Cardinia Shire Council

Pakenham South Employment Precinct Structure Plan

July 2021

Version history	
Report title	Pakenham South Employment Precinct Structure Plan

Version	Date	Comments
Version 1 - Incorporated	01/08/2024	Cardinia Planning Scheme Incorporated Document (Amendment C265).
Version 2 - Reformatted	25/10/2024	This document has been converted into an accessible format. The document has been updated following its gazettal by the Minister for Planning. No changes to the content have occurred. For the gazetted version, please refer to the Department of Transport and Planning's website.

Prepared by

Cardinia Shire Council

Acknowledgements

Victorian Planning Authority (VPA)

Accessibility

Council/VPA has made every effort to ensure this digital document meets accessibility guidelines as defined under the WCAG2 Level AA requirements. However, due to the importance and complexity of some of the figures, Council recommends anyone having difficulties viewing or interpreting non text components of this document seek assistance.

Acknowledgement of Country

Cardinia Shire Council wishes to acknowledge the Bunurong and Wurundjeri peoples as the Traditional Owners of the land that makes up Cardinia Shire and pays respect to their Elders, past and present.

Cardinia Shire's name is derived from the Bunurong word 'kar-din-yarr', meaning 'look to the rising sun' or 'close to the sunrise'. Council's logo, which includes a motif of the rising sun, reflects this meaning.

Cardinia Shire Council acknowledges the right of Indigenous Australians, and indeed all Australians, to live according to their values and customs, subject to the law.

Council is committed to developing and strengthening relationships through reconciliation and supports the reconciliation process, which promotes mutual respect and understanding of the indigenous people and of all ethnic groups and their history and culture in our community.

Contents

1. Introduction 2
   - 1.1. How to read this document 4
   - 1.2. Land to which this PSP applies 4
   - 1.3. Background information 4
   - 1.4. Pakenham South Employment Infrastructure Contributions Plan (ICP) 5
2. Outcomes 8
   - 2.1. Vision 8
   - 2.2. Objectives 8
   - 2.3. Summary land use budget 12
3. Implementation 14
   - 3.1. Image, character, topography and heritage 14
     - 3.1.1. Image and character 14
     - 3.1.2. Heritage 15
   - 3.2. Employment and local convenience centre 17
     - 3.2.1. Employment 17
     - 3.2.2. Local convenience centre 19
   - 3.3. Open space, biodiversity, threatened species and bushfire 22
     - 3.3.1. Open space 22
     - 3.3.2. Biodiversity, threatened species and native vegetation retention 25
     - 3.3.3. Bushfire 25
   - 3.4. Transport and movement 27
     - 3.4.1. Street network 27
     - 3.4.2. Public transport 29
     - 3.4.3. Walking and cycling 29
   - 3.5. Integrated water management, utilities, energy and sustainability 32

3.5.1. Integrated water management 32
3.5.2. Utilities 35
3.6. Infrastructure delivery and staging 37
3.6.1. Subdivision works by developers 37
3.6.2. Development staging 39
3.7. Precinct infrastructure 40
4. Appendices 44
4.1. APPENDIX A: Property-Specific Land Use Budget 44
4.2. APPENDIX B: Buffers 45
4.3. APPENDIX C: Road cross sections 49
4.4. APPENDIX D: Service Placement Guidelines 54
4.5. APPENDIX E: Open Space Delivery Guidelines 56

Plans

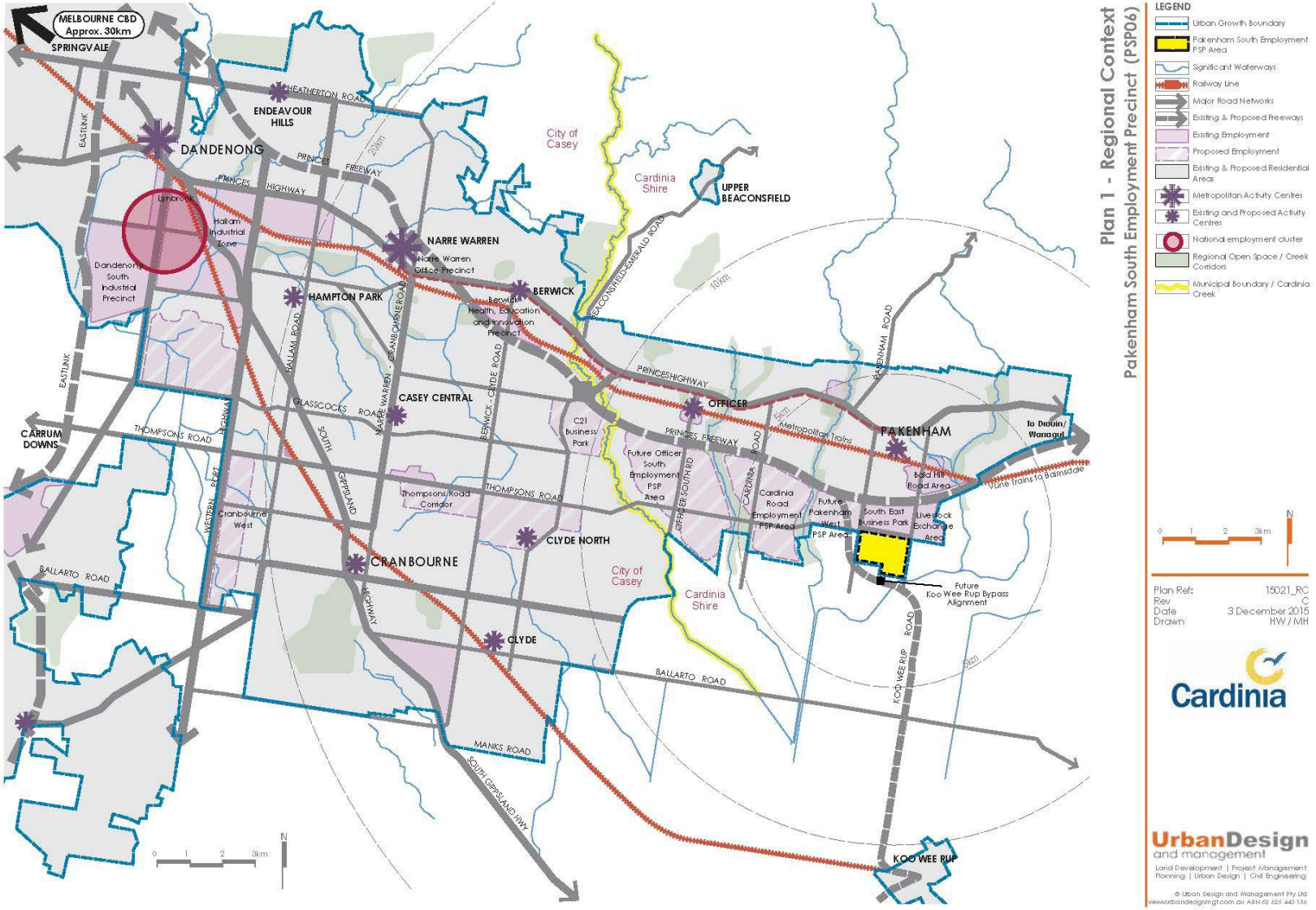
Plan 1: Regional Context 1
Plan 2: Precinct Features 3
Plan 3: Precincts 6
Plan 4: Future Urban Structure 7
Plan 5: Land Use Budget 11
Plan 6: Image and Character 13
Plan 7: Open Space 21
Plan 8: Native Vegetation Extent 24
Plan 9: Road Network 26
Plan 10: Public Transport and Path Network 28
Plan 11: Integrated Water Management 31

Plan 12: Utilities 34
Plan 13: Precinct Infrastructure Plan 36

Tables

Table 1: Summary Land Use Budget 12
Table 2: Open Space Delivery Guide 23
Table 3: Water Infrastructure 33
Table 4: Precinct Infrastructure 40
Table 5: Property Specific Land Use Budget 44
Table 6: Servicing Guidelines 55

Plan 1: Regional Context



1. Introduction

The Pakenham South Employment Precinct Structure Plan (the PSP) has been prepared by Cardinia Shire Council in collaboration with government agencies, service authorities, major stakeholders and the community.

The PSP is a long term strategic plan to guide urban development. It describes how the land is expected to be developed, what natural assets must be protected and how and where services are planned to support development.

Generally, the PSP:

- Sets out plans to guide the delivery of quality urban environments in accordance with Victorian Government guidelines listed in this section;
- Enables the transition of non-urban land to urban land;
- Sets the vision for how land should be developed and the desired outcomes achieved;
- Outlines the projects required to ensure that future community, visitors and workers within the Precinct will be provided with timely access to services, transport and open space to support a quality working environment;
- Sets out objectives, requirements and guidelines for land use and development;
- Provides Government agencies, the Council, developers, investors and local communities with greater certainty about future development; and
- Addresses the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999).

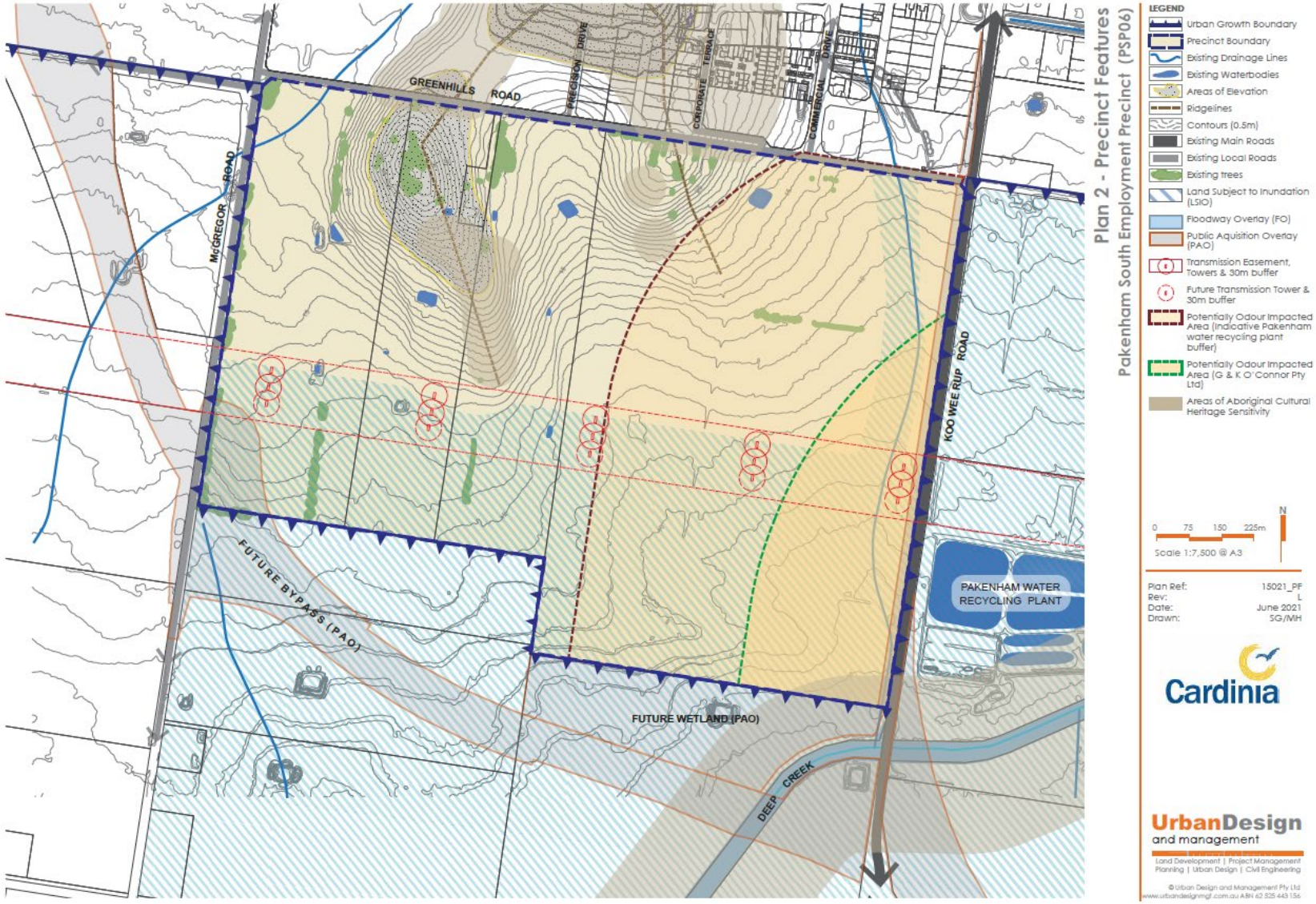
The PSP is informed by:

- The State and Local Planning Policy Framework set out in the Cardinia Planning Scheme;
- The Precinct Structure Planning Guidelines (Growth Areas Authority, 2008);
- The Growth Corridor Plans: Managing Melbourne's Growth Areas (Growth Areas Authority, June 2012);
- Plan Melbourne 2017-2050 (Victorian Government, 2017); and
- The *Biodiversity Conservation Strategy and Sub Regional Species Strategies for Melbourne's Growth Areas* (Department of Environment and Primary Industries, June 2013).

The following documents have been developed in parallel with the PSP to inform and direct the future planning and development of the Precinct:

- Pakenham South Employment Precinct Structure Plan Background Report, October 2019 (Updated August 2020); and
- Pakenham South Employment Infrastructure Contributions Plan.

Plan 2: Precinct Features



1.1. How to read this document

The PSP guides land use and development where a planning permit is required under the Urban Growth Zone (UGZ) or another zone where that zone references this PSP.

A planning application and planning permit must implement the outcomes of the PSP. The outcomes are expressed as the vision and objectives.

Each element of the PSP contains requirements and guidelines as relevant.

Requirements must be adhered to in developing the land. Where they are not demonstrated in a permit application, requirements will usually be included as a condition on a planning permit whether or not they take the same wording as in this PSP. A requirement may include or reference a plan, table or figure in the PSP.

Guidelines express how discretion will be exercised by the responsible authority in certain matters that require a planning permit. If the responsible authority is satisfied that an application for an alternative to a guideline implements the outcomes, the responsible authority may consider the alternative. A guideline may include or reference a plan, table or figure in the PSP.

Meeting these Requirements and Guidelines will implement the outcomes of the PSP.

Conditions that must be included in a planning permit are outlined in Schedule 6 to the Urban Growth Zone (UGZ6) in the Cardinia Planning Scheme.

Meeting these requirements, guidelines, and conditions will implement the vision of the PSP.

Development must also comply with other Acts and approvals where relevant, e.g. the *Environmental Protection and Biodiversity Act 1999* in the case of biodiversity or the *Aboriginal Heritage Act 2006* in the case of cultural heritage amongst others.

Not every aspect of the land's use and development is addressed in this PSP and a responsible authority may manage development and issue permits as relevant under its general discretion.

1.2. Land to which this PSP applies

The PSP covers 185 hectares of land located approximately 66 km south east of the Melbourne Central Business District (CBD) and applies to PSP06 (Pakenham South Employment). The precinct is bound by Greenhills Road to the north, Healesville-Koo Wee Rup Road to the east, traversed by Urban Growth Zone along the southern boundary and McGregor Road to the west. The precinct is illustrated on Plan 2 – Precinct Features.

The Pakenham South Employment PSP forms part of a larger employment area identified as the Precinct Structure Plan Pakenham Employment Area (Stage 1 PSP06) as shown in Plan 3 and comprises:

- South East Business Park (168 hectares of existing industrial employment land)
- Livestock Exchange (110 hectares of existing industrial employment land) and
- Pakenham South Employment (185 hectares of future employment land)

Both the South East Business Park and Livestock Exchange are well developed with a mix of industrial land uses and do not form part of the Pakenham South Employment PSP.

1.3. Background information

The Pakenham South Employment Background Report 2019 provides detailed background information relating to the precinct, including its local

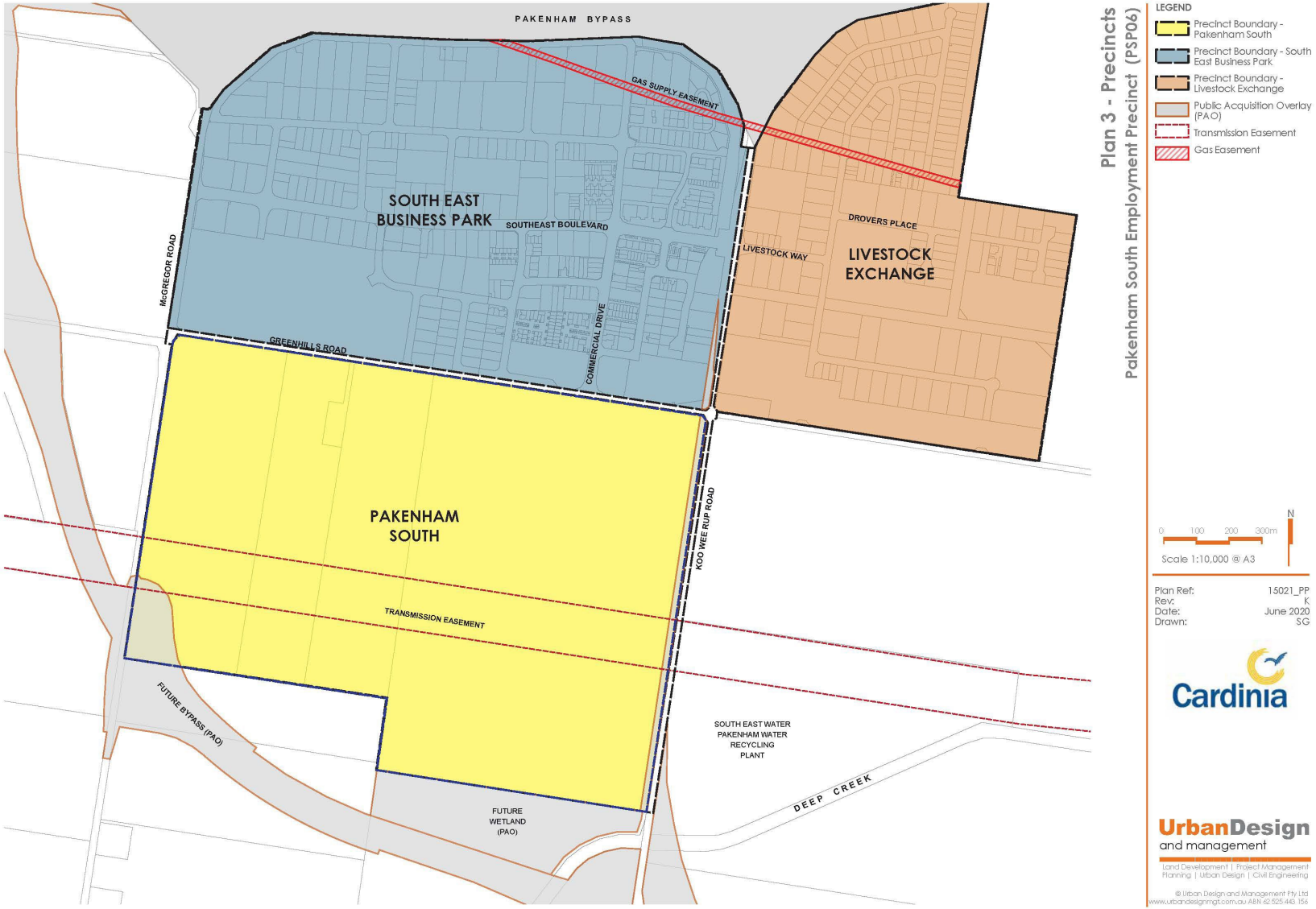
and metropolitan context, history, landform and topography, biodiversity, drainage, open space, transport, infrastructure and employment. The report also summarises various background technical studies that have informed the preparation of the PSP

1.4. Pakenham South Employment Infrastructure Contributions Plan (ICP)

The Pakenham South Employment Infrastructure Contributions Plan (ICP) sets out the requirements for development proponents to contribute towards basic and essential infrastructure required to support development of the precinct. The ICP is a separate document incorporated into the Cardinia Planning Scheme and implemented through Schedule 2 to Clause 45.11 of the Cardinia Planning Scheme. The ICP applies to the same land as the PSP.

Table 4 – Precinct Infrastructure identifies which infrastructure projects are to be funded through the ICP.

Plan 3: Precincts



Plan 4: Future Urban Structure



2. Outcomes

2.1. Vision

The PSP outlines and manages the transition of the Pakenham South Employment Precinct area from an historic agricultural area to a thriving part of Metropolitan Melbourne. The land forms part of a State Significant Industrial Precinct in Melbourne's south east growth corridor.

The precinct will be an important employment centre which provides for local service industrial needs, general industry as well as for larger anchors to cater for the metropolitan and national markets.

The precinct has direct connections to the Princes Freeway and planned connections to Thompsons Road extension (Principal Freight Network), the Koo Wee Rup Bypass and the proposed airport near Koo Wee Rup.

The PSP will provide opportunities for industries to operate in a defined employment hub, appropriately located away from sensitive residential areas. Businesses requiring larger lots and buffer distances will be attracted to the precinct with its limited environmental and topographical issues and accessibility to infrastructure, nearby services and freight connections.

A diverse mix of industrial, manufacturing, warehousing and commercial jobs within the precinct will enable residents living in Cardinia the opportunity to work closer to home and reduce commute times.

The PSP will offer a local convenience centre and open space linked via an integrated public transport and path network that will contribute to the amenity of the precinct and the health and wellbeing of employees. A strong sense of place will be encouraged ensuring developments are safe, diverse and provide a high standard of urban design and amenity, while protecting environmentally sensitive areas.

The precinct falls within the south-eastern growth corridor Biodiversity Conservation Strategy area. Specifically, the protection and enhancement of nationally significant Southern Brown Bandicoot and Growling Grass Frog populations in the area is identified in the *Biodiversity Conservation Strategy for Melbourne's Growth Corridors* (June 2013).

2.2. Objectives

The development of the Pakenham South Employment PSP is guided by the following objectives.

OBJECTIVES	
IMAGE, CHARACTER AND HERITAGE	
01	Create a high amenity industrial and commercial precinct to attract a diversity of different businesses and employers.
02	Deliver a range of lot sizes that are capable of accommodating a variety of industrial and commercial business types.
03	Ensure subdivision designs, developments and public spaces are functional, safe, aesthetically pleasing and incorporate environmental sustainable design.
04	Capitalise on the precinct gateways with strong built form on the corner of McGregor and Greenhills Roads and Healesville-Koo Wee Rup and Greenhills Roads, and Greenhills Road entrance to the local convenience centre.
05	Ensure the landscape, waterways, topographical features and the historic/cultural characteristics of the precinct are utilised to guide the pattern of development, streets and public spaces.
06	Protect, conserve and celebrate places of Aboriginal cultural heritage and post-contact cultural heritage significance.

Objectives	
07	Ensure separation distance from the Pakenham Water Recycling Plant isutilised to guide the pattern of uses and development in the precinct.
Employment and Convenience Centre	
08	Deliver a regionally significant employment precinct with the capacity to provide for approximately 3500 job opportunities including larger industrial uses such as local manufacturing, service industries, warehousing and distribution.
09	Create a vibrant local convenience centre that integrates with the adjacent public open space to meet the needs generated within the precinct.
Open Space	
010	Provide walking, cycling and recreation opportunities by developing an open space network along natural and constructed waterways, streets, parks and public spaces.
011	Ensure that the health and wellbeing of workers are protected by delivering a built environment of facilities and amenities that promote healthy lifestyle practices, social interaction, civic engagement and access to services.
012	Deliver an accessible network of local parks across the precinct to support a healthy and active community and provide for the passive recreation needs of workers and visitors.

Objectives	
013	Encourage the retention of native and non-native trees where they are located in the public domain and open space network and provide for planting of canopy trees along streets, pedestrian and cycle networks, open spaces and waterways.
Bushfire, Bio-diversity & Threatened Species	
014	Ensure that all types of bushfire hazard (interim and permanent) within the PSP and the surrounding landscape are identified and the risk is reduced via appropriate bushfire protection measures that can be implemented on an ongoing basis.
Transport and Movement	
015	Provide a high amenity, low speed and permeable local road network that prioritises community access and safety.
016	Ensure the road network is appropriately designed to accommodate freight movements including high productivity vehicles.
017	Promote public transport movements by providing a bus capable road network that services key destinations throughout the precinct, particularly the local convenience centre.
018	Establish an integrated and permeable transport network to encourage public transport, walking and cycling, reduced car dependency and safety and connectivity for all road users.

OBJECTIVES	
INTEGRATED WATER MANAGEMENT, UTILITIES AND ENERGY	
019	Deliver integrated water management initiatives to diversify water supply, reduce reliance on potable water and enable future harvesting and/or treatment and re-use of stormwater contributing to a sustainable and green urban environment where practicable.
020	Maintain the pre-development hydrological flows that exist throughout the precinct.
021	Prepare for the impacts of climate change by encouraging resilient, environmentally sustainable design and development across the precinct.
022	Facilitate the use of renewable energy including the installation of localised systems.
PRECINCT INFRASTRUCTURE PLAN AND STAGING	
023	Deliver cohesive and integrated neighbourhoods by co-ordinating development with the delivery of key local and state infrastructure.

Plan 5: Land Use Budget



2.3. Summary land use budget

Table 1- Summary Land Use Budget provides a summary of the land required for transport and open space and identifies the total amount of land available for development.

The Net Developable Area (NDA) is established by deducting the land requirements for transport (arterial roads), open space (local parks), drainage corridors and any other encumbered land from the Gross Developable Area (GDA).

The GDA for the PSP is 184.64 ha. The NDA is 168.41 ha meaning approximately 92% of the land within the PSP is available for development for employment uses.

Table 1: Summary Land Use Budget

Description	PSP		
	Hectares	% of Total	% of NDA
Total Precinct Area (ha)	184.64	100.00 %	
Transport			
Arterial Road			
Greenhills Road Widening and intersection flaring (Future Arterial Road)	4.59	2.49%	2.73%
Public Acquisition Overlay (Future Koo Wee Rup Bypass and Healesville-Koo Wee Rup Road) – reduced area	5.62	3.04%	3.34%
Sub-total Transport	**10.21**	**5.5%**	**6.06%**
Open Space			
Service Open Space			
Waterway and Drainage Reserve	2.58	1.4%	1.53%
Credited Open Space			
Local Network Park	3.44	1.90%	2.04%
Sub-total Credited Open Space	3.44	1.90%	2.04%
Total All Open Space	6.02	3.30%	3.57%
LCC NDA	0.38	0.21%	0.22%
Industrial (non-restricted) NDA	144.07	78.45%	85.61%
Industrial (restricted use) NDA	23.96	12.98%	14.17%
Total Net Developable Area - (NDA) ha	**168.41**	**91.21%**	**100%**

Plan 6: Image and Character



3. Implementation

3.1. Image, character, topography and heritage

3.1.1. Image and character

REQUIREMENTS	
R1	Buildings must create a positive address to all streets and public spaces.
R2	Key built form treatments must be provided at gateway sites, as shown on *Plan 6 – Image and Character* to: • Establish an attractive and prominent entry to the precinct; and • Positively address Greenhills Road, Healesville-Koo Wee Rup Road, McGregor Road and views to the ridgeline.
R3	Signage must not visually dominate streetscapes or individual buildings.
R4	Trees in streets and the open space network must be: • Complementary to the existing native, indigenous and exotic species where appropriate; • Larger species wherever space allows; • Planted in modified and improved soil to support tree establishment; • Appropriate in size to nature strips, nearby utilities and built form; and • Suitable for local conditions.

REQUIREMENTS	
	All public landscaped areas must be planted and designed to the satisfaction of the responsible authority.
R5	Street trees must be provided on both sides of all roads and streets (excluding laneways) at regular intervals appropriate to tree size at maturity and not exceeding the average intervals below unless otherwise agreed by the responsible authority: AVERAGE INTERVAL — TREE SIZE 8 – 10 metres — Small trees (less than 10 metre canopy) 10 – 12 metres — Medium trees (10 – 15 metre canopy) 12 – 15 metres — Large trees (canopy larger than 15 metres)
R6	Lots, where possible, must front or side: • Drainage channels, waterways; • All open space and utilities reserves; and • Arterial roads and connector streets. The siding of lots to waterways, open space and primary street frontages must be kept to a minimum.
R7	Where a street frontage to a park is not provided, lots must: • Directly front the open space and allow for vehicular access via a rear laneway; and • Allow for a primary point of access from a footpath a minimum width of 1.5 metres along the frontage of the lot.

GUIDELINES	
G1	Subdivision design should incorporate natural and built design elements which respond to local heritage and topography to assist in place making and the achievement of a “sense of place”.
G2	Sites in prominent locations, such as major intersections, should be developed to respond to their strategic location and preferably have greater height, density and architectural quality.
G3	Built form on corner lots should provide a positive address to both frontages. This can be achieved through the appropriate use of glazing and other architectural treatments.
G4	Setbacks of no less than 8 metres should be provided for built form along Greenhills Road that incorporates public access and office presentation. This guideline does not apply at Greenhills Road entrance to the local convenience centre where a zero setback is required.
G5	Streets should be provided directly abutting open spaces to ensure buildings generally front these public spaces.
G6	Buildings and structures should be designed to protect view lines to and from landscape features, utilise natural materials consistent with the surrounding environment and be screened by vegetation where required.
G7	Built form should add to the precinct character by providing an attractive street address that encourages passive surveillance and visual interest.

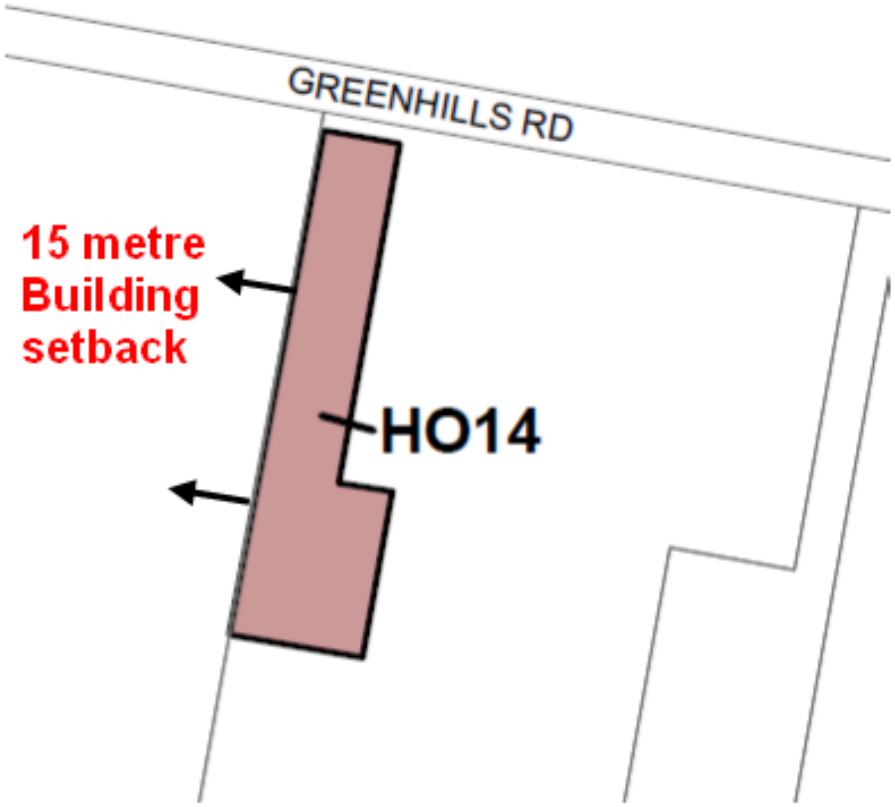
GUIDELINES	
G8	Establish a practical and consistent native landscape theme along linear pathways throughout the precinct to enhance local character and amenity.
G9	Development proposals should take into account Crime Prevention Through Environmental Design (CPTED) principles and Safer Design Guidelines for Victoria.

3.1.2. Heritage

REQUIREMENTS	
R8	Before the commencement of works to the heritage place a Conservation Management Plan must be prepared to the satisfaction of the responsible authority.
R9	Any subdivision or development of land adjoining a heritage site must have regard to the cultural/heritage significance of the site and provide a sensitive interface with appropriate scaled development, proportion and materials, to the satisfaction of the responsible authority.
R10	Building setbacks of no less than 15 metres must be provided from the entire western boundary of the HO14 to ensure that development does not adversely affect the significance of heritage place.

GUIDELINES	
G10	Proponents undertaking development of land identified on the Victorian Aboriginal Heritage Register, and/or with high Aboriginal cultural heritage values should liaise with the designated Registered Aboriginal Party (or Aboriginal Victoria and Traditional Owner Groups in its absence) to ascertain whether heritage interpretation is appropriate in these identified locations, and how the heritage site(s) should be incorporated into the design of the subdivision.
G11	Adaptive reuse of the heritage place should demonstrate that it will contribute to the long term conservation of the heritage place. Council's preference for possible reuse of the former farmhouse as a café or similar to compliment uses within the local convenience centre is subject to further investigation.
G12	The Conservation Management Plan may consist of plans or other documents and should consider the 'Conservation Guidelines' set out in the Heritage section of the *Pakenham South Employment Background Report (October 2019)*.
G13	Landscaping and road reserves are encouraged to be located within the 30 metre setback from the western boundary of HO14. The storage of goods and materials within the setback should not adversely affect the amenity of the heritage place in HO14.

Illustration 1: Building setback from Heritage Overlay (refer R12)



3.2. Employment and local convenience centre

3.2.1. Employment

REQUIREMENTS	
R11	Development within the transmission line easement must: • Be in accordance with the *Guide to Living with Transmission Line Easements, Ausnet Services*; and • Provide a clear radius of 30m around all transmission towers.
R12	Industry and associated businesses must address relevant buffer distances to existing uses (refer Appendix B).

GUIDELINES	
G14	Subdivision design should provide for a range of lot sizes capable of accommodating a variety of business types which maximise job yield.
G15	Land in the electricity transmission line easement should be utilised to support employment land activities, such as: • Car parking for sites adjoining the easement; • Vehicle store; • Ancillary industrial uses (no buildings); • Plant nursery; • Horticulture; and • Commercial / long term car parking.

GUIDELINES	
G16	Buildings should create a positive address to the street through: • The location of buildings at the street frontage; • Minimal setbacks with landscaping provided in any setbacks; • The location of office components of buildings at the street frontage with articulated facades to minimise blank walls to the street and provide for engagement with the public realm; and • At-grade car parking and service areas provided to the side and rear of buildings.
G17	Visitor parking should be provided close to the office entry of the development, separated from the street by landscaping.
G18	The visibility of blank walls from the street should be minimised through landscaping, external cladding, cement stamping or other such treatments to provide visual interest.
G19	Signage should be provided within the built form with a maximum building wall to signage ratio of no more than 3:1.
G20	Buildings should be constructed with non-reflective materials.
G21	Fencing should be located behind the building line and should be: • Predominately permeable and durable;

GUIDELINES	
	• Preferably constructed of steel palisade and painted in black; • Complement the design of the building; and • No more than 1.8 metres in height.
G22	Water tanks, service infrastructure and other structures (including plant and equipment) that are not part of the building should be located behind the building line or located behind constructed screening using durable and attractive materials.
G23	Where rear access lanes are provided, they should: • Be linear with no t-intersection or bends; • Ensure rear fences are constructed to the edge of the road reserve of the laneway (with zero setback); and • Be a maximum paved width of 6 metres.
G24	Environmentally Sustainable Development principles should be explored and encouraged in all development, such as the inclusion of: • Material re-use and recycling; • Electrical self-generation, car charge schemes, smart grids and battery storage; and • Use of Built Environment Sustainability Scorecard (BESS); measures that reduce the urban heath island effect; and Waste management initiatives.
G25	An overall site management approach for waste and refuse storage and disposal should be considered.

3.2.2. Local convenience centre

The convenience centre in Pakenham South Employment PSP will be a local destination for the workers in the precinct and will provide leisure and commercial needs for the surrounding employment catchment.

The location of the centre will be easily accessible from connector and local access streets and will not compromise the viability of the existing local centres located in the South East Business Park to the north of the precinct.

The centre will have a distinctive character and sense of place by addressing the ridgeline corridor and the local road network and will be connected visually and physically to the open space. The public realm will be a pedestrian priority area through provided linear trails.

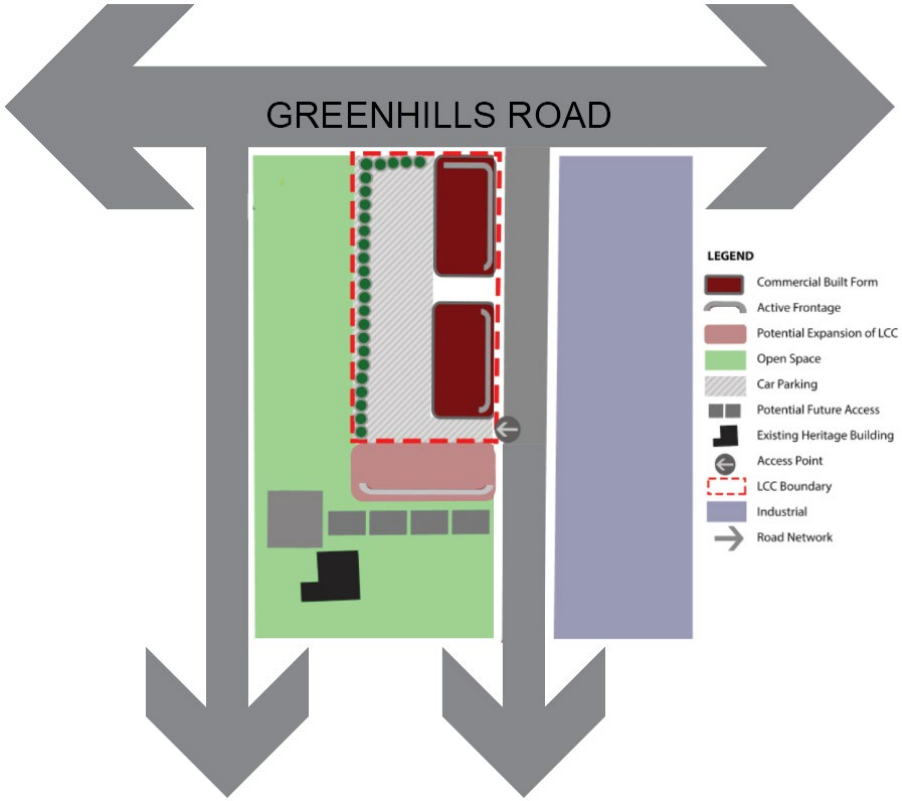
It is envisaged that workers will be able to:

- Access the convenience centre from the north south connector and local access streets through pedestrian focused environs; and
- Congregate and linger in the public realm and surrounding open space.

The design philosophy of the convenience centre will:

- Respond to the existing landscape and environmental features;
- Respond to the pedestrian, bicycle and vehicular movement hierarchy;
- Create an active public realm;
- Provide a small convenience centre to encourage lower-cost, flexible space for a range of small local enterprises; and
- Demonstrate best practice environmentally sustainable design.

Illustration 2: Local Convenience Centre Concept Plan



REQUIREMENTS	
R13	The local convenience centre must be orientated towards Greenhills Road and the north south road to the east and • Vehicle access must be provided from the eastern north south road only. Direct vehicle access from Greenhills Road is not permitted; • Access into the site is to be provided from a left in left out only intersection with Greenhills Road; • Centralised rear parking for commercial tenancies at the rear of buildings adjacent to the public open space; and • An appropriate relationship and interface with the surrounding uses To the satisfaction of the responsible authority.
R14	The design of the local convenience centre must be generally in accordance with the *Urban Design Guidelines for Victoria, DELWP*.
R15	Safe and convenient pedestrian access must be provided to the local convenience centre, including a pedestrian street crossing and proximity to bus stop locations.
R16	The local convenience centre must provide appropriate street furniture.
R17	Weather protection canopies on buildings must be provided to all street frontages.

GUIDELINES	
G26	The local convenience centre should consider inclusion of two-storey built form and ensure that all buildings are well articulated and of a high quality design.
G27	The design of the local convenience centre should be consistent with the following design principles: • Retail and Commercial buildings along a street frontage should: – Minimise the extent of blank walls through the use of clear glazing to allow view lines into the premises from the street; – Include entrance points at regular intervals to encourage activity along the length of the street; and – Provide passive surveillance to off-street car parking areas through the inclusion of windows and rear entry points to tenancies. • Car parking areas should: – Be located to the rear of the local convenience centre adjacent to the public open space; – Provide access to the rear car parking area via a single entry point on the north south road; – Be designed to ensure passive surveillance; – Ensure public safety through adequate positioning of lighting; and – Be designed to provide dedicated pedestrian routes and areas of landscaping. • Loading facilities should be located to the rear of the building. • Demonstrate Crime Prevention Through Environmental Design (CPTED) principles and Safer Design Guidelines. • Bicycle parking should be provided in highly visible public spaces.

Plan 7: Open Space



3.3. Open space, biodiversity, threatened species and bushfire

3.3.1. Open space

REQUIREMENTS	
R18	All parks must be located, designed and developed to the satisfaction of the responsible authority in accordance with Plan 7 - Open Space, Table 2 - Open Space Delivery Guide, Appendix E: Open Space Delivery Guidelines, and the Cardinia Shire Council Open Space Strategy (or as amended).
R19	All parks, open space and public landscape areas must be designed and constructed to enable practical maintenance and be planted with species suitable to the local climate and soil conditions, as per Cardinia Shire Council Developer Landscape Guidelines January 2017 (or as amended).
R20	Public vehicle exclusion must be achieved through landscape treatments.
R21	The layout of drainage infrastructure, including waterway corridors, open channels, wetlands and retarding basins must be to the satisfaction of the responsible authority and Melbourne Water.
R22	Appropriately scaled lighting must be installed along all major pedestrian thoroughfares traversing public open space and along the cycling network in accordance with the design principles of *Urban Design Guidelines for Victoria, DELWP* to the satisfaction of the responsible authority.

REQUIREMENTS	
R23	Any fencing of open space where required must be: • Low scale and visually permeable to facilitate public safety and natural surveillance; • Designed to guide appropriate movement and access; and • Designed and constructed from materials that complement the open space/conservation setting.
R24	Trees in parks and open spaces (pedestrian and cycle paths) must be strategically and frequently located to provide shade, and wherever space allows, larger species should be provided.
R25	Land designated for local parks must be finished and maintained to a suitable standard prior to transfer of land, to the satisfaction of the responsible authority.

GUIDELINES	
G28	The design of waterway corridors, retarding basins, wetlands and other encumbered land should maximise the potential for the integration of passive uses, by co-locating these land uses where it does not cause conflict with the primary function of the land.
G29	Open space should promote a strong sense of place, provide for community interaction and encourage use by precinct workers and visitors.

Table 2: Open Space Delivery Guide

The following table sets out the open space provisions expected to be delivered for the precinct area.

Open Space ID	Area (ha)	Type	Attributes	Responsibility
LP-01	1.19	Community Park	Local park abutting local convenience centre	Cardinia Shire Council
LP-02	1.54	Community Park	Local park	Cardinia Shire Council
LP-03	0.71	Local Park	Local park	Cardinia Shire Council

Plan 8: Native Vegetation Extent



3.3.2. Biodiversity, threatened species and native vegetation retention

The Commonwealth Department of Environment and Energy has granted an approval for urban development in Melbourne's Growth Corridors under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This approval covers the Pakenham South Employment Precinct.

The Biodiversity Conservation Strategy (BCS) does not include any mapped conservation areas within the Pakenham South Employment PSP. Therefore, no land is identified for protection under the BCS.

GUIDELINES	
G30	The layout and design of waterways, wetlands and retarding basins (including the design of paths, bridges and boardwalks and the stormwater drainage system) should integrate with biodiversity and natural systems to the satisfaction of the responsible authority and Melbourne Water as relevant.

3.3.3. Bushfire

REQUIREMENTS	
R26	Where a stage of a subdivision will abut an interim bushfire hazard: • All vegetation must be managed in a low threat condition to reduce bushfire risk for a minimum distance of 50m within the subdivision.

REQUIREMENTS	
R27	Where a subdivision will abut a permanent hazard: • A perimeter road around the edges of the PSP must be included in the design response to separate built form from any bushfire hazard, unless otherwise agreed with the relevant fire authority. • All vegetation within 50 metres of a permanent bushfire hazard must be managed for defendable space purposes in accordance with Table 6 of Clause 53.02. • All vegetation within the powerline easement must be managed in a low threat condition to reduce bushfire risk. • The layout and design of the subdivision must separate built form from the bushfire hazard, at least: • 19 metres from the east, south and west PSP boundary; and • 33 metres from the woodland vegetation to the north west PSP boundary, unless otherwise agreed with the relevant fire authority.

GUIDELINES	
G31	The layout and design of the subdivision should ensure that all future development within the PSP area will have a separation distance from a bushfire hazard to ensure construction levels are not required to a standard greater than BAL 12.5.
G32	The development should be encouraged to reduce the risk from bushfire by including built form that is constructed to the relevant construction standard and managing vegetation onsite to the relevant standards.

Plan 9: Road Network



3.4. Transport and movement

3.4.1. Street network

REQUIREMENTS	
R28	Road networks and street types must be designed and developed in accordance with the cross sections in *Appendix C: Road Cross Sections*, unless otherwise agreed by the responsible authority.
R29	Roundabouts must be designed to slow vehicles, provide for pedestrian visibility and safety, and ensure connectivity/continuity of shared paths and bicycle paths.
R30	The road network must be appropriately designed to accommodate freight movements including higher productivity vehicles.
R31	Vehicle access to properties fronting Healesville-Koo Wee Rup and Greenhills Roads must be provided from industrial roads, service roads or rear laneways unless otherwise agreed with the road authority and the responsible authority. Access to internal roads must be limited to the proposed intersections along Greenhills Road.
R32	Development must positively address all drainage lines through the use of frontage roads or lots with a direct frontage to the satisfaction of Melbourne Water and the responsible authority.

REQUIREMENTS	
R33	Streets must be constructed to property boundaries where an inter-parcel connection is intended or indicated in the Precinct Structure Plan, by any date or stage of development required or approved by the responsible authority.

GUIDELINES	
G33	Street block lengths should not exceed 200 metres to ensure a safe, permeable and low speed environment for pedestrians, cyclists and vehicles is achieved.
G34	All signalised intersections should be designed in accordance with the VicRoads' current *Supplement to the Austroads Guide to Road Design* to the satisfaction of the responsible authority and coordinating road authority.
G35	Streets should maintain a predominantly north-south and east-west grid to encourage rectangular lot shapes, aid solar orientation for buildings and provide an easy to navigate internal road network.
G36	Street design and subdivision layout should provide for buildings to front or otherwise address all roads.
G37	The number of vehicle driveways across shared paths should be minimised.

Plan 10: Public Transport and Path Network



Note: The alignment of the shared path which follows the boundary of the Public Acquisitions Overlay in the south west corner of this plan will be determined to the satisfaction of the Responsible Authority.

3.4.2. Public transport

REQUIREMENTS	
R34	The street network must be designed to ensure 95% of all employment activities are located within 400 metres of public transport services or bus capable roads.
R35	Bus stop facilities must be designed as an integral part of activity generating land uses such as the local convenience centre.

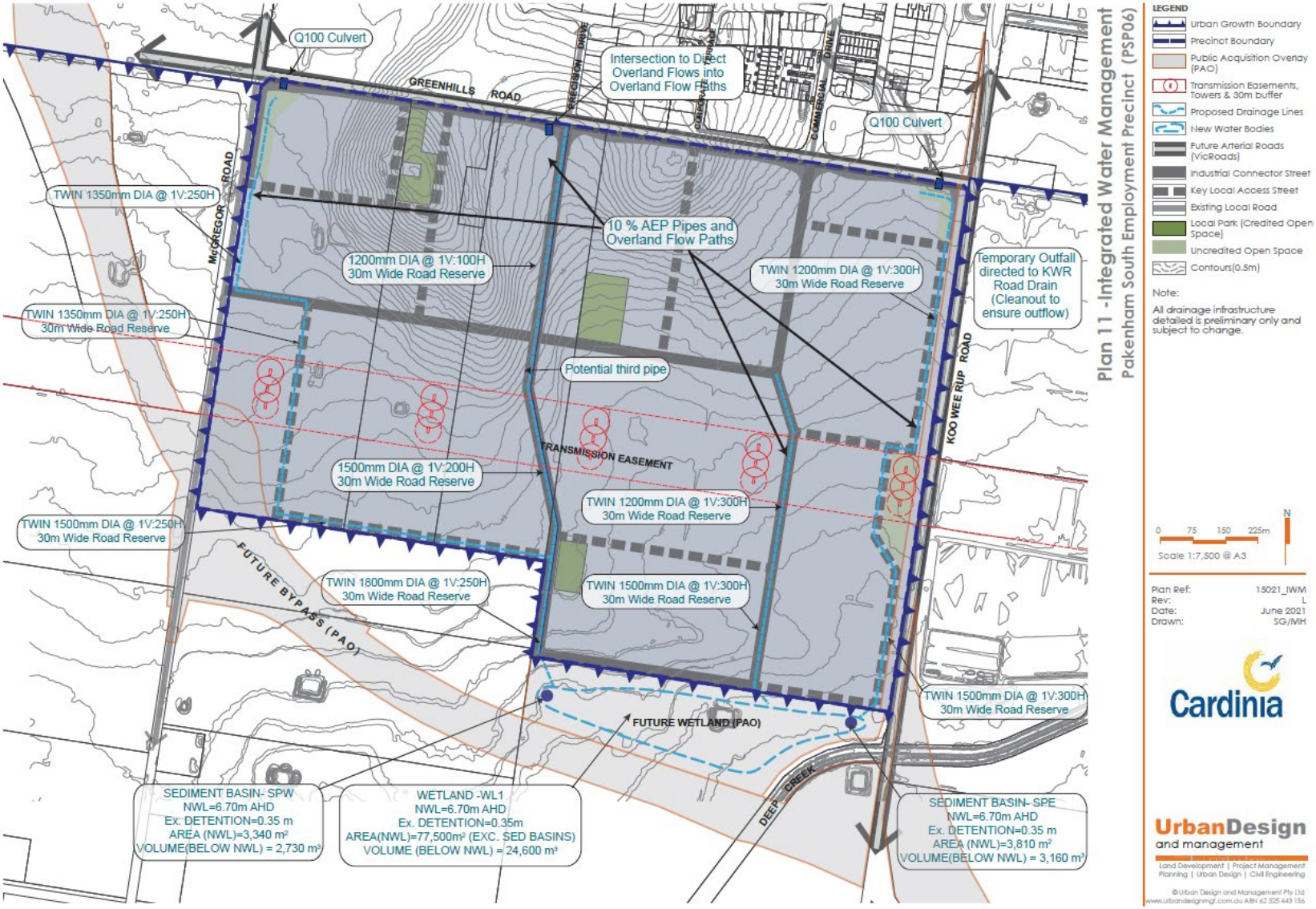
3.4.3. Walking and cycling

REQUIREMENTS	
R36	Design of all subdivision, streets, and arterial roads must give priority to the requirements of pedestrians and cyclists by providing: • Footpaths of at least 1.5 metres on both sides of all streets and roads unless otherwise specified by the Precinct Structure Plan; • Shared paths or bicycle paths of 2.5 or 3.0 metres as shown on *Plan 10 - Public Transport and Path Network* or as shown on relevant cross- sections in the *Appendix C – Road Cross Sections*, or as specified by another requirement in the Precinct Structure Plan; • Safe, accessible and convenient crossing points of connector roads and local streets at all intersections, key desire lines and locations of high amenity (for example convenience centre and open space); • Safe pedestrian crossings of arterial roads at all intersections, at key desire lines and at regular intervals appropriate to the function of the road and public transport provision; • Pedestrian priority crossings on all slip lanes; • Safe and convenient transition between on and off-road bicycle networks; • Wayfinding signage; and • Seating at spacing of 400 metres or less along shared paths unless otherwise specified by the Precinct Structure Plan. All to the satisfaction of the coordinating road authority and the responsible authority.
R37	Bicycle priority at intersections of local streets and connector roads with dedicated off-road bicycle paths must be achieved through strong and consistent visual and physical cues and supportive directional and associated road signs, as per the designs in the *Engineering Design and Construction Manual, 2011* and to the satisfaction of the responsible authority.
R38	Bicycle parking facilities must be provided by development proponents in convenient locations at key destinations such as parks and local convenience centre.
R39	Shared and pedestrian paths along waterways/retarding basins must: • Be delivered by development proponents consistent with the network shown on *Plan 10 – Public Transport and Path Network;*

REQUIREMENTS	
	• Be above 1:100 year flood level with any crossing of the waterway designed to be above the 1:100 year flood level to maintain hydraulic function of the waterway; • Be positioned above 1:100 year flood where direct access is provided to the employment activity from the waterway reserve; and • Be constructed to a standard that satisfies the requirements of Melbourne Water and the responsible authority. All to the satisfaction of Melbourne Water and the responsible authority.
R40	Be delivered by development proponents consistent with the network shown on Plan 10 – Public Transport and Path Network;

GUIDELINES	
G38	Lighting should be installed along shared, pedestrian, and cycle paths linking key destinations, unless otherwise agreed by the responsible authority.

Plan 11: Integrated Water Management



Note: PSP catchment delineation and pipe outfall points to designated trunk drainage lines and overland flow paths should be in line with the requirements of Melbourne Water.

3.5. Integrated water management, utilities, energy and sustainability

3.5.1. Integrated water management

REQUIREMENTS	
R41	All applications must demonstrate how: • Waterways and integrated water management design enables land to be used for multiple recreation and environmental purposes; • Overland flow paths and piping within road reserves will be connected and integrated across property/parcel boundaries; • Melbourne Water and the responsible authority freeboard requirements for overland flow paths will be adequately contained within the road reserves; and • Relevant integrated water management requirements and guidelines of this PSP will be achieved, to the satisfaction of the retail water authority, including the supply of recycled water. Melbourne Water drainage assets must be to the satisfaction of Melbourne Water and the responsible authority.
R42	Development must meet best practice stormwater quality treatment standards prior to discharge to receiving wetlands and as outlined on *Plan 11 – Integrated Water Management*, unless otherwise approved by Melbourne Water and the responsible authority.
R43	Final design and boundaries of constructed waterways, waterway corridors, retarding basins, stormwater quality treatment infrastructure and associated paths, boardwalks, bridges and planting, must be to the satisfaction of Melbourne Water and the responsible authority.
R44	Stormwater conveyance and treatment must be designed in accordance with the Development Service Scheme and/or Drainage Strategy, to the satisfaction of Melbourne Water. The wetland identified as WL1 in Plan 11 is located outside of the precinct and an Incorporated Plan Overlay Schedule 2 – *Pakenham South Employment Precinct Structure Plan* applies to this land to give affect to the PSP.
R45	A permit for subdivision must ensure that the ultimate storm water management assets and associated land described in the PSP are provided by the developer prior to the issue of a statement of compliance. In the event that Melbourne Water and the responsible authority agree to an interim storm water management solution, the developer must: • Provide the land required for the ultimate drainage solution prior to the issue of a statement of compliance; and • Demonstrate that the interim solution will not result in an increase in the cost of achieving the ultimate solution.
R46	A permit for development must include a water tank for rainwater harvesting.

Requirements	
R47	All properties fronting the central north south connector road must allow land (easement) within the road reserve for connection as required to a third pipe to the satisfaction of the responsible authority.

Guidelines	
G39	The design and layout of roads, road reserves and public open space should optimise water use efficiency and long-term viability of vegetation and public uses through the use of Water Sensitive Urban Design initiatives.
G40	Development should include integrated water management initiatives to diversify water supply, reduce reliance on potable water and enable future harvesting and/or treatment and re-use of stormwater contributing to a sustainable and green urban environment where practicable.
G41	Where practical, integrated water management systems should be designed to maximise habitat values for local flora and fauna species.

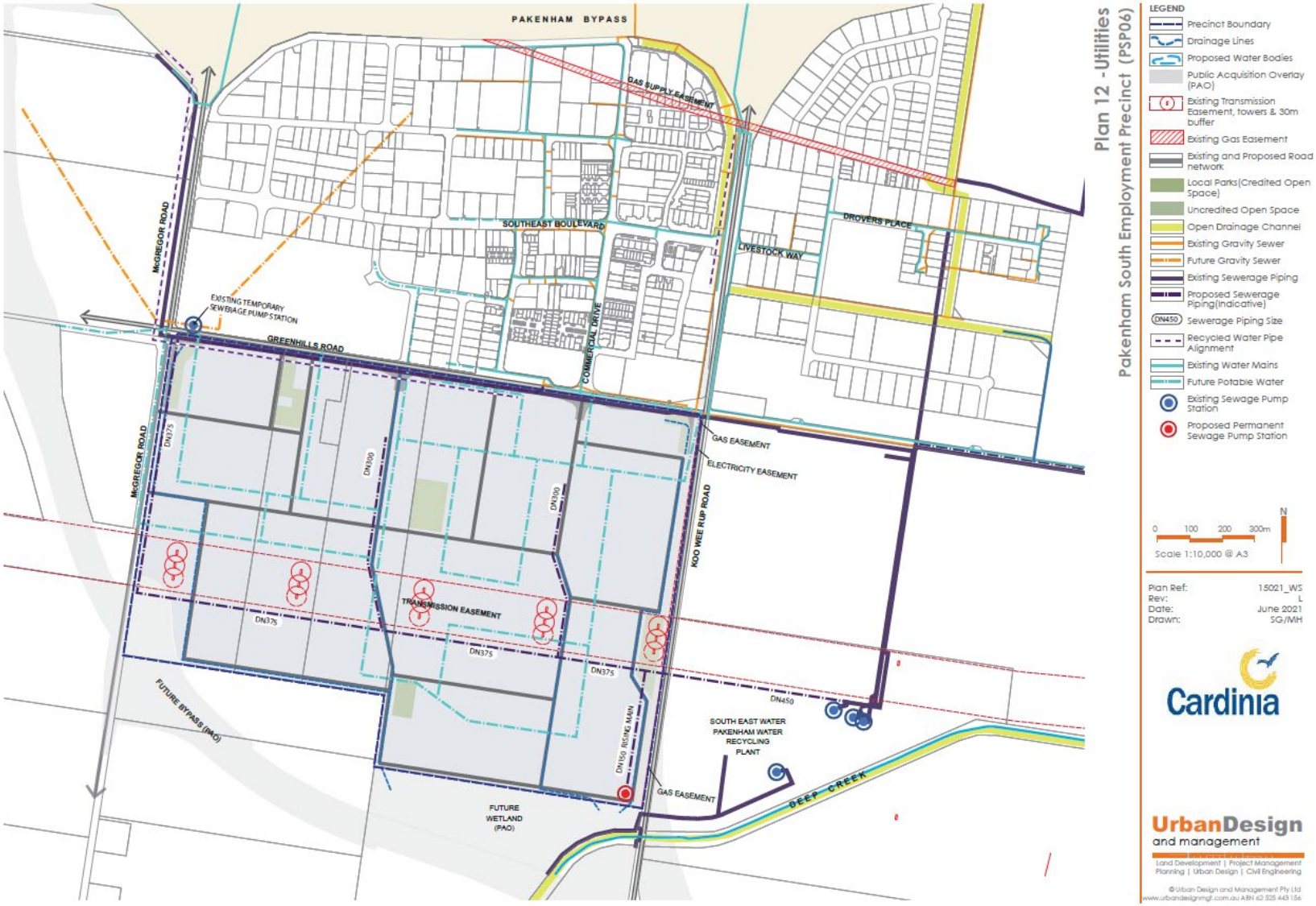
Guidelines	
G42	Development should have regard to relevant policies and strategies being implemented by the responsible authority, Melbourne Water and South East Water (retail water authority), including any approved Integrated Water Management Plan.
G43	Any drainage infrastructure running adjacent to or crossing a high tension electricity easement should be engineered to protect the integrity of the asset to the satisfaction of the responsible authority and the electricity easement owner.

Table 3: Water Infrastructure

Asset ID	Description	Location	Area (ha)	Responsibility
WL1	Wetland	Located outside of precinct	13.80	Melbourne Water
Total			**13.80**	

Note: The area identified in this table is subject to refinement during detailed design to the satisfaction of Melbourne Water and the responsible authority.

Plan 12: Utilities



3.5.2. Utilities

REQUIREMENTS	
R48	Trunk services must be placed along the general alignments illustrated on *Plan 12 - Utilities*, subject to any refinements as advised by the relevant service authorities.
R49	Above ground utilities must be identified at the subdivision design stage to ensure effective integration with the surrounding neighbourhood and to minimise amenity impacts, and be designed to the satisfaction of the relevant authority. Where that infrastructure is intended to be located in public open space, the land required to accommodate that infrastructure will not be counted as contribution to public open space requirements specified and will be additional to the areas designated in *Table 2 - Open Space Delivery Guide*.
R50	Subject to South East Water agreeing to do so, the developer must enter into an agreement with South East Water requiring the subdivision to be reticulated with a dual pipe recycled water system to provide for the supply of recycled water from a suitable source or scheme to all allotments and open space reserves within the subdivision.
R51	Fibre optic broadband cable (or superior technology) must be made directly available to every building or separate leasable tenancy in the precinct.
R52	All new electricity supply infrastructure (excluding substations and cables with voltage 66kv or greater) must be provided underground.

GUIDELINES	
G44	Above ground utilities should be located outside of key view lines and should be screened with vegetation as appropriate.
G45	Design and placement of underground services in new or upgraded streets should be guided by *Appendix D: Service Placement Guidelines*.
G46	Utility easements to the rear of lots should only be provided where there is no practical alternative.
G47	Any utility infrastructure running adjacent to or crossing a high power electricity easement should be engineered to protect the integrity of the asset to the satisfaction of the responsible authority and electricity easement owner.
G48	Development should facilitate the reduction of environmental impacts and resource use through: • Appropriate subdivision designs that orientate buildings on an east-west axis to achieve greater access to northern sun; • Public realm design and connectivity; • Facilitation of alternative energy generation systems; and • Access to public and integrated active transport networks.

Plan 13: Precinct Infrastructure Plan



3.6. Infrastructure delivery and staging

Infrastructure within the precinct will be delivered via the following mechanisms:

- Subdivision construction works by developers;
- Agreements under S173 of the *Planning and Environment Act 1987*;
- Utility service provider requirements, including any development services (drainage) scheme/strategy or equivalent managed by the relevant drainage authority;
- Pakenham South Employment Infrastructure Contributions Plan (ICP);
- Relevant development/infrastructure contributions from adjoining areas;
- Capital works projects by Council, State government agencies and non- government organisations;
- The Growth Area Infrastructure Contributions (GAIC) and GAIC Works in Kind projects; and
- Works-in-kind (WIK) projects undertaken by developers on behalf of Council or State government agencies.

3.6.1. Subdivision works by developers

REQUIREMENTS	
R53	Subdivision of land within the precinct must provide and meet the total cost of delivering the following infrastructure:

REQUIREMENTS	
	• Connector roads and local streets (including internal loop roads and service roads that abut arterial roads); • Local bus stop infrastructure along Greenhills Road; • Landscaping of all existing and future roads and local streets; • Intersection works and traffic management measures along arterial roads, connector streets and local streets (except those included in the ICP); • Council approved fencing and landscaping (where required) along arterial roads and open space; • Local shared, pedestrian and bicycle paths along local arterial roads, connector roads, utilities easements, local streets, waterways and within local parks including bridges, intersections, and barrier crossing points (except where otherwise included in the ICP); • Bicycle parking facilities as required in this document; • Appropriately scaled lighting along all roads, major shared and pedestrian paths, and within public open space; • Improvements to local reserves and open space (refer open space delivery below); • Local drainage system; • Local street or pedestrian path crossings of waterways and the electricity transmission line easement unless included in the ICP or outlined as

REQUIREMENTS	
	the responsibility of another agency in the Precinct Infrastructure Plan; • Infrastructure as required by utility service providers including water, sewerage, drainage (except where the item is funded through a Development Services Scheme), electricity, gas, and telecommunications; and • Provision of water tapping, potable and recycled water connection points for any open space.
R54	All public open space (where not otherwise provided via an Infrastructure Contributions Plan) must be finished to a standard that satisfies the requirements of the responsible authority prior to the transfer of the public open space, including but not limited to: • Removal of all existing and disused structures, foundations, pipelines and stockpiles; • Clearing of rubbish and environmental weeds and rocks, levelled, topsoiled and grassed with warm climate grass; • Provision of water tapping, potable and/or recycled water connection points; • Identification of sewer, gas and electricity connection points for land proposed as local reserves; • Trees and other plantings; • Vehicular exclusion devices (landscape treatments, fences, bollards or other suitable methods) and maintenance access points, to the satisfaction of the responsible authority; and

REQUIREMENTS	
	• Installation of park furniture including shelters, tables and other local scale play equipment elements such as half basketball courts, exercise equipment, rubbish bins and appropriate paving to support these facilities consistent with the type of public open space listed in Table 2 - Open Space Delivery Guide.
R55	Local parks identified in *Table 4 - Precinct Infrastructure* must be vested in the relevant authority in the following condition: • Free from surface and/or protruding rocks and structures and contaminated soil; • Graded and/or topsoiled to create a safe and regular surface with a maximum 1:6 gradient; • Seeded and top-dressed with drought-resistant grass in bare, patchy and newly-graded areas; • Landscaped; and • Include installation of park furniture including shelters, tables and other local scale play equipment elements such as half basketball courts, exercise equipment, rubbish bins and appropriate paving to support these facilities consistent with the type of public open space listed in *Table 2 - Open Space Delivery Guide*.
R56	Any heritage site / reserve to be vested in the relevant authority must be done to a standard that satisfies the requirements of that authority. Works required prior to the transfer include, but may not be limited to: • Clearing of rubbish, weeds and contaminated soils

REQUIREMENTS	
	• Essential repairs to and stabilisation of any structures • Any fencing required to ensure the safety of the public Any works carried out must be consistent with any relevant Cultural Heritage Management Plan and Conservation Management Plan.
R57	Where a street has already been constructed or approved for construction to a property boundary, subsequent development must connect with that street to adopt a consistent cross-section until a suitable transition can be made.

3.6.2. Development staging

REQUIREMENTS	
R58	Development staging must provide for the timely provision and delivery of: • Intersections of connector streets and arterial roads; • Connector streets; • Street links between properties, constructed to the property boundary; and • Connection of the on and off road pedestrian and bicycle network.

REQUIREMENTS	
R59	Streets must be constructed to property boundaries where an inter-parcel connection is intended or indicated in the PSP, by any date or stage of development required or approved by the responsible authority.

GUIDELINES	
G49	Development staging will be largely determined by the development proposals on land within the precinct and the availability of infrastructure services. Development applications should demonstrate: • How the development, to the extent practicable, will be integrated with adjoining developments, through the timely provision of connecting roads and walking/cycling paths; • How sealed road access will be provided to each new allotment; and • How any necessary trunk service extensions will be delivered, including confirmation of the agreed approach and timing of infrastructure by the relevant service provider.
G50	Where practical, delivery of local reserves/parks, pedestrian and cycle path connections (as relevant) should commence in the early stages of development.

3.7. Precinct infrastructure

Plan 13 and *Table 4 - Precinct Infrastructure* list the items of the Pakenham South Employment ICP and other infrastructure to be delivered by the local council or State Government to meet the needs of the proposed development within the precinct. Delivery of all Local Access Roads are to be funded through developer works.

Table 4: Precinct Infrastructure

Project Category	ICP Project Number	Title	Project Description	Lead Agency	Component Included In ICP			Timing
					Ultimate Land	Interim Construction	Ultimate Construction	
Road Projects								
Road	-	Greenhills Road from McGregor Road to Healesville-Koo Wee Rup Road (between intersection extents)	Construction of first carriageway within existing roadreserve (northern side of ultimate road reserve) Approx. 380 metres already completed	Other precinct (South East Business Park)	No	No	No	M
Road	RD-01	Greenhills Road from Commercial Drive to Healesville-Koo Wee Rup Road (between intersection extents)	Construction of second carriageway within 34 metre road reserve south of existing road reserve, between Commercial Drive and Healesville-Koo Wee Rup Road	CardiniaShire Council	Yes	N/A	Yes	S-M
Road	-	Greenhills Road from McGregor Road to Commercial Drive (between intersection extents)	Construction of ultimate second carriageway (southern side of ultimate road reserve)	Department of Transport	No	No	No	L

Project Category	ICP Project Number	Title	Project Description	Lead Agency	Component Included In ICP			Timing
					Ultimate Land	Interim Construction	Ultimate Construction	
Road	-	Healesville-Koo Wee Rup Road (South East Boulevard to south of Greenhills Road)	Land acquisition (PAO) and construction of secondcarriageway	Department of Transport	No	No	No	L
Intersection Projects								
Intersection	IN-01	Greenhills Road / Healesville-Koo Wee Rup Road intersection	Provision of land (ultimate) and construction of intersection (interim treatment). Major Roads Project Victoria delivering whole of intersection (excluding additional lane on Greenhills Road and south west left turn slip lane) ICP will deliver the left turn and slip lanes, additional southern carriageway in Greenhills Road and one right turn in to Greenhills Road (modification only) (interim treatment) (not delivered by MRPV)	Cardinia Shire Council	Yes	Yes	N/A	S-M
Intersection	IN-02	Greenhills Road / Commercial Drive intersection	Provision of land (ultimate treatment) and construction of 4 leg roundabout at existing T intersection (interim treatment)	Major Roads Project Victoria	Yes	No	N/A	S
Intersection	-	Greenhills Road / Commercial Drive intersection	Upgrade of roundabout to ultimate standard (4 lane road)	Department of Transport	No	No	No	L

Project Category	ICP Project Number	Title	Project Description	Lead Agency	Component Included In ICP			Timing
					Ultimate Land	Interim Construction	Ultimate Construction	
Intersection	IN-03	Greenhills Road / North- South Road intersection	Provision of land (ultimate treatment) and construction of 4 leg roundabout (interim treatment)	Cardinia Shire Council	Yes	Yes	N/A	M
Intersection	-	Greenhills Road / North-South Road intersection	Upgrade of roundabout to ultimate standard (4 lane road)	Department of Transport	No	No	No	L
Intersection	-	Greenhills Road / McGregor Road intersection	Construction of interim T intersection	Other precinct (South East Business Park)	No	No	No	S-M
Intersection	IN-04	Greenhills Road / McGregor Road intersection	Provision of land (ultimate treatment) and upgrade of intersection to signalised T intersection (interim treatment)	Cardinia Shire Council	Yes	Yes	N/A	S-M
Intersection	-	Greenhills Road / McGregor Road intersection	Upgrade of signalised intersection to ultimate standard (4 lane road / extension of Thompsons Road)	Department of Transport	No	No	No	L
Intersection	IN-05	McGregor Road / East West Road intersection	Provision of land (ultimate treatment) and construction of roundabout to ultimate standard	Cardinia Shire Council	Yes	Yes	No	L
Culvert Projects								
Culverts	-	Greenhills Road	Construction of 3 (1 existing) culverts under Greenhills Road to convey 1 in 100 year flows	Other precinct (South East Business Park)	No	No	No	S-M

Project Category	ICP Project Number	Title	Project Description	Lead Agency	Component Included In ICP			Timing
					Ultimate Land	Interim Construction	Ultimate Construction	
Open Space Projects								
Local path	P-01	Construction of Greenhills Road two way bike lane (between intersection extents)	Construction of two way bike lane on south side of ultimate second carriageway of Greenhills Road	Cardinia Shire Council	No	N/A	Yes	M
Open space	LP-01	Local Park	Provision of land for open space adjacent to LCC (1.19 hectare park)	Cardinia Shire Council	Yes	No	No	M
Open space	LP-02	Local Park	Provision of land for central open space (1.54 hectare park)	Cardinia Shire Council	Yes	No	No	M
Open space	LP-03	Local Park	Provision of land for southern open space (0.71 hectare park)	Cardinia Shire Council	Yes	No	No	M
Drainage	-	Wetland	Land and construction of wetland	Melbourne Water	No	No	No	S-M

4. Appendices

4.1. APPENDIX A: Property-Specific Land Use Budget

Table 5: Property Specific Land Use Budget

PSP Property ID	Total Area (Hectares)	Transport		Open Space		Total Net Developable Area (Hectares)	Net Developable Area % of Property
		Arterial Road		Uncredited Open Space	Credited Open Space		
		Arterial Road – Public Acquisition Overlay	Arterial Road - New / Widening / Intersection Flaring (ICP land)	Waterway and Drainage Reserve	Local Network Park (ICP land)		
1	34.82	3.09	1.79	0.77	-	29.17	83.77%
2	20.09	-	0.35	-	1.19	18.55	92.33%
3	1.00	-	0.03	-	-	0.97	97.00%
4	25.32	-	0.69	-	-	24.63	97.27%
5	103.41	2.53	1.73	1.81	2.25	95.09	91.95%
Totals PSP	**184.64**	**5.62**	**4.59**	**2.58**	**3.44**	**168.41**	**91.21%**

4.2. APPENDIX B: Buffers

Buffer distances from sensitive land uses

A number of existing dwellings are located within and in close proximity to the precinct. It is expected that over time and as the precinct develops, a number of these dwellings will be removed with additional opportunities for uses which require extensive buffer distances.

These plans were prepared on the assumption on the likely lifetime of dwellings, and the expected development timeframe of the precinct. Therefore, they are projections only and the plans do not override the buffer requirements in the planning scheme.

Pakenham Water Recycling Plant Odour Buffer

The Pakenham Water Recycling Plant is located immediately to the east of the precinct.

South East Water intends to treat all sewage from the Clyde, Officer and Pakenham areas at an expanded Pakenham Water Recycling Plant (WRP) site. South East Water, in coordination with Council, has produced a forecast for sewage treatment at Pakenham WRP. Based on this forecast the treatment plant will service an equivalent population of 460,000 people by 2060. This will require significant upgrades to onsite infrastructure for South East Water and may, at times, have offsite impacts such as noise and odour on nearby land uses.

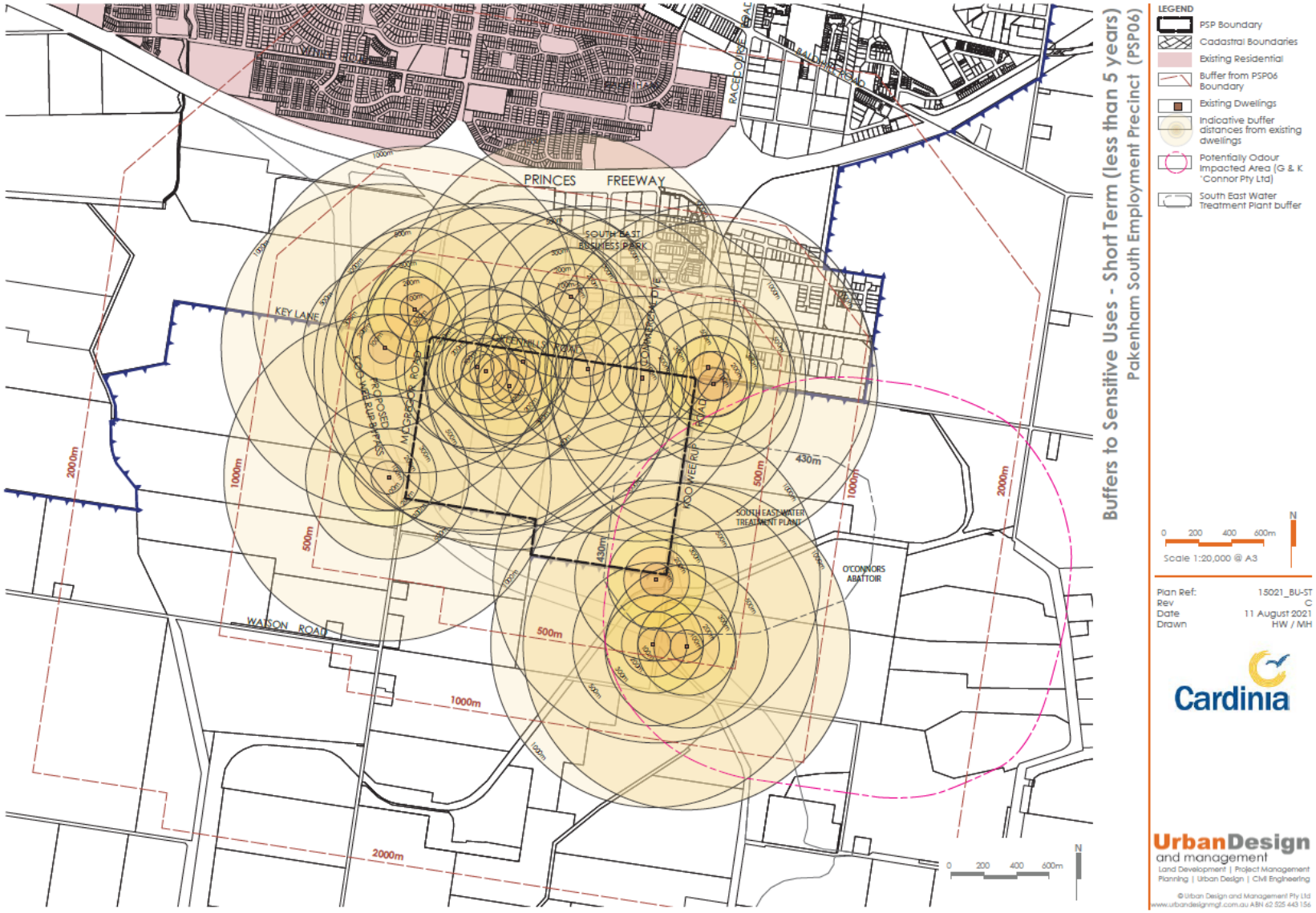
In accordance with EPA Guidance Publication 1518 – *Recommended separation distances for industrial residual air emissions*, a mechanical sewage treatment plant as is planned for Pakenham should maintain a separation distance of 770m from sensitive receptors. Based on this guidance South East Water recommends an area extending 770m from South East Water's boundary on the eastern edge of the Pakenham South Employment PSP be noted within the PSP as potentially impacted by offensive odours. Planning controls and advice within this area to restrict uses that may be negatively impacted by this odour are recommended. Clear advice on the odour potential may also be provided such that businesses setting up in the area can make appropriate allowances. The indicative odour buffer shown on page 55 indicates the boundary of the area recommended as being listed as odour affected in the PSP by South East Water.

Pakenham Abattoir

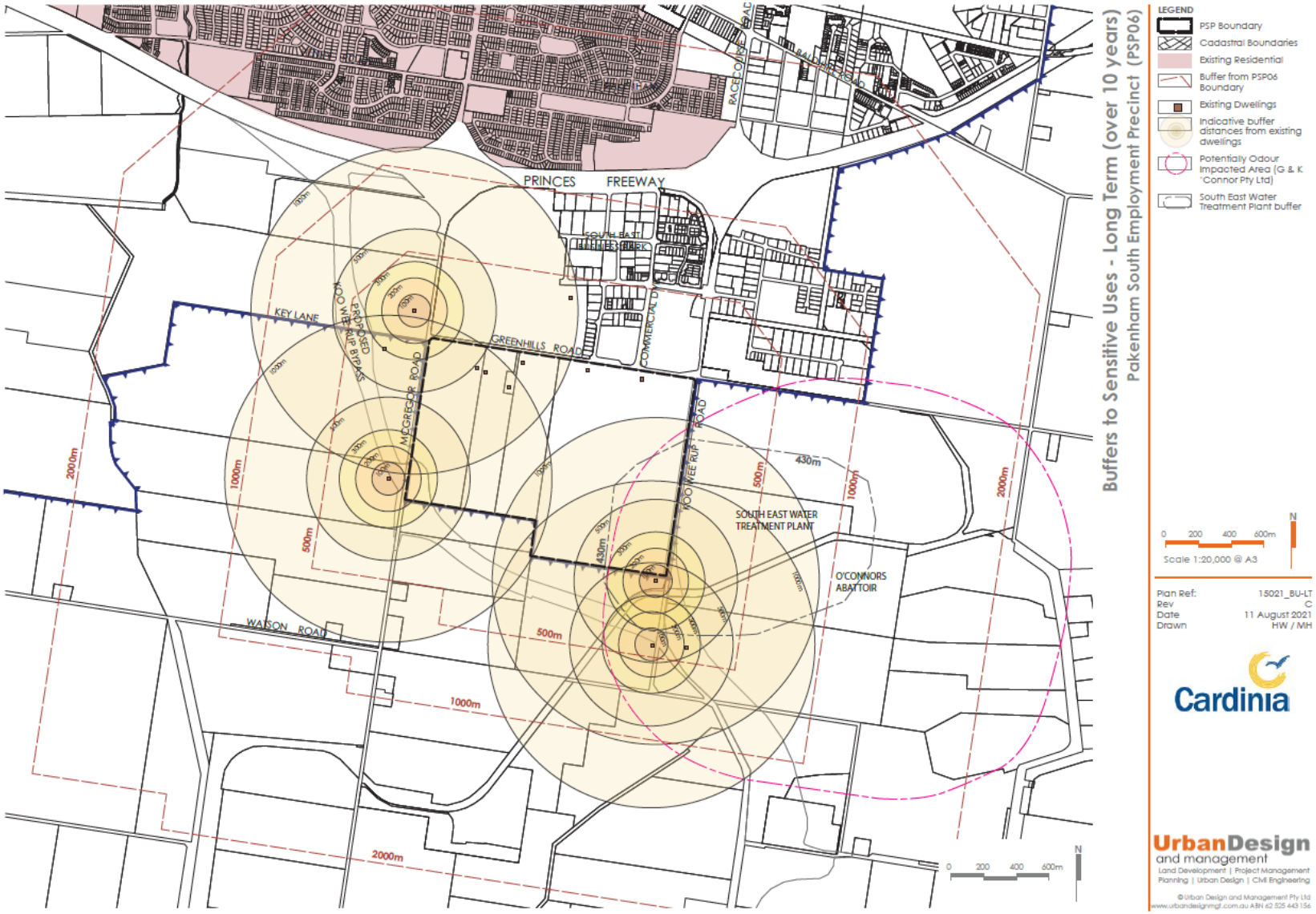
The Pakenham Abattoir and food production premises is situated directly east of the southern boundary of the PSP area.

The existing abattoir is subject to EPA's Scheduled Premises Regulations 2017 and has a separation distance of 1,000 metres from sensitive uses. As the buffer does extend into the PSP area a separation distance from sensitive uses will be provided.

Buffer distances from sensitive uses (short term: less than 5 years)



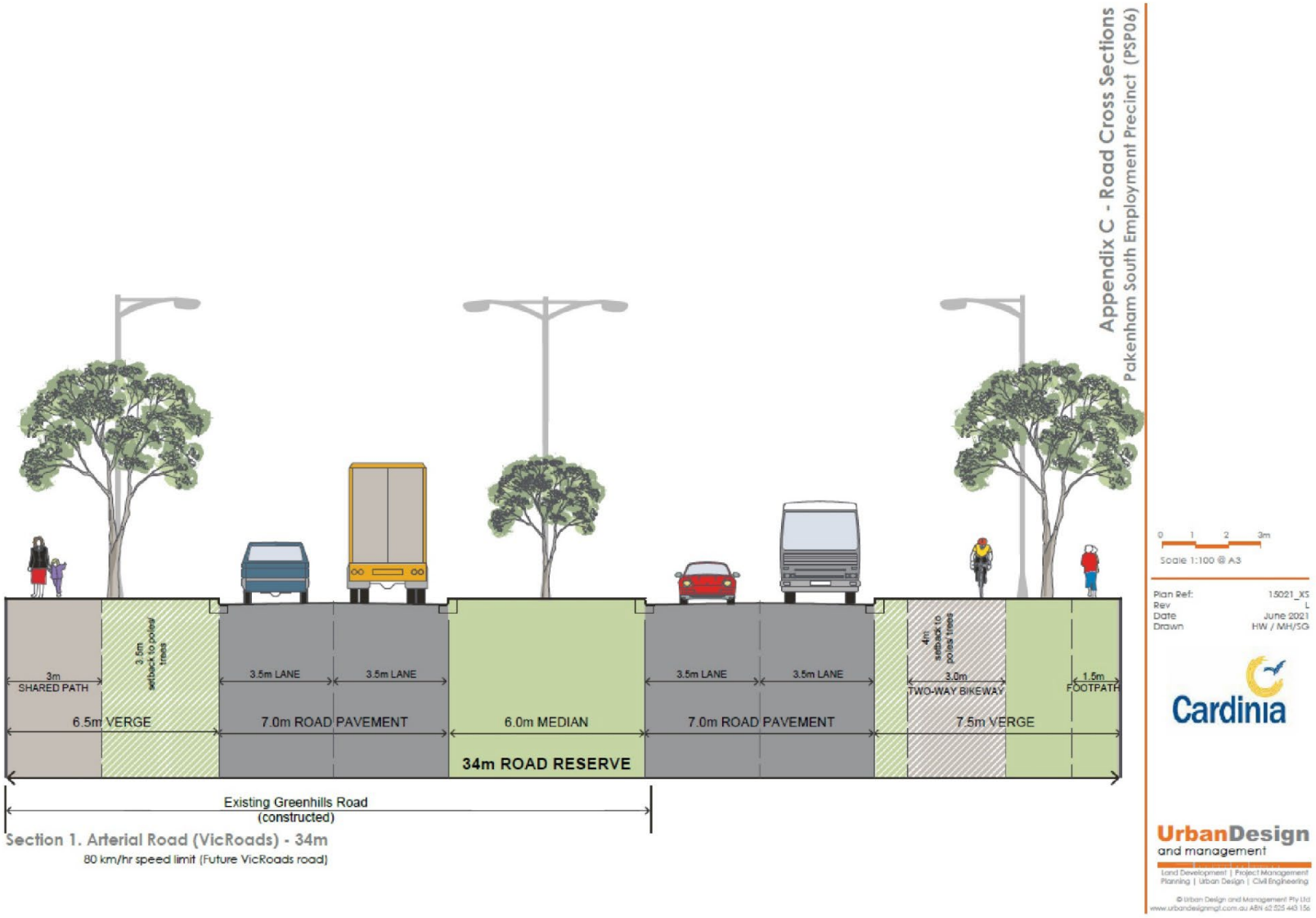
Buffer distances from sensitive uses (long term: over 10 years)

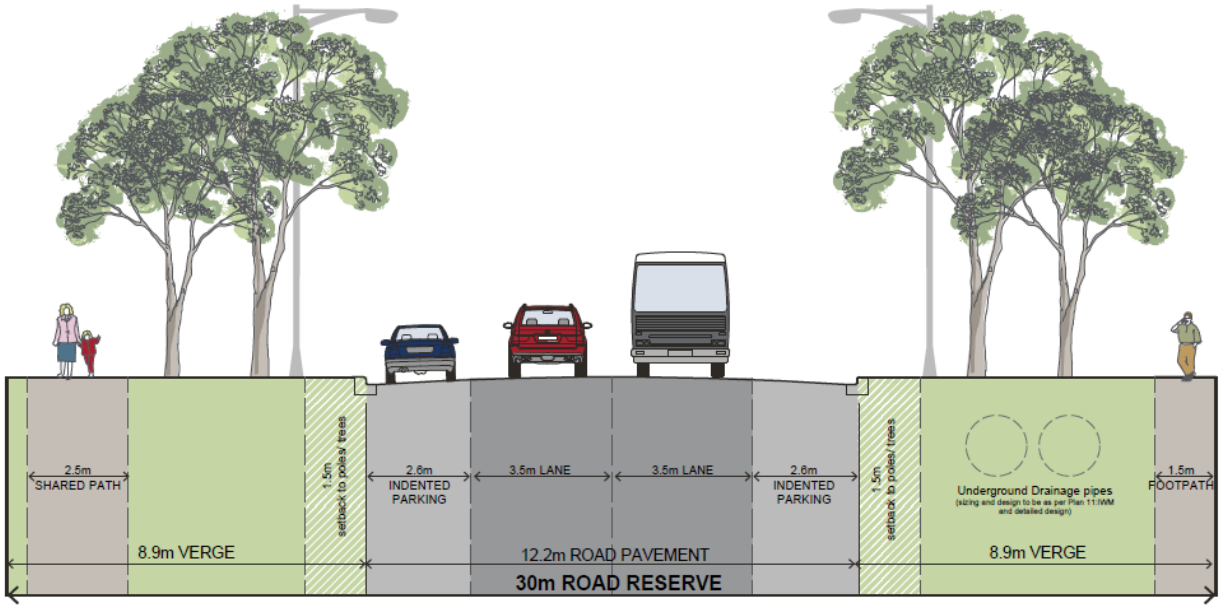


Pakenham Water Recycling Plant and G and K O'Connor buffer



4.3. APPENDIX C: Road cross sections





Section 2. Industrial Connector Street (with Drainage Function) - 30m

50 or 60 km/hr speed limit

Appendix C - Road Cross Sections

Pakenham South Employment Precinct (PSP06)

0 1 2 3m

Scale 1:100 @ A3

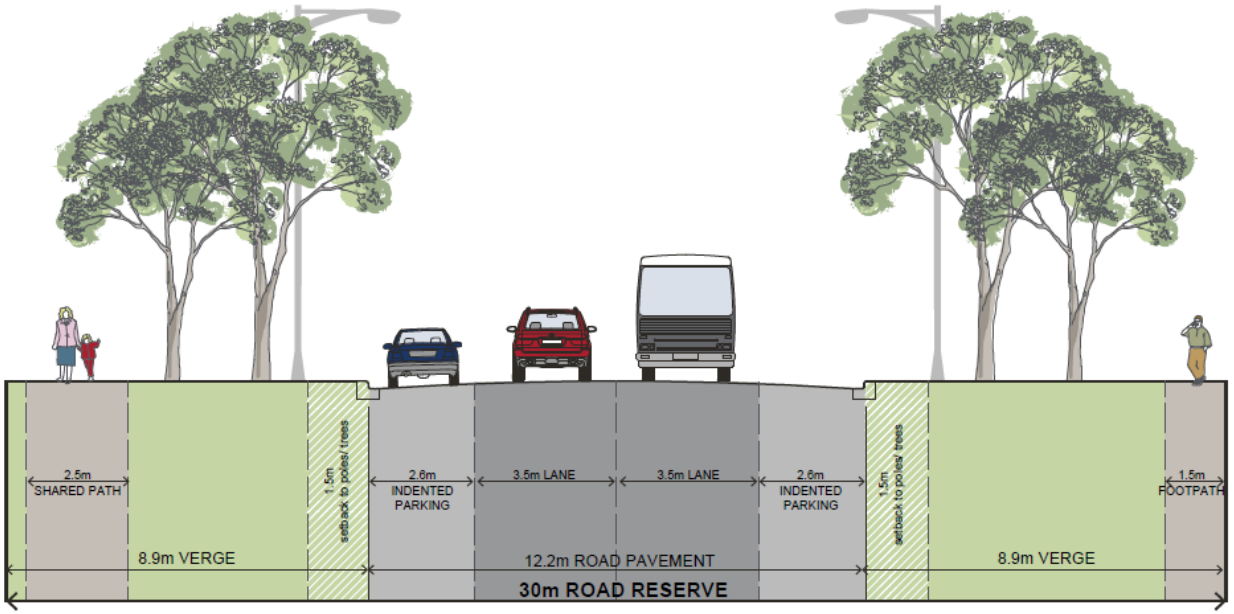
Plan Ref:	15021_XS
Rev	L
Date	June 2021
Drawn	HW / MH/SG

Cardinia

UrbanDesign and management

Land Development | Project Management
Planning | Urban Design | Civil Engineering

© Urban Design and Management Pty Ltd
www.urbandesignmgt.com.au ABN 62 525 443 156



Section 3. Industrial Connector Street - 30m

50 or 60 km/hr speed limit

Appendix C - Road Cross Sections

Pakenham South Employment Precinct (PSP06)

0 1 2 3m

Scale 1:100 @ A3

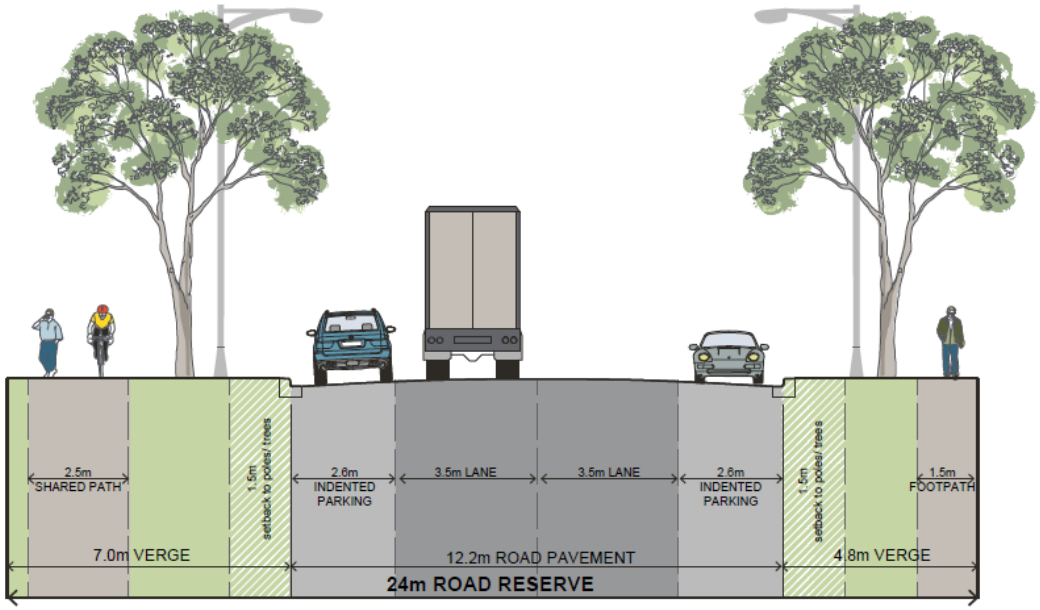
Plan Ref: 15021_XS
Rev L
Date June 2021
Drawn HW / MH/SG

Cardinia

UrbanDesign and management

Land Development | Project Management
Planning | Urban Design | Civil Engineering

© Urban Design and Management Pty Ltd
www.urbandesignmgt.com.au ABN 62 525 443 156



Section 4. Industrial Local Access Street with Shared Path- 24m

50 or 60 km/hr speed limit

NOTE: Where this cross section is noted on Plan 9: Road Network Plan with the suffix 'D' (ie. **4D**), the road cross section is to be widened to 30m to accommodate the requirements shown on Plan 11: Integrated Water Management plan.

Appendix C - Road Cross Sections
Pakenham South Employment Precinct (PSP06)

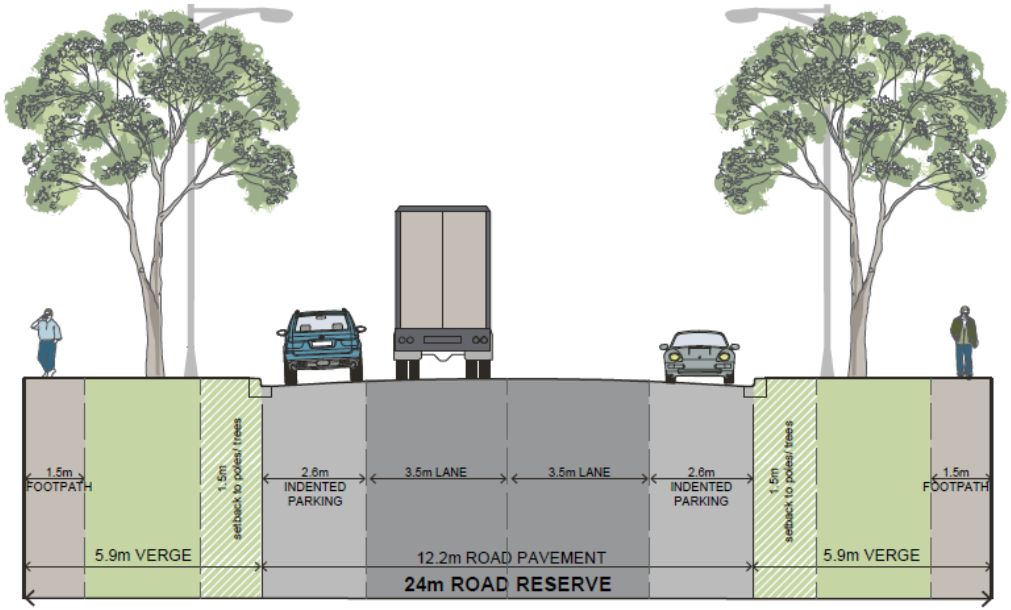
0 1 2 3m
Scale 1:100 @ A3

Plan Ref:	15021_XS
Rev	L
Date	June 2021
Drawn	HW / MH/SG

Cardinia

UrbanDesign and management
Land Development | Project Management
Planning | Urban Design | Civil Engineering

© Urban Design and Management Pty Ltd
www.urbandesignmgt.com.au ABN 62 525 443 156



Section 5. Industrial Local Access Street - 24m

50 or 60 km/hr speed limit

NOTE: Where this cross section is noted on Plan 9: Road Network Plan with the suffix 'D' (ie. 5D), the road cross section is to be widened to 30m to accommodate the requirements shown on Plan 11: Integrated Water Management plan.

Appendix C - Road Cross Sections
Pakenham South Employment Precinct (PSP06)

0 1 2 3m
Scale 1:100 @ A3

Plan Ref:	15021_XS
Rev	L
Date	June 2021
Drawn	HW / MH/SG

Cardinia

UrbanDesign and management
Land Development | Project Management
Planning | Urban Design | Civil Engineering

© Urban Design and Management Pty Ltd
www.urbandesignmgt.com.au ABN 62 525 443 156

4.4. APPENDIX D: Service Placement Guidelines

The *Engineering Design and Construction Manual for Subdivision in Growth Areas* (April 2011) outlines placement of services for a typical urban street environment. This approach is appropriate for the majority of the 'standard' road cross sections outlined in *Appendix C: Road Cross Sections* containing grassed nature strips, footpaths and road pavements.

General Principles for Service Placement

- Place gas and water on one side of road, electricity on the opposite side.
- Place water supply on the high side of road.
- Place services that need connection to adjacent properties closer to these properties.
- Place trunk services further away from adjacent properties.
- Place services that relate to the road carriageway (e.g. drainage, street light electricity supply) closer to the road carriageway.
- Maintain appropriate services clearances and overlap these clearances wherever possible.

Table 6: Servicing Guidelines

	Under Pedestrian Pavement	Under Nature Strips	Directly Under Trees [1]	Under Kerb	Under Road Pavement [2]	Within Allotments	Notes
Sewer	Possible	Preferred	Possible	No	Possible	Possible [3]	
Potable Water	Possible [4]	Preferred	Possible	No	Possible	No	Can be placed in combinedtrench with gas
Recycled Water	Possible [4]	Preferred	Preferred	No	Possible	No	
Reticulated Gas	Possible [4]	Preferred	Preferred	No	No	No	Can be placed in combined trench with potable water
Electricity	Preferred	Possible	Possible	No	No	No	Pits to be placed either fully in footpath or naturestrip
FTTH/Telco	Preferred	Possible	Possible	No	No	No	Pits to be placed either fully in footpath or naturestrip
Drainage	Possible	Possible	Possible	Preferred	Preferred	Possible [3]	
Trunk Services	Possible	Possible	Possible	Possible	Preferred	No	

Notes

1. Trees are not to be placed directly over property service connections
2. Placement of services under road pavement is to be considered when service cannot be accommodated elsewhere in road reserve.
3. Placement of services beneath edge of road pavement/parking bays is preferable to within traffic lanes.
4. Where allotment size/frontage width allows adequate room to access and work on a pipe where connections to properties are within a pit in the pedestrian pavement/footpath.

4.5. APPENDIX E: Open Space Delivery Guidelines

Park Hierarchy

The open space network is made up of a diverse range of spaces which will vary in sizes, shape and function. The hierarchy outlined below provides information and guidance on the key open space categories listed in *Table 6 – Open Space Delivery Guide*, of this PSP and what role and function they generally have in the network. Parks within the PSP will generally fall into one of the following categories:

Pocket Parks (<0.2ha)

These parks are small more intimate spaces that can provide incidental and spontaneous recreation and relaxation such as sitting, resting and eating lunch within a short safe walking distance of residents and workers. In built up or planned urban renewal areas, they increasingly incorporate significant hard and / or high standard soft landscaping to accommodate more intensive use.

Pocket parks will also complement the role of neighbourhood parks and may sometimes be designed to have a neighbourhood park role (including a play space), again often when associated with built up areas.

Metrics Guidance:

- Size = <0.2ha
- Catchment = 200-400m safe walking distance / 2-5 minute walk
- Stay length = <0.5hr.

Neighbourhood Parks (0.2-1Ha)

Defined as Local Parks and Pocket Parks in the Cardinia Shire Council's Recreation Open Space Strategy

Neighbourhood parks are typically small to medium in size and primarily provide opportunities for informal and opportunistic recreation, relaxation or play to local residents within short safe walking distance. Such reserves typically include basic facilities such as seats, walking paths and a small playground and may also incorporate natural and heritage features.

In built up areas, the role, function and importance of these spaces may increase and they may include more intensive infrastructure to support greater use. In this way, neighbourhood parks can complement the role of pocket parks.

Metrics Guidance:

- Size = 0.2-1ha
- Catchment = 400m safe walking distance / 5 minute walk (potentially closer in high density areas)
- Stay length = 0-1hr.

Community Parks (1-5Ha)

Defined as Neighbourhood Parks in the Cardinia Shite Council's Recreation Open Space Strategy

Medium parks, often with more diverse facilities and landscape characteristics that supports a range of informal recreation, relaxation or play opportunities for short to medium time periods. Facilities for organised recreation may also be provided for. These parks service residents within a short to medium safe walking catchment and may also incorporate natural and heritage features.

In built up areas, the role, function of importance of these spaces may increase and they may carry more intensive infrastructure to support greater use.

Community parks are also the neighbourhood park for local residents. Metrics Guidance:

- Size = 1-5ha
- Catchment = 800m safe walking distance / 10 minute walk
- Stay length = 0.5-2hrs.

District Parks (5-15Ha)

Defined as District Parks in the Cardinia Shire Council's Recreation Open Space Strategy

Medium to large parks that serve a medium suburb scale catchment accessible via longer walks, short cycle rides and short vehicle trips. These park types may include natural and heritage features but will often mainly be designed to provide for organised sports or informal recreation and longer stay social gatherings, or a combination of both. Infrastructure may also support staging of community events.

District parks are also the neighbourhood park for local residents. Metrics Guidance:

- Size = 5-15ha
- Catchment = 1.2km safe walking distance / 15-20 minute walk / 5 minute bike ride
- Stay length = 1-4+ hours.

Regional Open Space

Municipal Parks (15-50ha)

Defined as Municipal Parks in the Cardinia Shire Council's Recreation Open Space Strategy

Large to very large Council owned and / or managed parks that can accommodate high visitation from a broad municipal or greater catchment. Will often integrate a wide range of formal and informal functions and include facilities (such as car-parking, toilets, shelters and picnic facilities, walking trails and larger playgrounds) to support longer stays, multiple social gatherings and staging of large scale community events. Higher order organised sporting infrastructure is typically a dominant feature of such reserves, however significant natural features such as waterways or native vegetation may also form a significant component.

Municipal parks are also be the neighbourhood park for nearby personnel and residents.

Metrics Guidance:

- Size: 15-50ha+
- Catchment: - +-5km / 15-20 minute bike ride / 5-10 minute drive
- Stay length: 1-5+ hours

Metropolitan Parks (50Ha+)

Defined as Regional Park in the Cardinia Shire Council Council's Recreation Open Space Strategy

Large to very large State owned and / or managed parks (usually via Parks Victoria) that accommodate and promote high visitation from a broad regional and / or metropolitan catchment. Metropolitan parks generally provide facilities for informal and nature based recreation in natural and / or semi natural settings and will often be associated with significant waterways and extensive areas of native, and / or historically important exotic vegetation. Infrastructure in these parks will usually include car-parking, toilets, shelters and picnic facilities, walking trails and larger playgrounds and even cafes to support longer stays, multiple social gatherings and staging of large scale community events. Organised sporting infrastructure may sometimes be strategically incorporated with these parks.

Metropolitan Parks are also the neighbourhood park for nearby residents. Metrics Guidance:

- Size: 50ha+
- Catchment: - =>15km / 20 minute drive / 45-60 minute bike ride
- Stay length: 2-5+ hours

Linear Parks

Linear Parks are parks that are developed and used for pedestrian and cyclist access, both recreational and commuter, between residential areas and key community destinations such as recreational facilities, schools and other community facilities, public transport and places of work. Linear Reserves are generally linear in nature and follow existing corridors such as water courses and roads. They usually contain paths or tracks (either formal or informal) that form part of the wider path/track network. While the primary function of Linear Reserve is pedestrian and cyclist access, these parks may serve additional purpose such as storm water conveyance, fauna movement and ecological/biodiversity protection.

Published: July 2021
© Cardinia Shire Council
(ABN: 32 210 906 807)

Cardinia Shire Council
Civic Centre
20 Siding Avenue, Officer Victoria 3809
PO Box 7, Pakenham Victoria 3810
(DX81006)

Phone: 1300 787 624
Email: mail@cardinia.vic.gov.au
Web: www.cardinia.vic.gov.au

National Relay Service (NRS)
TTY: 133 677 (ask for 1300 787 624)

Speak and Listen (speech-to-speech relay)
1300 555 727 (ask for 1300 787 624)



Translator Interpretation Service
131 450 (ask for 1300 787 624)