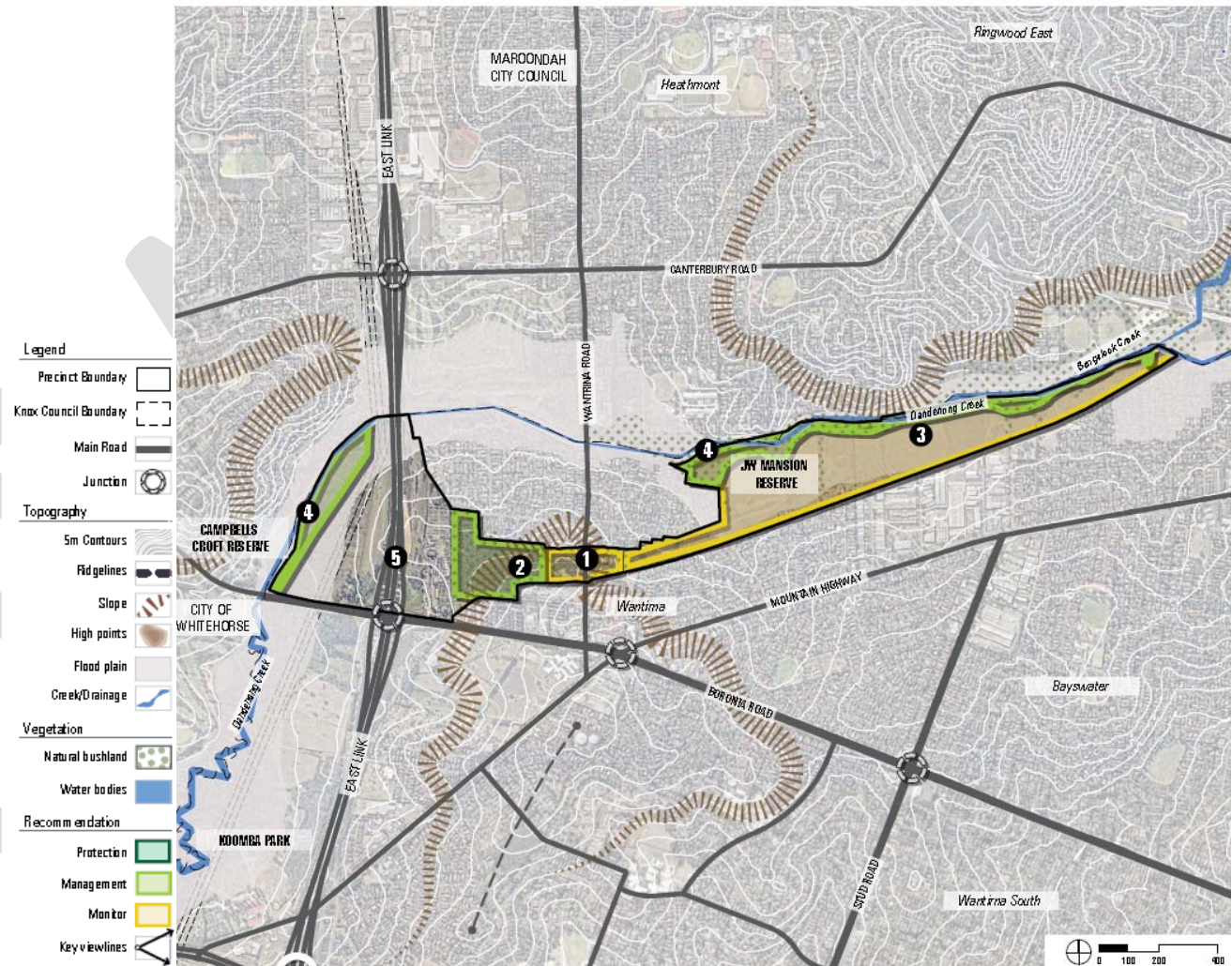
No.	Description	Approach	Key Landscape Values
1	The Wantima Road Cutting	Monitoring	Roadside vegetation Aspect to nature
2	The Bateman Street Bushland	Management	Native bushland condition
3	Dandenong Creek Floodplain	Monitor	Open aspect and views
4	Dandenong Creek Riparian Corridor	Management	Riparian vegetation Low lying valley conditions

Opportunities:

1. No SLOs or policies currently apply to landscape in Precinct 4. The Landscape Study confirms that “Protection” from a landscape perspective is not required in this precinct. It is considered that areas identified for “Management” coincide with areas of native vegetation which are recommended for protection for environmental reasons. The open areas are also identified for monitoring so that open views to the vegetated areas are maintained. It will be important to ensure any future development or road construction in this precinct is sensitive to this bushland character and where possible enhances the natural/leafy character of the area.

Recommendation 15. Review the Scheme provisions for opportunities to reflect the findings of the GARS Landscape and Character Study.

Recommendation 16. Ensure future development responds to the character areas, celebrates the natural/leafy character of the precinct and provides opportunities for views to the vegetated areas.



Map 21 – Precinct 4 Landscape Assessment (Source: Hansen Partnerships)

Heritage (Map 22)

Precinct 4 contains areas of Aboriginal Cultural Heritage Sensitivity associated with Dandenong Creek and a number of places of artefact scatter.

Precinct 4 includes one Heritage Overlay (HO) item which covers a few trees along Boronia Road. The Preliminary Heritage Review: Knox Rural Heritage (Context, 2017) reviews the existing heritage sites within the precinct and provides recommendations for each place.

Recommendation 18. Ensure adequate consultation occurs prior to any proposals affecting the Aboriginal Places and Areas of Cultural Sensitivity as shown on the heritage map.

Recommendation 19. Review the places of heritage significance in accordance with the recommendations from the Knox Rural Heritage Report (Context, 2017), as summarised in the table below.

Table 6. Heritage sites in Precinct 4

Site Name and Description	Heritage Review (2017) Recommendations
HO Places	
HO50 Boronia Road Wantima (west of Eastlink) - Trees	<ul style="list-style-type: none"> • Further investigation required to determine extent • Retain heritage and other overlays.

Map 22

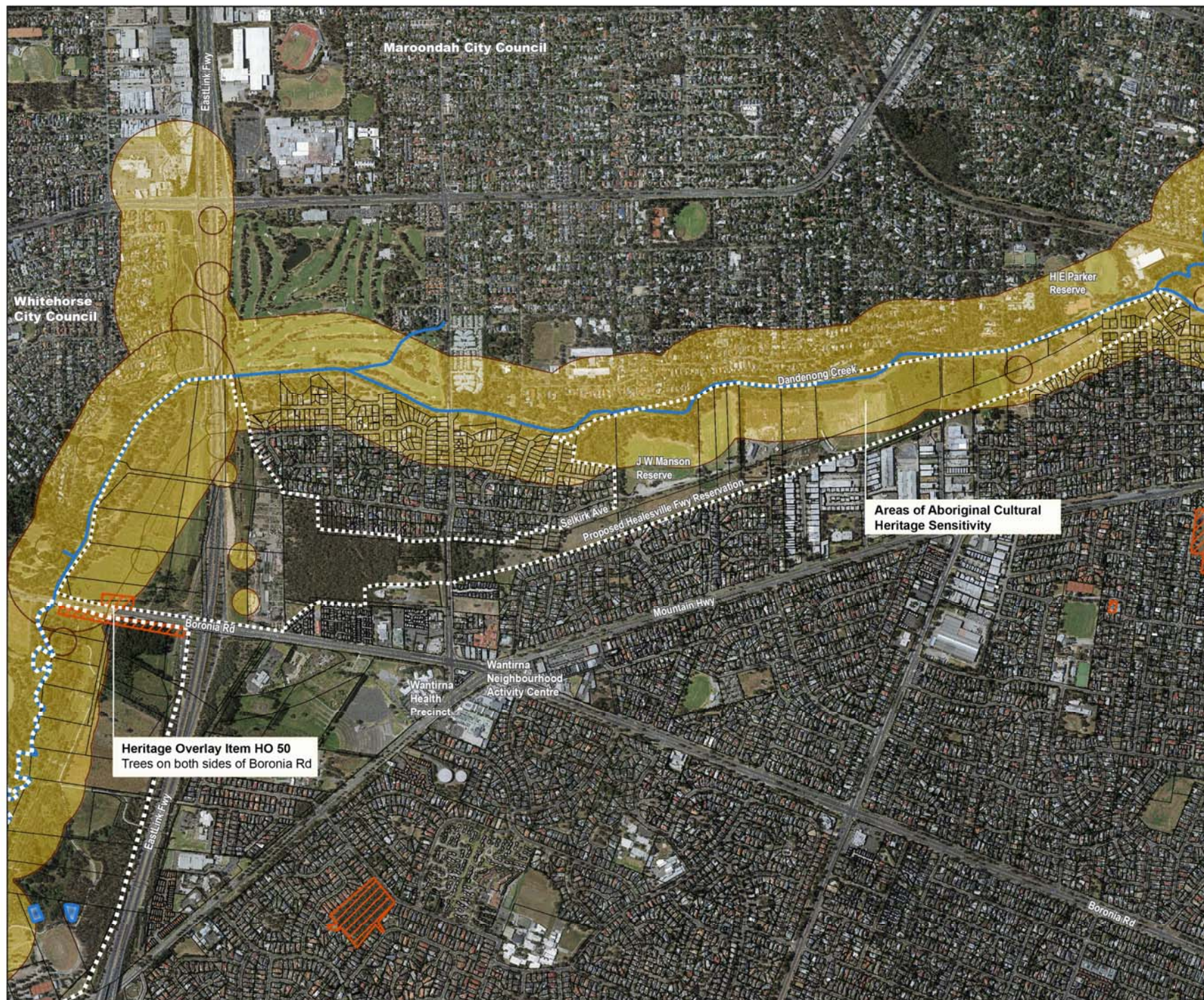
Precinct 4 - Healesville Freeway Reservation and Surrounds

Theme: Heritage

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis
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Legend

-  Precinct Boundary
-  Creeks and Lakes
-  Heritage Overlay (HO)
-  Areas of Cultural Heritage Sensitivity (Aboriginal Victoria)



Heritage Overlay Item HO 50
Trees on both sides of Boronia Rd

Areas of Aboriginal Cultural Heritage Sensitivity

Theme 3: Land Use and Access

Land Use and Economy (Map 23)

The Healesville Freeway corridor has been protected through a combination of Road Zone (RDZ1) and Public Acquisition Overlay (PAO). A number of lots within the reservation and to the north of the reservation are owned by VicRoads. KCC also owns a number of properties in this precinct including the Bateman St Bushland.

The precinct contains JW Manson Reserve, a large plant supply plant nursery, a golf driving range, community gardens and a number of horse agistment properties. Some of these represent interim uses as the land reserved for the road is leased by VicRoads to private operators. The golf driving range is subject to site specific controls incorporated into the Scheme under clause 51.01.

Opportunities:

1. Future opportunities for this corridor highly depend upon the future of the Healesville Freeway reservation which has been uncertain to date. It is noted that the western stretch of this reservation within the Whitehorse Council was declared surplus, rezoned and developed largely for open space purposes. There are opportunities for VicRoads to review the operation of the broader traffic network to determine whether the Healesville Freeway extension in Knox is required.
2. JW Manson Reserve contains sporting grounds that are owned and managed by the City of Maroondah. The facility is used by the community for recreation as well as a variety of community events. There are opportunities to build upon and expand these recreational and community values.
3. The creek and the trail network along it provide high quality recreational opportunities. Gym equipment has recently been installed along the creek.
4. Apart from its environmental values, Bateman Street Bushland provides passive recreation opportunities for the surrounding community residential areas.
5. The Wantima Health Precinct is located in the vicinity which is likely to include an aged care residential component, the protection and provision of open space opportunities in proximity to this future development is important.
6. Due to good soils, opportunities exist for small scale urban agriculture.

7. In the event that the reservation be declared surplus, there will be opportunities for consolidation of the land parcels within this precinct and undertake comprehensive planning. The following matters could be provided for as part of comprehensive planning:

- **Open Space** - Knox faces a growing demand for open space, recreational and sport facilities, in particular as we have planned for densification across the municipality, including the implementation of the Housing Strategy and the delivery of activity centres such as Boronia and Bayswater. It would be crucial for the City to maintain existing open space and also seek opportunities to expand and enhance them where possible. This corridor presents a unique opportunity within Knox to create a network of high quality active open space while maintaining the environmental values of the creek system.
- **Connectivity** – Improved vehicular access and walking/cycling connectivity through the site as well as to the surrounding area.
- **Compatible Development**– Opportunities may be investigated for compatible development to be integrated with the open space, including café/restaurant uses or mixed use opportunities. The key constraint to development within this corridor is flooding. Stormwater investigation and consultation with Melbourne Water would be required to determine whether the stormwater can be mitigated, potentially through a water sensitive design approach across the entire precinct, and to determine if any areas within the corridor could be considered for potential development.

8. Overall, the GARS Economic Study (Urban Enterprise, 2019) provides the following evaluation of economic, tourism, community and recreation potential for Precinct 4:

Summary of Economic, Tourism, Community and Recreation Potential

Suitability for agriculture intensification	Low
Suitability for agri- tourism	Low
Suitability for standalone tourism uses	Low
Suitability for community / social enterprise	Medium

Accessible to population catchments	High
Accessible by public transport	Medium
Accessible by bike/hiking/ walking	High
Suitability for Active Recreation	High
Suitability for other intensive industry	Low
Suitability for Passive Recreation	Medium

Issues:

1. Land fragmentation and lack of long time certainty has resulted in ad-hoc uses. The area accommodates a variety of short term uses and is generally considered under-utilised.
2. Access to the area is very limited. There is no permeability through the site and access is through local cul de sacs.
3. Large areas of land in proximity to Dandenong Creek are affected by the flooding associated with the Dandenong Creek floodplain including the 1%AEP flood level.
4. The entire site is within the Declared Bushfire Prone Areas. Any future development needs to comply with fire requirements.
5. Parts of Manson Reserve which are used for open space are currently zoned Rural Living Zone.

Recommendation 20. VicRoads to review the operation of the broader traffic network to determine whether the Healesville Freeway Reservation in Knox is required.

Recommendation 21. Undertake comprehensive planning for land between the creek and the reservation to:

- a) Consolidate land, and in a “no-road’ scenario, amalgamate the reservation with the adjoin land.
- b) Create a high quality active and passive open space area.
- c) Investigate opportunities for compatible uses to be integrated with the open space, including café/restaurant or mixed use development.
- d) Enhance the environmental values adjacent to the creek.

- e) Improve vehicular access and walking/cycling connectivity through the site and connecting the site to the surrounding movement network.
- f) Stormwater planning, potentially through a water sensitive design approach with swales integrated with open space and shared paths.

No- Road Scenario

Recommendation 22. Remove the PAO from Bateman Street Bushland and rezone to PCRZ for conservation purposes.

Access and Connectivity (Map 23)

Opportunities:

1. Precinct 4 is accessed via local roads coming off Wantirna Road and Mountain Highway. While access is currently limited, the proximity to these roads as well as to Eastlink provides great opportunities for access improvements as part of comprehensive planning.
 2. The Healesville Freeway extension if constructed provides opportunities for improved access for some areas within Precinct 4.
 3. Precinct 4 includes a section of the Dandenong Creek Valley Trail which provides strong walking/cycling linkages with the surrounding recreational destinations.
1. The PBN proposes new on-road cycle lanes along Wantirna Road and a new shared path along the potential future Healesville Freeway.
 2. The Bayswater Dandenong Creek Walk presented by Victoria Walks uses the Dandenong Creek Trail as indicated below.



Victoria Walks' Bayswater Dandenong Creek Walk (Source: Victoria Walks website)

No- Road Scenario

Recommendation 25. As part of comprehensive planning for the area between the creek and Mountain Highway, the main vehicular access is preferred to be through the industrial area on Mountain Highway to avoid traffic pressure on the residential streets to the west. Shared path connectivity is to be provided to this residential area as well as the Dandenong Creek Trail. Alternatively, a part of the Healesville Reservation can be used to create a new access road with a shared path connecting this area to Wantirna Road.

Issues:

1. Road connectivity within the precinct is currently limited and the area lacks permeability.
2. The only access to Manson Reserve is via Selkirk Ave which runs through the residential area to the west and then becomes a cul-de-sac.
3. Traffic projections for Wantirna Road suggest that it will need to be duplicated at some point in the future. However, the recently constructed bridge over the Dandenong Creek may prevent that.
4. Bus services currently run along Wantirna Road and Mountain Highway. The majority of the precinct is not within walking catchment of public transport.

Recommendation 23. Support the PBN proposals within Precinct 4.

Road Scenario

Recommendation 24. Allow for a new access street coming off the future Healesville Freeway to provide access to Manson Reserve and the lots to the north of the freeway.



















Map 23

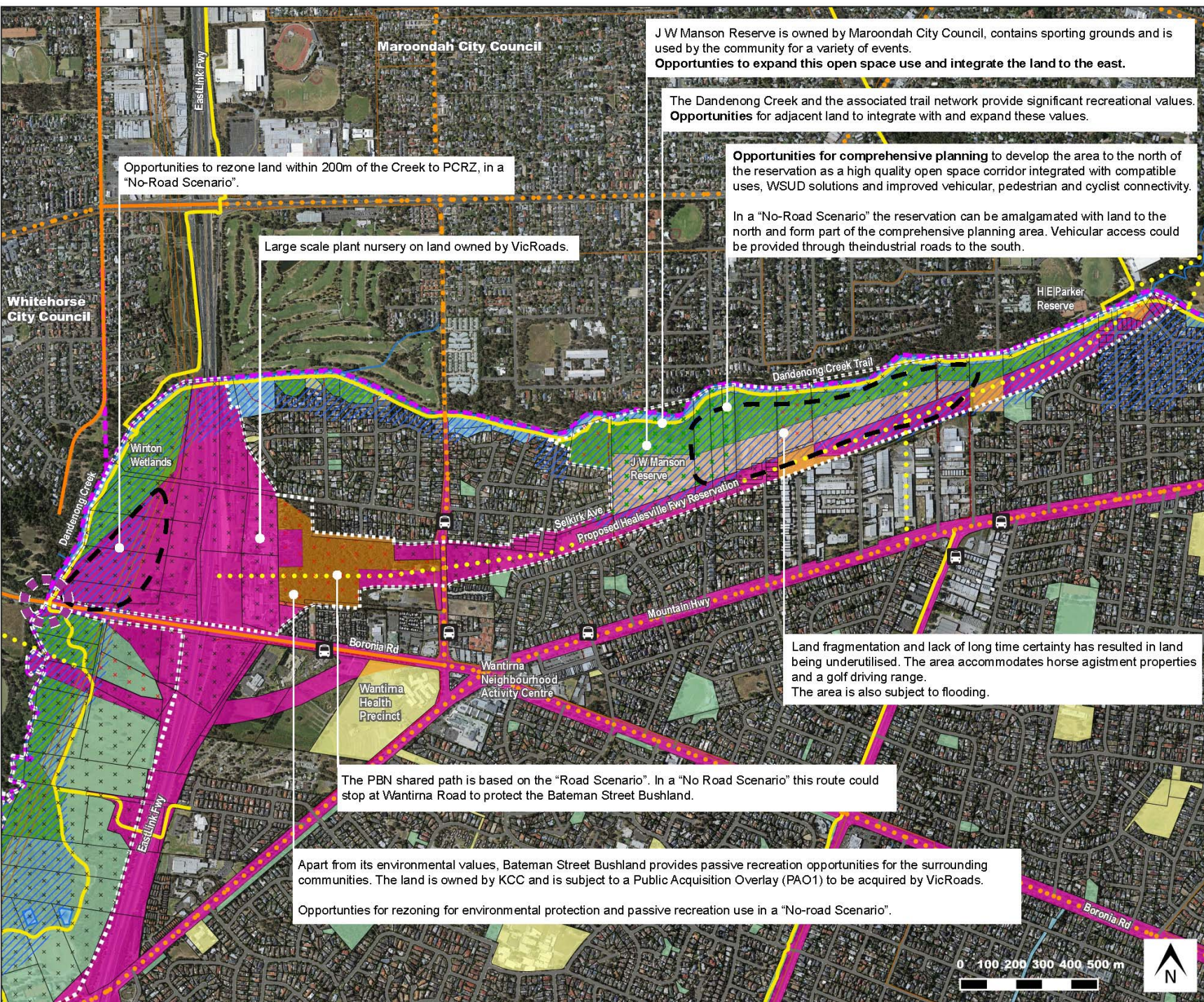
Precinct 4 - Healesville Freeway Reservation & Surrounds

Theme:
Land Use & Access

Knox Green Areas & Rural Strategy (GARS)
Issues and Opportunities Analysis
DRAFT FOR CONSULTATION

Legend

-  Precinct Boundary
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- Scheme Overlays**
-  Land Subject to Inundation Overlay (LSIO)
 -  Public Acquisition Overlay (Vic Roads)
- Land Ownership**
-  Local Government
 -  Local Government Other
 -  State Government/Agencies
- Principal Bicycle Network (PBN)**
-  Existing On Road
 -  Proposed On Road
 -  Existing Off Road
 -  Proposed Off Road
-  Knox Gateways



J W Manson Reserve is owned by Maroondah City Council, contains sporting grounds and is used by the community for a variety of events.
Opportunities to expand this open space use and integrate the land to the east.

The Dandenong Creek and the associated trail network provide significant recreational values.
Opportunities for adjacent land to integrate with and expand these values.

Opportunities to rezone land within 200m of the Creek to PCRZ, in a "No-Road Scenario".

Large scale plant nursery on land owned by VicRoads.

Opportunities for comprehensive planning to develop the area to the north of the reservation as a high quality open space corridor integrated with compatible uses, WSUD solutions and improved vehicular, pedestrian and cyclist connectivity.

In a "No-Road Scenario" the reservation can be amalgamated with land to the north and form part of the comprehensive planning area. Vehicular access could be provided through the industrial roads to the south.

Land fragmentation and lack of long time certainty has resulted in land being underutilised. The area accommodates horse agistment properties and a golf driving range. The area is also subject to flooding.

The PBN shared path is based on the "Road Scenario". In a "No Road Scenario" this route could stop at Wantima Road to protect the Bateman Street Bushland.

Apart from its environmental values, Bateman Street Bushland provides passive recreation opportunities for the surrounding communities. The land is owned by KCC and is subject to a Public Acquisition Overlay (PAO1) to be acquired by VicRoads.

Opportunities for rezoning for environmental protection and passive recreation use in a "No-road Scenario".



All Precincts Issues & Opportunities

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UGB and Green Wedge

Overall, the analysis in this report suggests that the current UGB has a key role in protecting the values of GARS Precincts 1, 2a and 3b, and should be protected from change.

Land outside the UGB is defined as Green Wedge. Green Wedge areas were first set aside in the 1970s as a buffer to conserve rural activities, resources and significant natural features between the urban areas of metropolitan Melbourne and the outer peri-urban areas.

The Green Wedges land in Knox forms a relatively small part of two broader Green Wedge areas of “Yarra Valley and Dandenong Ranges” and “Southern Ranges” as shown in Maps 24 and 25.

DELWP’s *Planning Practice Note 31: Preparing a Green Wedge Management Plan* requires Councils to prepare Green Wedge Management Plans (GWMPs) for Green Wedge Land.

In this respect, DELWP officers have confirmed that Knox is not required to prepare an individual GWMP, but is to collaborate with other Councils in the preparation of GWMPs for the two broader GW areas which will be led by other Councils. The GARS strategies will generally cover the strategic direction required for GW land in Knox and can be used to inform the relevant GWMPs in the future.

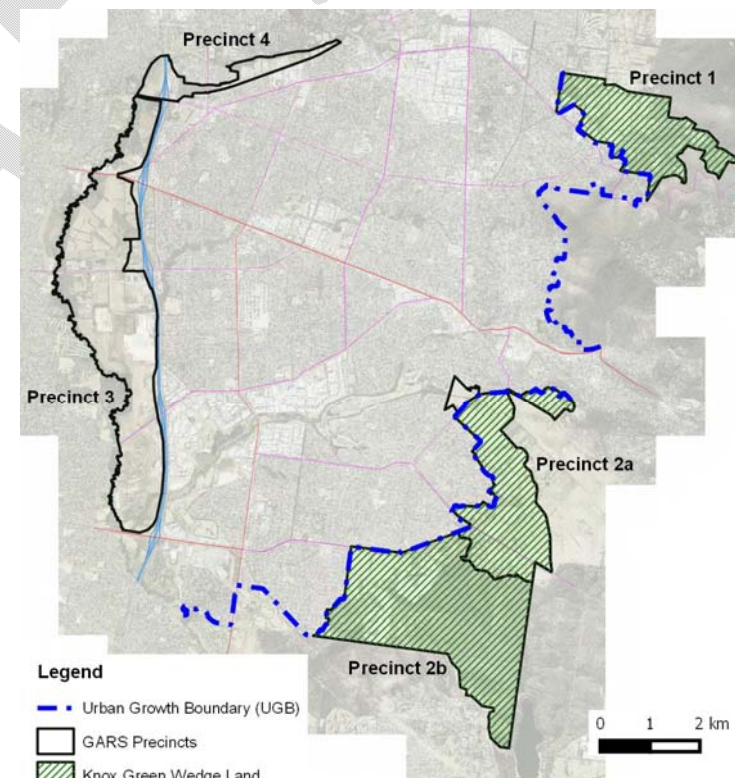
The current Green Wedge direction in the Scheme is limited to State and Regional policy. There is a need to provide local strategic guidance for Green Wedge land considering the local context in Knox. Considering the new PPF structure, there are a few clauses in the Scheme where opportunities exist for additional local content.

Recommendation 1. Support the protection of the UGB in Precincts 1, 2a and 2b.

Recommendation 2. Consider the preparation of a new Local Planning Policy to be inserted under 11.01 Green Wedges (possibly 11.01 04 12) to provide local strategic direction.



Map 24 - Green Wedge areas across metropolitan Melbourne



Map 25 - UGB and Green Wedge areas in Knox

Agriculture

The Assessment of Agricultural Potential of Rural Land in Knox (RMCG 2016) has found that the Study Area presents limited capability or suitability for large-scale commercial agriculture. This is due to a combination of matters including lot sizes, soil types, topography, environmental constraints and land use compatibility. However, the report does find opportunities for small scale agriculture including hobby farming, horticulture, grazing and horse agistment.

While place-based recommendations are provided in previous sections, it would be important that high level policy direction is also provided to ensure strategic direction is provided for the protection of agricultural land and production. The Scheme currently does not provide local policy direction for agriculture in Knox.

Recommendation 3. Prepare a new local planning policy to provide strategic direction and priorities for agriculture in Knox, based on the findings of the report *Assessment of Agricultural Potential of Rural Land in Knox (RMCG 2016)*. As per the new PPF structure, the recommended location for such policy is after 14.01-1R Protection of agricultural land - Metropolitan Melbourne.

Vegetation Canopy Cover

The Study Area contains significant vegetation canopy and makes a key contribution to the overall tree canopy cover in Knox. These areas play a key role in preventing the urban heat island effect and controlling the temperature in the surrounding suburbs.

Tree canopy loss is an issue faced across Metropolitan Melbourne including in Knox. Recent research by RMIT suggests that tree cover has fallen in Knox from approximately 18% in 2014 to 16% in 2018. While the largest loss has occurred on residential properties, streets and parklands have also experienced cover loss over this period (Hurley et al. 2019, pp. 38-39).

Opportunities:

1. Living Melbourne has recently been prepared and provides high level guidance and direction for tree canopy protection and enhancement. It sets actions at the regional level including canopy cover targets and monitoring strategies. It also provide strategic guidance for Council to develop monitoring programs and local tree canopy targets. These actions need to be translated at the municipality scale to define relevant and measurable actions for Knox.

2. The Study area presents unique opportunities to increase the canopy cover by planting new trees. Parts of the Study Area are outside the Urban Growth Boundary where development is limited and protections are in place from intense development and tree removal. Considerable land in the Study Area is publicly owned or zoned for conservation or public recreation purposes. In these areas tree protection or planting is easier to enforce.

Issues:

1. While the majority of the study area is not at the risks of large scale clearing, it faces the issue of incremental loss of canopy. This relates to a variety of reasons such as gradual increases to building site coverage, the natural death of trees over time or poor maintenance.
2. There are also challenges faces due to bushfire management requirements considering Knox sits at the edge of the urban area where settlement meets the bush.
3. KCC does not currently have strategic guidance or targets in terms of maintaining/increasing tree canopy cover.
4. The cooling effect of trees is not currently reflected in the existing policy and planning controls. The Scheme currently values trees for three key reasons:
 - o Biodiversity values (implemented through ESOs) native habitat trees
 - o Amenity and exotic values (through VPOs)
 - o Landscape values (through SLOs)
5. Multiple anomalies have been identified in the Vegetation Protection Overlay (VPO), as the areas covered by the overlay do not correspond with the correct location of trees on the ground. A proper review of the VPO will be required.

Recommendation 4.

Undertake a project to:

- a) Map the existing tree canopy cover across Knox ideally broken down by height strata and surface cover types.
- b) Set measurable tree canopy cover targets for Knox including sub-targets for public land (Parklands, streets) and private property.
- c) Define actions to achieve the canopy targets.
- d) Run a program of regular monitoring of vegetation cover and health to control progress against the established targets.

Recommendation 5. Undertake a review of the Vegetation Protection Overlay (VPO) to correct the existing anomalies and identify opportunities for additional trees to be protected by the overlay.

Waterways and Catchments

A number of projects are currently in place as partnerships between Councils and relevant State Government agencies, to improve waterways health and biodiversity values.

Living Links is a partnership between the local governments in the south-east region, Melbourne Water, Parks Victoria, South East Water, Conservation Volunteers Australia and Bushwalking Victoria. The inter-connecting corridors that have been identified through the Living Links master-planning process offer particularly important opportunities for new or improved links across the region. In Knox, The Dandenong Creek, Blind Creek, Corhanwarrabul Creek/Monbulk Creek corridors are identified as Living Links.

Enhancing our Dandenong Creek project is another collaborative project designed by Melbourne Water and EPA in 2013 to protect public health and improve stormwater quality impacting the Dandenong Creek between Bayswater and Endeavour Hills. The project has developed a five-year program that seeks to:

- construct new habitats for threatened fish species;
- increase the natural amenity and signage of the creek;
- focus on pollution prevention and detection; and
- manage uncontrolled sewage spills for customers.

Recommendation 6. Continue to collaborate with stakeholders on regional and multi-agency initiatives that improve the waterways and catchments, including the Living Links and the Enhancing our Dandenong Creek projects.

Floodplain Management

Some of the areas affected by flood plains within the study area are not covered by adequate planning controls. The current flooding overlay in the Scheme (SBO) only covers Melbourne Water (MW) drainage network and has not been updated since 1999.

KCC and MW are currently undertaking modelling of their drainage infrastructure with updated flood mapping expected to be available by the end of 2020. Once completed, the new flood map is likely to affect areas within the Study Area where new SBO and possibly LSIO overlays would be required.

Recommendation 7. Following the completion of the flood modelling and mapping project by KCC and Melbourne Water (MW), undertake a Scheme amendment to apply adequate overlays to areas affected by the 1% AEP (1:100yr ARI) flood event.

- a) Land Subject to Inundation Overlay (LSIO) to areas affected by flooding from natural waterways.
- b) Special Building Overlay (SBO) to areas affected by flooding from the drainage network (SBO1 for MW network and SBO2 for KCC network).

Heritage

Heritage sites within the Study Area are informed by the municipal-wide Heritage Study which was prepared in 1993. No comprehensive review of Knox cultural heritage has been undertaken since.

While specific recommendations are provided for sites within each precinct, a full assessment or nomination process was out of scope for this strategy. Such assessment is best undertaken at the municipal scale. A number of heritage sites within the study area are part of large scale landscape and environmental systems that need to be assessed in their broader heritage context and thematic history. Examples are the Dandenong Ranges foothills and Lysterfield Valley and Park which form part of larger heritage areas.

Aboriginal cultural sensitivity is another area where research and consultation at a larger scale will be required. Major areas of Aboriginal Heritage sensitivity are associated with the creeks and their buffers, which run not only outside the GARS precinct, but also outside the KCC municipal boundaries.

Recommendation 8. Undertake a comprehensive review of Aboriginal and non-Aboriginal heritage across the municipality.

Wildlife Conservation and Connectivity

The GARS Study Area contains some important Sites of Biological Significance in Knox including some of the key creek systems, EVCs and farm dams.

This report provides recommendations only within the boundaries of the Study Area. However, wildlife connectivity requires broader scale consideration to ensure corridor continuity outside the GARS Study Area. The Wildlife Conservation and Connectivity Report also provides recommendations for these areas.

Recommendation 9. Investigate opportunities to continue wildlife linkages outside the GARS precincts, in accordance with the recommendations of the Wildlife Conservation and Connectivity Report.

Pest management is another area of influence. KCC has been involved in discussions regarding the development of a Regional Pest Animal Strategy.

Recommendation 10. Continue collaboration with other Councils and State Government regarding pest management.

A number of residential properties in the Study Area and elsewhere in Knox currently participate in the Gardens for Wildlife program. These properties provide a valuable contribution to wildlife habitat and connectivity across Knox.

Recommendation 11. Continue the support and promotion of the Gardens for Wildlife program.

Climate Change

The recommendations in this report align with and support KCC's response to Climate Change.

Knox Council has adopted two Notices of Motion, at its 28 October 2019 and 16 December 2019 Ordinary Meetings, which recognise that we are in a state of serious climate and environment change, and acknowledge the seriousness, urgency and significance of this matter. Amongst other matters, these two Notices of Motion require KCC to consider climate change and biodiversity protection as key environmental factors in assessment of Council policies, projects and actions.

KCC will be developing a Climate Response Plan (CRP) to respond to the current state of climate and environment change. As part of its scope, the CRP will be evaluating any changes required across Council policies and strategies, the Planning Scheme and other organisational practices.

The GARS project aligns with and supports the above outcomes. As detailed throughout this report, a key priority within the Study Area is to identify and protect the ecological values including vegetation, waterways, biodiversity values and wildlife linkages. The protection of these values will have an important role in climate change mitigation and adaptation.

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List of Abbreviations



AEP	Annual Exceedance Probability	LGA	Local Government Area
AHD	Australian Height Datum	LSIO	Land Subject to Inundation Overlay
BMO	Bushfire Management Overlay	MPS	Municipal Planning Strategy
CBD	Central Business District	MSS	Municipal Strategic Statement
CRZ	Core Riparian Zone	MW	Melbourne Water
DELWP	Department of Environment, Land, Water and Planning	PAO1	Public Acquisition Overlay (Schedule 1)
EPA	Environment Protection Authority	PAO2	Public Acquisition Overlay (Schedule 2)
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999	PBN	Principal Bicycle Network
ESO	Environmental Significance Overlay	PCRZ	Public Conservation and Resource Zone
ESO1	Environmental Significance Overlay (Schedule 1)	PPF	Planning Policy Framework
ESO2	Environmental Significance Overlay (Schedule 2)	PPRZ	Public Parks and Recreation Zone
ESO3	Environmental Significance Overlay (Schedule 3)	Precinct 1	The Basin Rural Landscape Precinct
ESO4	Environmental Significance Overlay (Schedule 4)	Precinct 2a	Lysterfield Valley and Hills Precinct
EVC	Ecological Vegetation Class	Precinct 2b	Lysterfield Quarries and Surrounds Precinct
FO	Floodway Overlay	Precinct 3	Dandenong Creek Valley Precinct
FZ	Farming Zone	Precinct 4	Healesville Freeway Reservation and Surrounds Precinct
GARS	Knox Green Areas & Rural Strategy	PUZ	Public Use Zone
GW	Green Wedge	PUZ6	Public Use Zone – Local Government
GWMP	Green Wedge Management Plans	PUZ1	Public Use Zone – Service and Utility
GWZ1	Green Wedge Zone (Schedule 1)	RCZ1	Rural Conservation Zone (Schedule 1)
GWZ2	Green Wedge Zone (Schedule 2)	RCZ2	Rural Conservation Zone (Schedule 2)
HO	Heritage Overlay	RDZ1	Road Zone (Category 1 Road)
KCC	Knox City Council	RDZ2	Road Zone (Category 2 Road)
		RLZ	Rural Living Zone
		RMIT	Royal Melbourne Institute of Technology

SBO	Special Building Overlay
SBO1	Special Building Overlay (Schedule 1)
SBO2	Special Building Overlay (Schedule 2)
SLO	Significant Landscape Overlay
SLO1	Significant Landscape Overlay (Schedule 1)
SLO4	Significant Landscape Overlay (Schedule 4)
SLO5	Significant Landscape Overlay (Schedule 5)
SUZ1	Special Use Zone (Schedule 1)
SUZ2	Special Use Zone (Schedule 2)
The Scheme	The Knox Planning Scheme
UFZ	Urban Floodway Zone
UGB	Urban Growth Boundary
VPO	Vegetation Protection Overlay
VPO2	Vegetation Protection Overlay (Schedule 2)
WSUD	Water Sensitive Urban Design


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Appendix 1 - Wildlife Barrier Locations and Recommendations

Precinct 1: The Basin Rural Landscape Precinct

Site Name and Map ID	Structure type, purpose and dimensions (H x W x L)	Assessment and recommendations	Site Images
<p>Dandenong Creek and Liverpool Rd ID #1</p>	<ul style="list-style-type: none"> • 1 concrete box culvert • 3m x 3m x 16m • For creek flow • Natural substrate(?) • Tree gap ~30m 	<ul style="list-style-type: none"> • Likely barrier to some focal bird species due to traffic volume • Replace culvert with open span bridge • No dry passage – add shelf • Plant trees between Dobson Ln and Liverpool Rd or install rope bridge over Liverpool Rd 	
<p>Dandenong Creek and Dobson Ln ID #2</p>	<ul style="list-style-type: none"> • 1 concrete box culvert • 3m x 3m x 5m • For creek flow • Natural substrate • Tree gap ~20m 	<ul style="list-style-type: none"> • Low traffic volume service road adjacent to Liverpool Rd • Unlikely a barrier to wildlife movement due to narrow road and low traffic volume • Plant trees between Dobson Ln and Liverpool Rd or install rope bridge over Dobson Ln • Replace culvert with open span bridge • No dry passage – add shelf 	

Precinct 2a: Lysterfield Valley and Hills

Site Name and Map ID	Structure type, purpose and dimensions (H x W x L)	Assessment and recommendations	Site Images
<p>Monbulk Creek and Blackwood Park Dr ID #19</p>	<ul style="list-style-type: none"> • 1 open span bridge for pedestrians • 1 open span bridge for traffic • Pedestrian bridge 2m x 5m x 3m • Traffic bridge 2m x 5m x 5m • Both bridges for creek flow • Natural substrate • Tree gap ~10m 	<ul style="list-style-type: none"> • Road bridge is currently single lane only, likely to be widened in near future • If widening occurs, ensure open span bridge with maximum height and allow for flat embankment on both sides of creek channel • Not a barrier for gliders or turtles • Possibly a barrier for focal bird species due to traffic volume, but gap size small so less of a concern • Likely a barrier for wallabies due to narrow channel, lack of flat embankment and road bridge filled with water 	 <p>The 'Site Images' column contains four photographs. The top-left photo shows a road bridge with a single lane and a worker in an orange vest. The top-right photo shows a pedestrian bridge with a metal railing. The bottom-left photo shows a view of the creek channel with a road bridge in the background. The bottom-right photo shows a close-up of the pedestrian bridge structure over the creek.</p>

<p>Monbulk Creek and Napoleon Rd ID #20</p>	<ul style="list-style-type: none"> • Open span bridge • 4m x 12m x 15m • Natural substrate • For creek flow • Tree gap ~40m • No flat embankment on either side of creek 	<ul style="list-style-type: none"> • Unlikely a barrier to focal birds due to narrow road and dense shrub growth in river channel • Possible barrier to gliders • Install rope bridge, but powerlines on one side of Napoleon Rd is a complication • Re-contour embankments under bridge to create some flat space on one or both sides of creek 	
<p>Monbulk Creek and Lysterfield Rd ID #21</p>	<ul style="list-style-type: none"> • Open span bridge • 2m x 6m x 16m • For creek flow • Natural substrate • Tree gap ~4m 	<ul style="list-style-type: none"> • Not a complete barrier to any focal species • Might hinder movement of focal bird species due to relatively high traffic volume 	

<p>Monbulk Creek and Dorset Rd extension ID#40</p>	<ul style="list-style-type: none"> • An easement exists for an extension of Dorset Rd to the south of Burwood Hwy, currently used as informal open space • The Dorset Rd extension will traverse Monbulk Creek near Napoleon Rd, potentially disrupting movement along the creek 	<ul style="list-style-type: none"> • Ensure that the crossing of Monbulk Creek takes into account the natural values of the adjacent area and enhances both the quality of habitat and the landscape connectivity for wildlife. Special consideration should be given for platypus as there are recent records in this area • The easement for the Dorset Rd extension should also encompass recreational and conservation uses (see Appendix 8) 	
<p>Dorset Rd extension and drainage channel ID#41 and Lysterfield Rd ID#42</p>	<ul style="list-style-type: none"> • An easement exists for an extension of Dorset Rd to the south of Burwood Hwy. • The easement for Dorset Rd runs through private property to the south-east of Blackwood Park Drive • The drainage channel is a small drain to the south east of Napoleon Rd, within private property, and the Dorset Rd extension encompasses this drainage channel 	<ul style="list-style-type: none"> • Enhance the function, flow and quality of the channel by returning it to a natural stream, with bends and floodplains • The easement for the Dorset Rd extension should also encompass recreational and conservation uses (see Appendix 8) 	


Precinct 2b: Lysterfield Quarries and Surrounds


Site Name and Map ID	Structure type, purpose and dimensions (H x W x L)	Assessment and recommendations	Site Images
Nil			


Precinct 3: Dandenong Creek Valley

Site Name and Map ID	Structure type, purpose and dimensions (H x W x L)	Assessment and recommendations	Site Images
Dandenong Creek and Boronia Rd ID #9	<ul style="list-style-type: none"> Two open span bridges, separated by 2m Each structure 12m wide For creek flow and pedestrians Pedestrian section 4m x 2.5m x 12m Creek flow section 4m x 13m x 12m Tree gap size ~ 60m Pedestrian section with concrete base Creek flow section with large rocks in creek and concrete abutment. Pedestrian path fenced from creek-flow section 	<ul style="list-style-type: none"> Barrier to gliders No issues for turtles or birds Lack of natural stream bank a limitation for terrestrial species Reduce weed cover and revegetate Plant trees in median of Boronia Rd and on verges of both bridges Install rope bridge above Boronia Rd 	

<p>Dandenong Creek and Burwood Hwy ID #10</p>	<ul style="list-style-type: none"> • Two open span bridges, separated by 12m • Each bridge 2.5m x 40m x 15m • For creek flow and pedestrians • Pedestrian path fenced from creek-flow section • Centre channel for creek has concrete base • Flood zones either side of creek channel with natural substrate • Dense reeds and shrubs on both approaches • Tree gap size ~ 60m 	<ul style="list-style-type: none"> • Unlikely a barrier to most focal species, except gliders • Plant trees between bridge structures and within median of Burwood Hwy • Lots of cat, dog and fox prints in mud under bridges, including rat footprints (possibly water rat?) • Install rope bridge above bridges over Burwood Hwy 	
<p>Dandenong Creek and High Street Rd ID #11</p>	<ul style="list-style-type: none"> • 2 open span bridges, separated by 2m • Each bridge 2.5m x 30 m x 15 m • For creek flow and pedestrians • Natural substrate for section with creek flow • Pedestrian path with concrete substrate • Pedestrian path fenced from creek-flow section • Tree gap ~40m 	<ul style="list-style-type: none"> • Unlikely a barrier to birds given dense reeds and understorey • Possibly a barrier for gliders, given gap size and relative height of trees and bridge structure • Not an issue for turtles • Replace weed cover with native shrubs and grasses • Plant trees between within median and possibly between bridge structures if sufficient space 	

	<ul style="list-style-type: none"> • For pedestrians and creek flow 	<ul style="list-style-type: none"> • Consider installing rope bridge above High Street Rd • Install furniture (logs, rocks etc) under bridge structures to provide shelter for small vertebrates 	
<p>Dandenong Creek and Ferntree Gully Rd ID #12</p>	<ul style="list-style-type: none"> • 2 open span bridges, separated by 4m • Each bridge 2.5m x 40m x 15m • For creek flow and pedestrians • Pedestrian path has concrete substrate • Pedestrian path fenced from creek-flow section • Natural substrate for section with creek flow • Tree gap ~50m 	<ul style="list-style-type: none"> • Likely a barrier for glider movement due to gap size and low relative height of trees above bridge height • Unlikely a barrier for other species – lots of fox and cat prints in mud under bridge • Plant trees within median of Ferntree Gully Rd • Plant trees between bridge structures • Install rope bridge above creek • Install furniture (logs, rocks etc) under bridge structures to provide shelter for small vertebrates 	

<p>Dandenong Creek and Wellington Rd ID #13</p>	<ul style="list-style-type: none"> • 2 open span bridges, separated by 3m • Each bridge 3.5m x 45m x 15m • 1 concrete pipe culvert, 2m diameter x 50m • Substrate under bridge is concrete, but with soil and grass growth covering much of it • Bridge for high-flow events and pedestrians • Pedestrian path fenced from creek-flow section • Culvert takes regular creek flow • Tree gap ~70m • Powerlines on south side of Wellington Rd 	<ul style="list-style-type: none"> • Barrier to gliders • Unlikely an issue for other species, but approaches to bridge structure quite open and will limit use by small birds • Replace concrete base with natural substrate • Plant trees in median of Wellington Rd • Plant trees and shrubs on both approaches to bridge structure • Install rope bridge over Wellington Rd • Install furniture (logs, rocks etc) under bridge structures to provide shelter for small vertebrates 	 <p>The image block contains four photographs. The top-left photo shows a road with a white van parked on the shoulder, looking towards a bridge in the distance. The top-right photo shows a close-up of the bridge structure over a creek. The bottom-left photo shows a view from under the bridge looking towards the creek. The bottom-right photo shows dense vegetation and trees along the creek bank.</p>
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<p>Blind Creek and Eastlink ID #26</p>	<ul style="list-style-type: none"> • 2 multi-span bridges for Eastlink separated by 7m • 3 pipe culverts for bike path adjacent to Eastlink • Bridges 2.4m x 40m x 28 m • Culverts 1.5m x 6m • Bridges for creek flow and pedestrians • Culvert for creek flow • Tree gap > 100m • Natural substrate for creek under Eastlink and concrete for pedestrian path • Culvert has metal substrate • Pedestrian path is fenced from creek section • Wire mesh fence along bike path will limit wildlife movement 	<ul style="list-style-type: none"> • Multi-span bridges have large open spaces underneath • Definitely a barrier to gliders • May limit movement from focal birds due to large open spaces under bridges, but not a complete barrier • Install rope bridge underneath Eastlink • Install furniture (e.g. logs, rocks etc) to provide cover for wildlife • Plant trees and shrubs on both approaches and between multi-span bridges and between Eastlink bridges and bike path • Replace wire mesh fence with more open-style barrier to allow wallaby movement, if occurring in area 	
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Precinct 4: Healesville Freeway Reservation and Surrounds

Site Name and Map ID	Structure type, purpose and dimensions (H x W x L)	Assessment and recommendations	Site Images
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<p>Dandenong Creek and Wantirna Rd ID #7</p>	<ul style="list-style-type: none"> • Open span bridge • 4m x 20m x 13m • For pedestrians and creek flow • Pedestrian path fenced from creek-flow section • Tree canopy gap ~30m, with powerlines on west side 	<ul style="list-style-type: none"> • Minor barrier to most species • Undertake revegetation on both sides to improve approaches • Replace concrete base with natural substrate • Plant trees on west side of Wantirna Rd 	
<p>Dandenong Creek and Eastlink (North), Wantirna ID #8</p>	<ul style="list-style-type: none"> • Two open span bridges, separated by ~10m • 3m x 60 m x 18m • Natural substrate under bridges • For creek flow and pedestrians • Pedestrian path is not fenced from creek-flow section • Tree gap size > 100m 	<ul style="list-style-type: none"> • Complete barrier to gliders • No issues for turtles • Minor barrier to other focal species due to lack of vegetation on approaches to underpass • Protect small tree growing between the two structures • Plant trees and shrubs on both sides of Eastlink and between both structures • When trees sufficiently tall, install rope bridge under or over Eastlink • Place 'furniture' (i.e. logs, tree stumps, rock etc) under bridges to provide cover for small animals 	

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