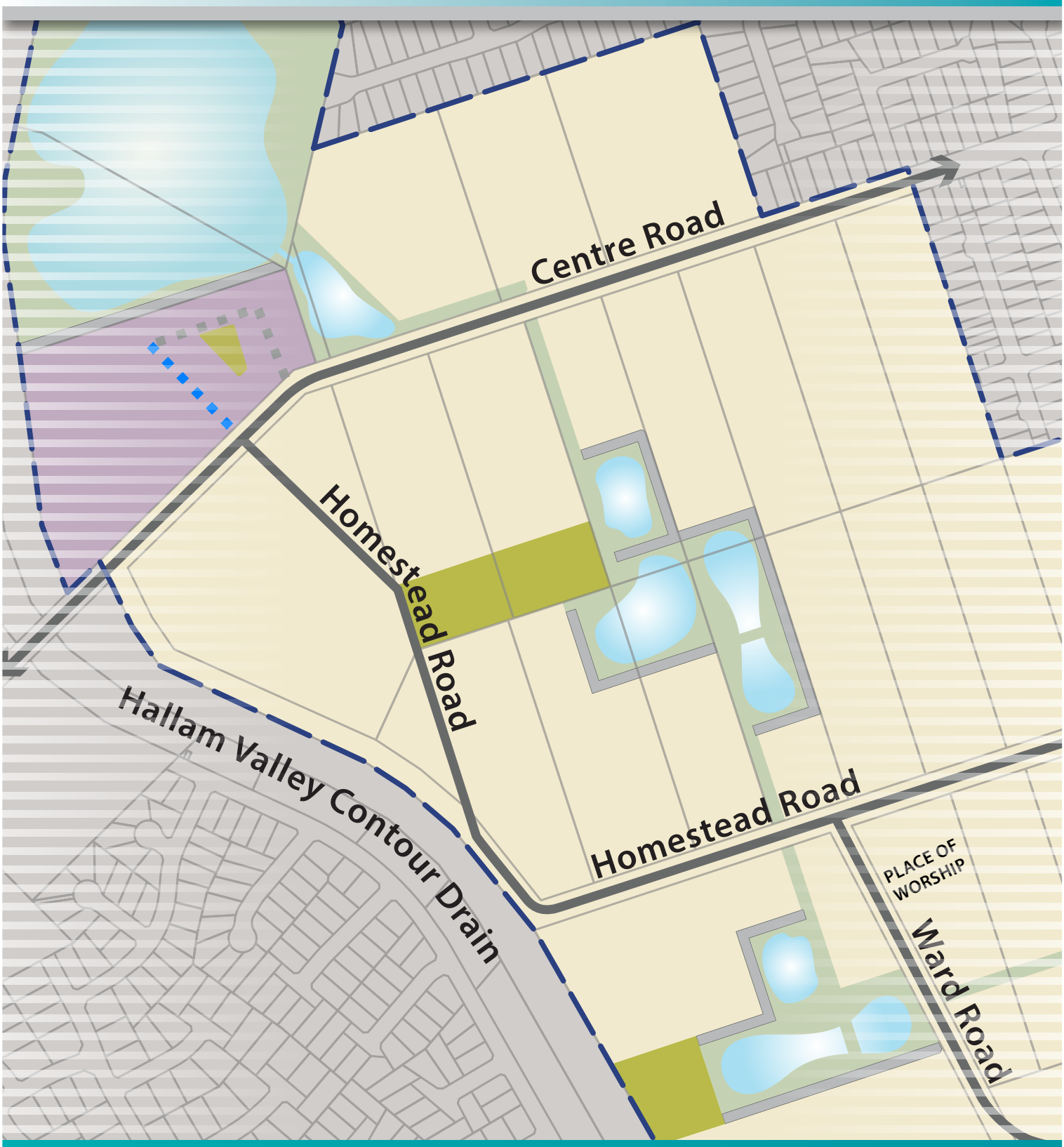

BERWICK WATERWAYS

PRECINCT STRUCTURE PLAN

OCTOBER 2014

METROPOLITAN PLANNING AUTHORITY

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CONTENTS

PLANS

TABLES

FIGURES

1.0 INTRODUCTION

The Berwick Waterways Precinct Structure Plan (the PSP) has been prepared by the Metropolitan Planning Authority (MPA) with the assistance of the City of Casey, Melbourne Water, Government agencies, service authorities and major stakeholders.

The PSP is a long-term plan for urban development. It describes how the land is expected to be developed, and how and where services are planned to support development.

The PSP:

- Sets out plans to guide the delivery of quality urban environments in accordance with the Victorian Government guidelines.
- Enables the transition of non-urban land to urban land.
- Sets the vision for how the land should be developed and the outcomes to be achieved.
- Outlines the projects required to ensure that future residents, visitors and workers within the area can be provided with timely access to services and transport necessary to support a quality and affordable lifestyle.
- Sets out objectives, requirements and guidelines for land use, development and subdivision.
- Provides Government agencies, the Council, developers, investors and local communities with certainty about future development.
- Addresses the requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999) in accordance with an endorsed program under Part 10 of that Act.

The PSP is informed by:

- The State Planning Policy Framework set out in the *Casey Planning Scheme*;
- The *Growth Corridor Plans: Managing Melbourne's Growth* (Growth Areas Authority, June 2012);
- The *Local Planning Policy Framework of the Casey Planning Scheme*;
- *Biodiversity Conservation Strategy for Melbourne's Growth Areas* (Department of Environment and Primary Industries, June 2013).*

* On 11 September 2014 an approval under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) was issued by the Commonwealth Minister for Environment, Heritage and Water. The approval applies to all actions associated with urban development in Melbourne's southeast growth corridor. The Commonwealth approval has effect until 31 December 2060. The approval is subject to conditions specified at Annexure 1 of the approval. Provided the conditions of the EPBC Act approval are satisfied individual assessment and approval under the EPBC Act is not required for development in this precinct.

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

- The *Berwick Waterways Development Contributions Plan* (DCP) requires development proponents to make a contribution toward infrastructure required to support the development of the Precinct.
- The *Berwick Waterways PSP 9 Background Report* (Background Report).

1.1 How to read this document

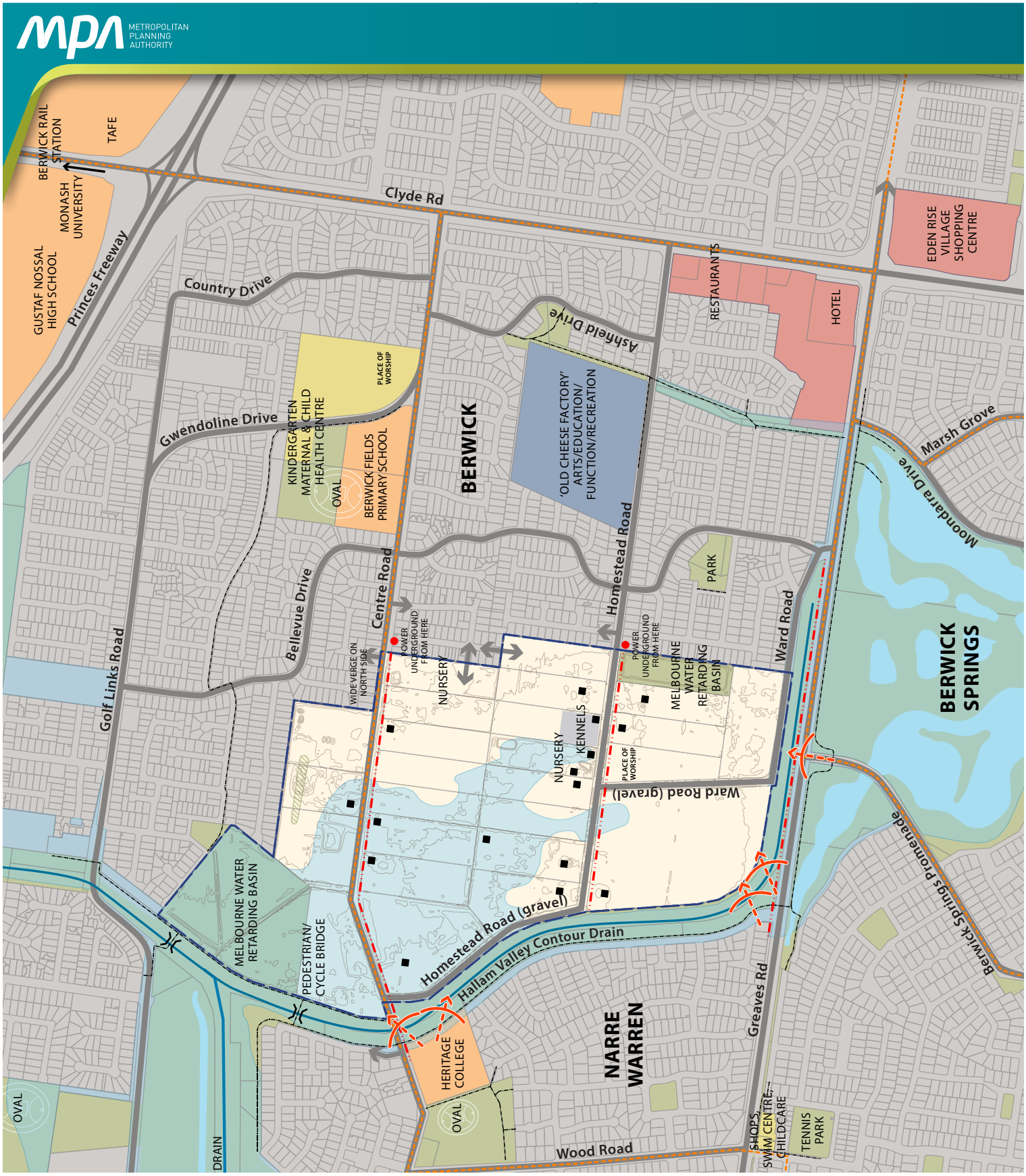
This Precinct Structure Plan (PSP) guides land use and development where a planning permit is required under the Urban Growth Zone (Clause 37.07 of the Casey Planning Scheme), or any other provision of the planning scheme that references this structure plan.

A planning application and a 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, guidelines and conditions 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 structure plan. A requirement may reference a plan, table or figure in the structure plan.

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.



- Precinct Structure Plan area
- Residential Area
- Existing Urban Area
- Existing Open Space
- Existing Dwelling
- Contours (1 metre)
- Education Facility
- Community Facility
- Mixed Use Employment/Commercial
- Retail Facility
- Land Subject to Inundation Overlay
- Main Route/Connector Street
- Bus Network
- Shared Trail (with bridge)
- Creek Line
- Above Ground Power Lines
- Significant views

plan 1_precinct location and site features

0 50 100 200 400m

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CONDITIONS must be included in a planning permit.

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

Development must also comply with other Acts and approvals where relevant e.g. the *Environment Protection and Biodiversity Conservation 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, development or subdivision is addressed in this structure plan. A responsible authority may manage development and issue permits as relevant under its general discretion.

1.2 Land to which this PSP applies

The Berwick Waterways PSP has strong links to the existing community in Berwick via its south-east roads, Centre Road, Homestead Road and Ward Road. It occupies an area of approximately 85.5 ha in the City of Casey. The Precinct extends from Melbourne Water retarding basin in the north to Greaves Road in the south; and to the west of Hallam Valley Contour drain. Berwick Waterways has a Net Developable Area (NDA) of approximately 60.54 hectares.

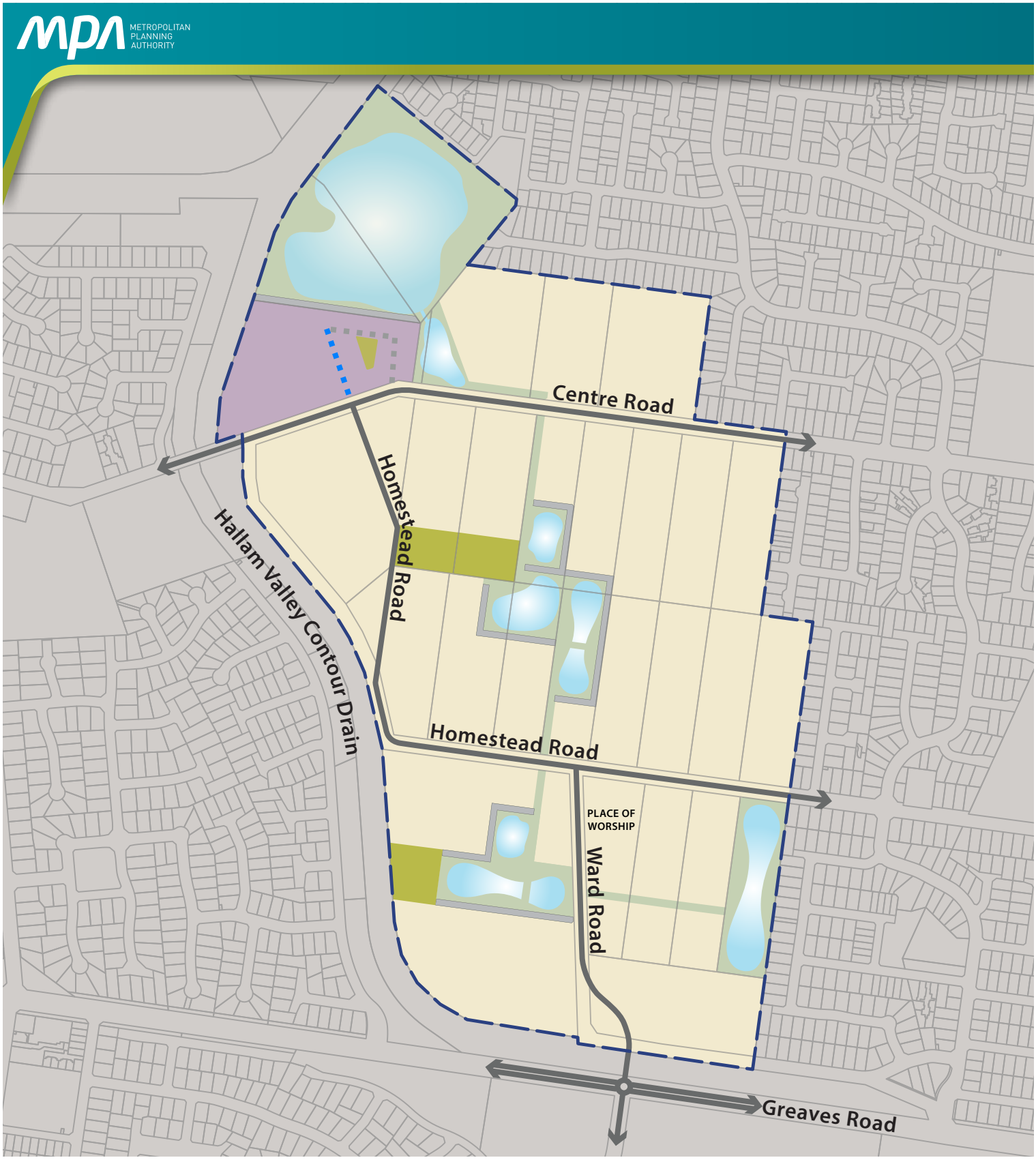
Plan 1 identifies the Precinct location and site features.

1.3 Development Contributions Plan

Development proponents within the Berwick Waterways Precinct will be bound by the *Berwick Waterways Development Contributions Plan* (the DCP). The DCP sets out requirements for infrastructure funding across the Precinct. Once complete, the DCP will be a separate document incorporated in the *Casey Planning Scheme*.

1.4 Background information

Detailed background information on the Precinct is available including its local and metropolitan context, history, biodiversity, landform and topography, open space and community facilities. This information is summarised in the Berwick Waterways PSP Background Report and has informed the preparation of the PSP.



Precinct Boundary
Residential Area
Existing Urban Area
Asset with built edge/urban edge
Retarding Basin/Wetland System
Local Park
Local Town Centre
Local Town Centre High Street
Local Access Street
Arterial Road
Connector Street

plan 2_future urban structure

Scale: 1:7,500 @ A4

0 50 100 200 400m

N

2.0 OUTCOMES

2.1 Vision

The Berwick Waterways Precinct will be a new residential community that will integrate with the existing residential neighbourhood. It will provide future residents with opportunities to live, work, shop and play locally. The Precinct will ultimately support a residential community of approximately 924 dwellings, a population of around 2,586 people, and deliver over 380 local jobs. The Precinct is centred on four distinct wetlands integrated with local parks.

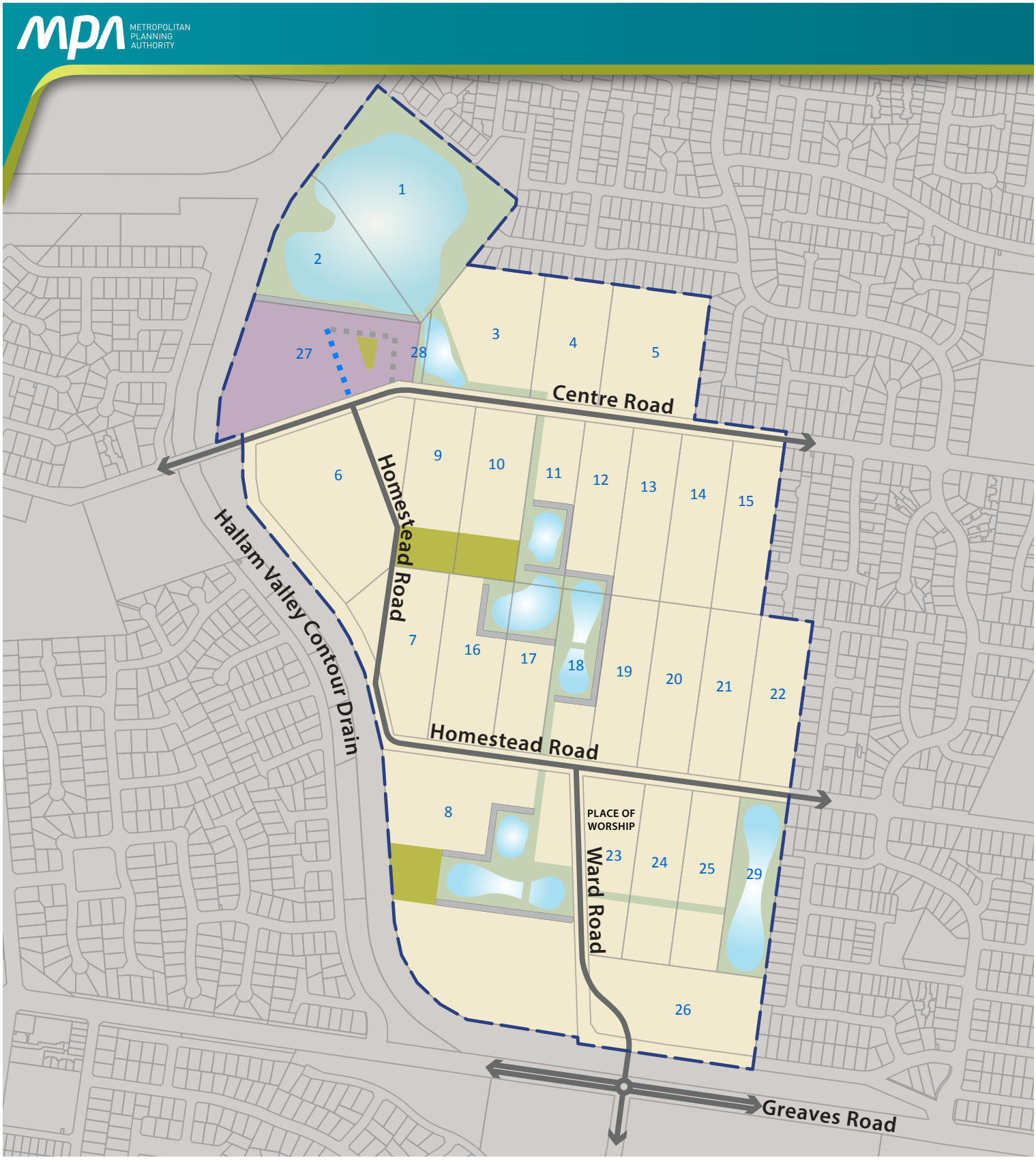
The northern wetland adjoins the Local Town Centre (LTC) has a urban edge treatment that acts as a transition between the urban form of the LTC and the 'natural' environment of the wetland. The LTC capitalises on opportunities for exposure and passing trade by providing a frontage off Centre Road and consists of retail services and specialty stores as well as apartment living. The town square is the key local park and is part of a series of local park destinations throughout the PSP area.

The wetland south of Centre Road will be the core of the community, with a major local park providing for existing and future residents with a range of leisure opportunities. Diversity in housing from apartment living to conventional housing will benefit from the amenity of the central wetland and provide housing choice. The third urban wetland will deliver visual amenity from Ward Road and a adjoining local park for the future local community.

The Precinct will build on the existing local road structure, linking to Centre and Homestead Roads and the wider Casey area. Centre Road is the main public transport link with an existing bus route and bike paths. The extension of Ward Road to Berwick Springs Promenade will provide both visual and transport links to Berwick Springs to the south. Hallam Valley Contour Drain on the southern edge of the Precinct in its ultimate configuration will deliver both key bicycle and pedestrian links to the wider existing community north and south of the Precinct.

2.2 Objectives

	OBJECTIVES
O1	To create a diversity of street and open space landscapes.
O2	To maximise tree canopy cover across the Precinct.
O3	To achieve an overall average precinct density of a minimum of 16 dwellings per net developable hectare (NDHa).
O4	To ensure medium and high density development is prioritised in locations proximate to high amenity and/or high activity areas.
O5	To promote housing choice through the delivery of a range of lot sizes capable of accommodating a variety of dwelling types.
O6	To encourage the provision of local convenience retail to meet needs generated within the Precinct, without compromising the functions and roles of surrounding existing and planned activity centres.
O7	To integrate local parks with drainage open space.
O8	To mitigate the environmental impacts of development.
O9	To provide direct and safe access to the surrounding road network.
O10	To integrate the protection of urban waterway health with the provision of water services.
O11	To ensure the location of essential services does not impede the growth of canopy trees or the functionality of public open space.
O12	Ensure pre-development property structures do not impede the realisation of cohesive and integrated neighbourhoods.
O13	Ensure that development staging is coordinated with the delivery of key local infrastructure.
O14	To manage the rollout of development with regard to the capacity of the Hallam Valley Contour Drain.



Precinct Boundary
Residential Area
Existing Urban Area
Retarding Basin/Wetland System
Asset with built edge/urban edge
Local Park
Local Town Centre
Local Town Centre High Street
Local Access Street
Arterial Road
Connector Street
8 Property Number

plan 3_land budget

Scale: 1:7,500 @ A4

0 50 100 200 400m

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2.3 Summary Land Budget

The area of Net Developable Area (NDA) is established by deducting the land requirements for major roads, servicing, community facilities and open space from the overall Precinct area. The estimated NDA for the Precinct is 57.72 hectares representing approximately 67.80% of the PSP area.

State Planning Policy currently aims to achieve a minimum of 15 dwellings per hectare of NDA. The PSP is expected to exceed the minimum dwelling density and yield delivering approximately 924 dwellings with an average density of 16 dwellings per hectare of NDA.

An average household size of 2.8 persons for conventional density housing (based on Victoria in Future 2012) is used to estimate the future population of the PSP area. On this basis the future population of the PSP is estimated to be approximately 2586 residents.

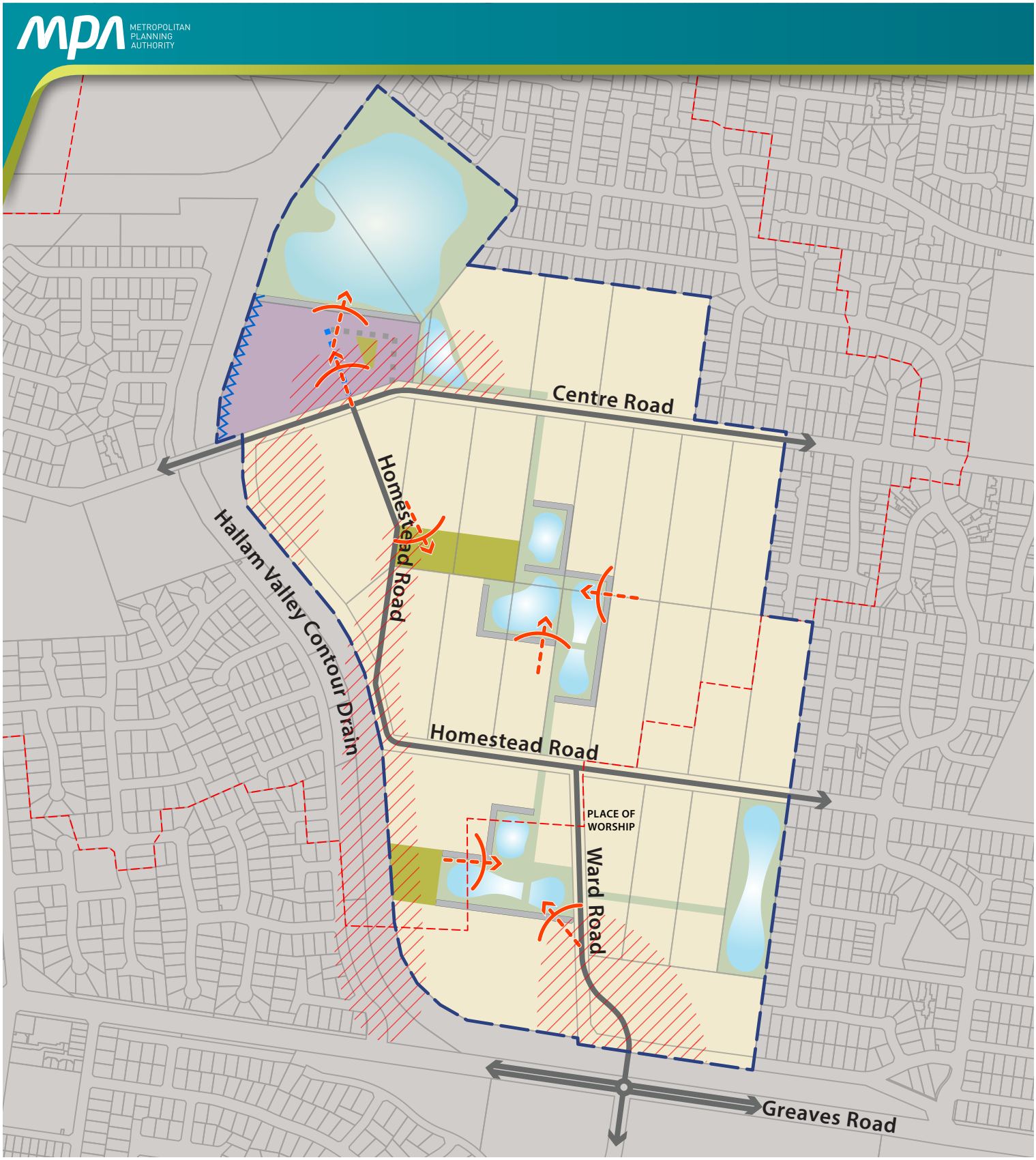
The table below sets out the land area and summary lot yield for various uses in the future urban structure.

Table 1 Summary Land Use Budget

DESCRIPTION	HECTARES	% OF TOTAL PRECINCT	% OF NDA
TOTAL PRECINCT AREA (ha)	**85.14**	**100%**	
TRANSPORT			
DCP Road widening projects	1.21	1.42%	2.09%
DCP Flaring for intersections	0.13	0.15%	0.23%
Existing Road Reserve	4.99	5.86%	8.65%
Sub-Total Transport	**6.33**	**7.44%**	**10.97%**
OPEN SPACE			
Existing Melbourne Water Retarding Basin / Hallam Valley levee	10.64	12.49%	18.43%
Proposed Waterway Corridor/Wetland / Retarding	8.12	9.54%	14.07%
P-01Local parks (passive open space)	2.33	2.7%	4.03%
Subtotal Open Space Available for Recreation	**21.09**	**24.8%**	**36.53%**
NET DEVELOPABLE AREA - RESIDENTIAL (NDA) HA	**57.72**	**67.80%**	

DESCRIPTION	HECTARES	% OF NDAR
Residential Local Open Space (expressed as % of NDAR)		
Local Parks (passive open space)	2.33	4.03%
Totals	**2.33**	**4.03%**

DESCRIPTION	NDA (HA)	DWELL / NDHA	DWELLINGS
RESIDENTIAL			
Totals Residential Yield Against NDA	**57.72**	**16**	**924**
Anticipated population @ 2.8 persons per dwelling			**2,586**



- Precinct Boundary
- Residential Area
- Existing Urban Area
- Retarding Basin/Wetland System
- Asset with built edge/urban edge
- Local Park
- Local Town Centre
- Local Town Centre High Street
- Local Access Street
- Core Walkable Catchment (800m walk, 10 minutes)
- View Lines
- Important Vista
- Development to positively address existing neighbourhood

plan 4_image and character

Scale: 1:7,500 @ A4

0 50 100 200 400m

N

3.0 IMPLEMENTATION

3.1 Image, character & housing

IMAGE AND CHARACTER

	REQUIREMENTS
R1	Street trees must be provided on both sides of all roads and streets (excluding laneways) as follows: **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)
R2	Trees (native, indigenous and exotic) in parks and streets must be: • Larger species wherever space allows. • Suitable for local conditions. • Planted in modified and improved soil as required to support tree longevity.
R3	A broad range of residential lot sizes must be provided across the Precinct.
R4	Lots must positively address: • Open space. • Connector roads. • Arterial roads.
R5	Tree planting and other landscaping must meet safety requirements for all road users, including adherence to clear zone guidelines and sight lines, to the satisfaction of the relevant road authority.

	GUIDELINES
G1	Street networks within subdivisions should be designed to maximise the number of connections and direct views to waterways, open space, and significant elements of the landscape and community life.
G2	Street trees should be used consistently across subdivisions and the wider Precinct to reinforce movement hierarchy and individual neighbourhood character.
G3	A consistent suite of lighting and furniture should be used across individual subdivisions and the wider Precinct, appropriate to the type and role of street or public space, to the satisfaction of the responsible authority.
G4	Residential subdivision stages should provide a broad range of lot sizes capable of accommodating a range of housing types as described in Table 2.
G5	Specialised housing forms such as retirement living or aged care should be: • Integrated into the wider urban structure. • Located in close proximity to town centres and community hubs. • Accessible by public transport.

	CONDITIONS
C1	**Conditions for subdivision permits that allow for the creation of a lot of less than 300 square metres.** Any permit for subdivision that allows the creation of a lot less than 300 square metres must contain the following conditions: • Prior to the certification of the plan of subdivision for the relevant stage, a plan must be submitted for approval to the satisfaction of the responsible authority. The plan must identify the lots that will include a restriction on title allowing the use of the provisions of the Small Lot Housing Code incorporated pursuant to Clause 81 of the Casey Planning Scheme. • The plan of subdivision submitted for certification must identify whether type A or type B of the Small Lot Housing Code applies to each lot to the satisfaction of the responsible authority.

Table 2 Lot Size and Housing Type Guide

The following table provides an indication of the typical range of lot sizes that support the delivery of a broad range of housing types.

HOUSING TYPES THAT MAY BE SUPPORTED	LOT SIZE CATEGORY (M^2)		
	less than $300m^2$	$301m^2$ to $600m^2$	more than $600m^2$
Small Lot Housing including townhouses and attached, semi-detached and detached houses	✓		
Dual occupancies, duplexes	✓	✓	✓
Detached houses		✓	✓
Multi-unit housing sites including terraces, row houses and villas		✓	✓
Stacked housing including apartments and walk up flats			✓

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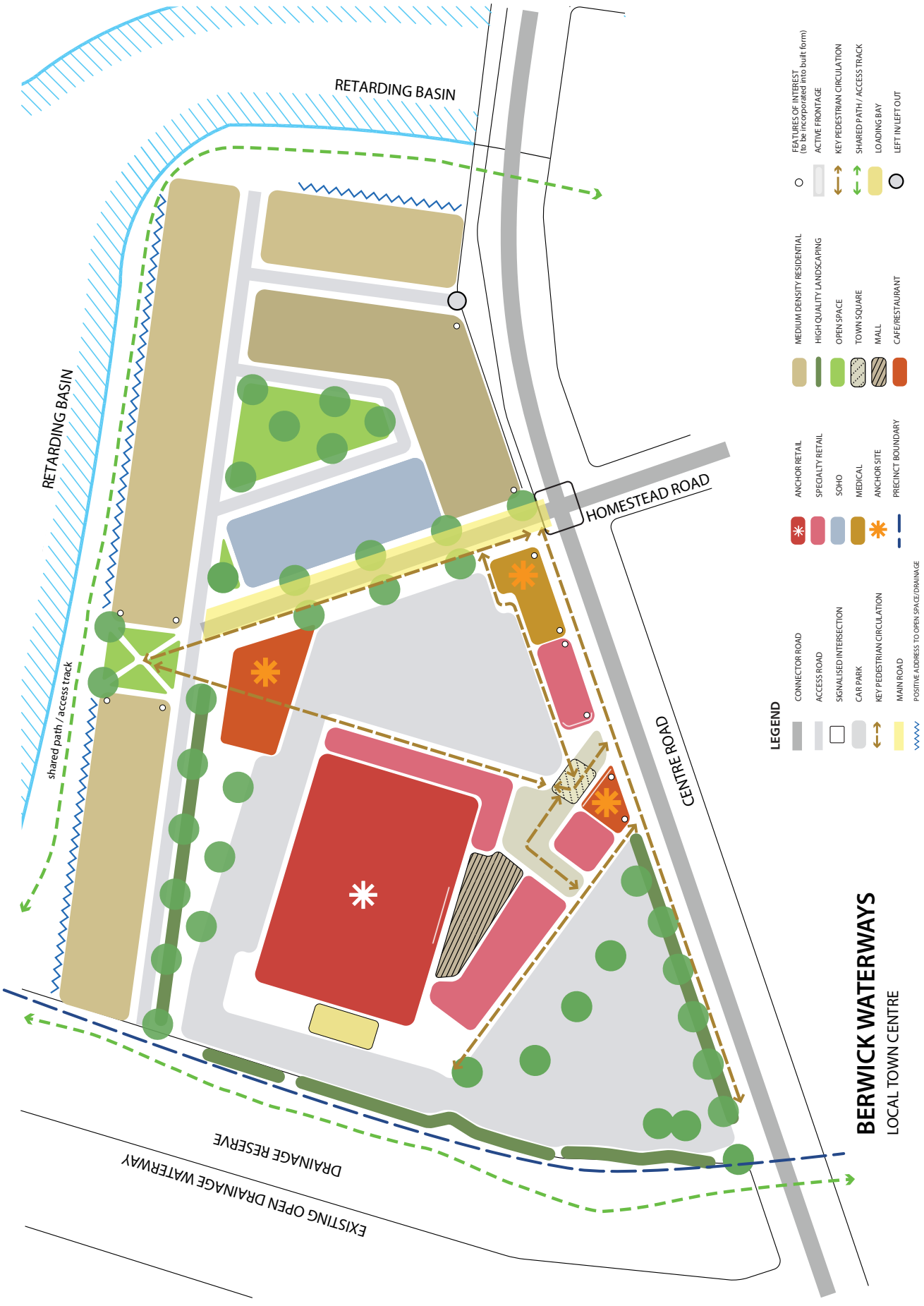
Figure 1 Local Town Centre Concept Plan



3.2 Town centres & employment

Table 3 Anticipated Employment Creation

TOWN CENTRE	ANTICIPATED RETAIL FLOOR SPACE	COMMERCIAL FLOOR SPACE	LOCATION AND ANCILLARY USES
Centre Road Local Town Centre	5,000 m2	1,000 m2	Centrally located off Centre Road to service residents in the PSP and the existing wider community

LAND USE	MEASURE	JOBS	QTY IN PSP	EST. JOBS
Local Town Centre (retail and commercial)	Jobs/centre	333	1	333
Home based business	Jobs/dwelling	0.05	1000	50
Total estimated				**383**

3.2.1 Town Centre

	LOCAL TOWN CENTRE REQUIREMENTS
R6	Subdivision, use and/or development in Local Town Centre must have regard to the design principles and performance criteria outlined in Appendix B, as appropriate.

	LOCAL TOWN CENTRE GUIDELINES
G6	The Local Town Centre should: • Provide for a mix of tenancies. • Locate any servicing infrastructure or car parking to the rear or centre of the allotment in a manner that protects the visual amenity of the Precinct.

- Precinct Boundary
- Residential Area
- Existing Urban Area
- Retarding Basin/Wetland System
- Asset with built edge/urban edge
- Existing Open Space
- Local Park
- Local Town Centre
- Arterial Road
- Connector Street
- Local Town Centre High Street
- Local Access Street
- Shared Trail
- Scattered Trees For Removal
- RB — Retarding Basin ID
- LP — Local Park ID
- Existing Shared Trail (with bridge)

Note: all land in the Precinct is within 400m walking distance of a planned or existing local park

plan 5_open space and natural systems

Scale: 1:7,500 @ A4

0 50 100 200 400m

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3.3 Open space & natural systems

Table 4 Open Space Delivery Guide

PARK ID	AREA (HA)	TYPE	LOCATION & OTHER ATTRIBUTES	RESPONSIBILITY
LP-01	0.20	As shown on Plan 5	Town Square/Urban Park	City of Casey
LP-02	1.5	As shown on Plan 5	District	City of Casey
LP-03	0.64	As shown on Plan 5	Neighbourhood	City of Casey

	REQUIREMENTS
R7	All public landscaped areas must be designed and constructed to enable practical maintenance and planted with species suitable to the local climate and soil conditions.
R8	Where a passive park shown on Plan 5 spans across multiple properties, the first development proponent to lodge a permit application must undertake a master plan for the entire park unless otherwise agreed by the responsible authority.
R9	All parks must be located, designed and developed in accordance with the relevant description in Table 4 unless otherwise approved by the responsible authority. The area of the park may vary so long as it remains inside the guidance for the relevant type of park. Where a park is smaller than that outlined in the table, the land must be added to another park or used to create a new park in addition to those outlined on Plan 5. Where a proposed park is larger than outlined in the table it may be accepted so long as it does not result in the removal of another park allocation.
R10	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. • Allow for a primary point of access from a footpath or shared path of a minimum width of 1.5 metres along the frontage of the lot.
R11	Design and layout of waterway corridors and any other encumbered open space must maximise the potential for integration of recreation uses where this does not conflict with the primary function of the land.
R12	Fencing of open space must be low scale and visually permeable to facilitate public safety and surveillance.
R13	For the purpose of Clause 56.06-7, the requirements of the relevant fire authority are, unless otherwise approved by the CFA: • Constructed roads must be a minimum of 7.3m trafficable width where cars park on both sides, or: » A minimum of 5.4m in trafficable width where cars may park on one side only. » A minimum of 3.5m width no parking and 0.5m clearance to structures on either side, and if this width applies, there must be passing bays of at least 20m long, 6m wide and located not more than 200m apart. • Roads must be constructed so that they are capable of accommodating a vehicle of 15 tonnes for the trafficable road width. • Constructed dead end roads more than 60 metres in length from the nearest intersection must have a turning circle with a minimum radius of 8m (including roll over curbs if they are provided).

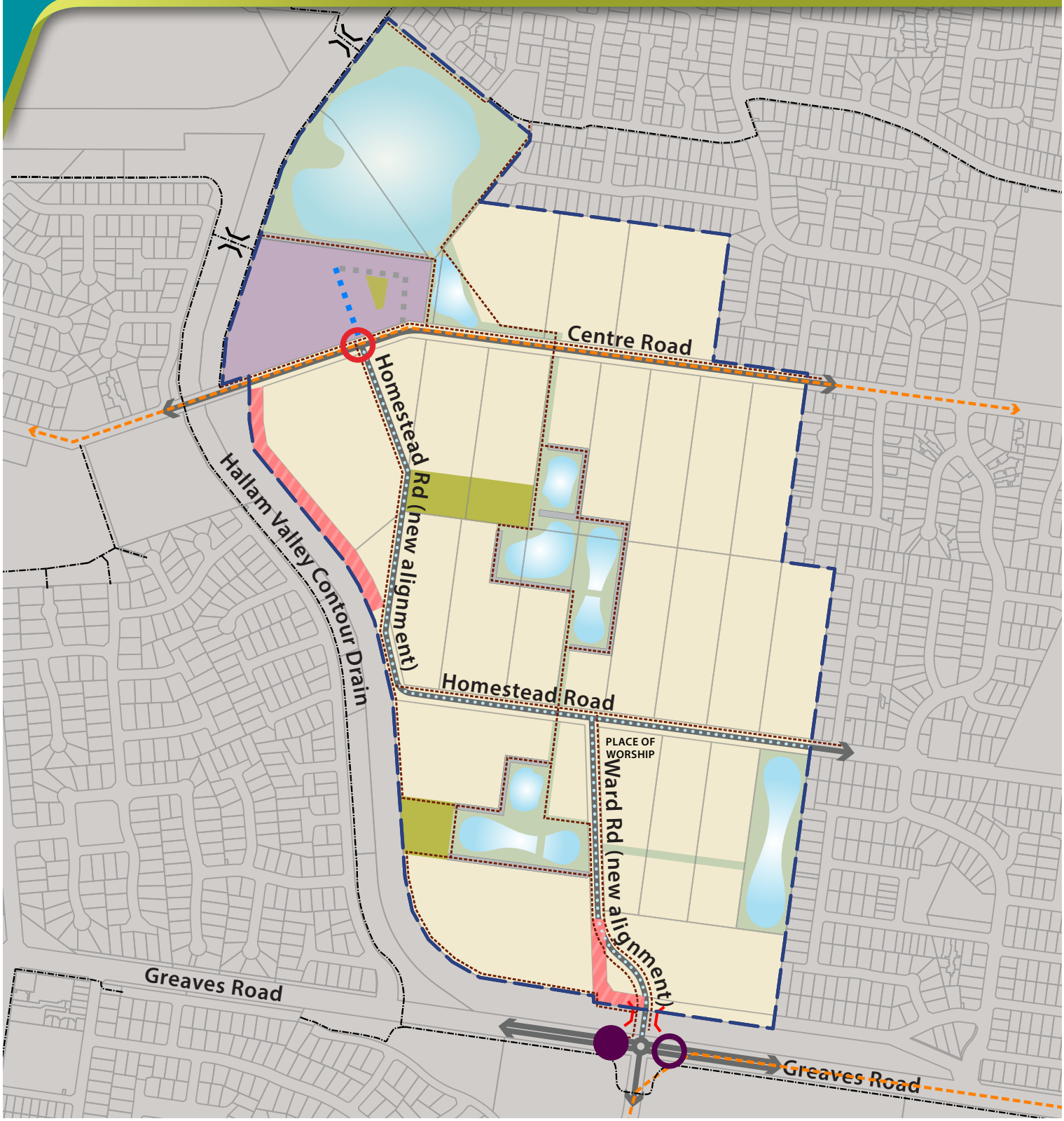
	OPEN SPACE GUIDELINES
G7	Lots directly fronting open space should provide for a primary point of access from a footpath or shared path proximate to the lot boundary.
G8	Subject to being compatible with Table 4 and Appendix D parks and open space should contain extensive tree planting.
G9	In addition to the pedestrian crossings shown on Plan 6, development proponents should provide waterway crossings at intervals no greater than 400 metres.
G10	A proponent delivering a master plan for a local passive park that traverses multiple property ownerships should consult with the landowners of parcels covered by the park to ensure an integrated design.

OPEN SPACE AND NATURAL SYSTEMS CONDITIONS	
C2	**Threatened Species** A permit for subdivision, or to construct a building or construct or carry out works must contain the following condition: • The Protocol for the *Salvage Translocation of Threatened Species in Melbourne's Growth Corridors* (Department of Environment and Primary Industries, 2012) must be implemented to the satisfaction of the Department of Environment and Primary Industries.

3.4 Transport & movement

	WALKING & CYCLING AND ROAD NETWORK REQUIREMENTS
R14	Shared and pedestrian paths along waterways must: • Be delivered by development proponents consistent with the network shown on Plan 6 • Be above 1:10 year flood level with any crossing of the waterway designed to maintain hydraulic function of the waterway. • Be constructed to a standard that satisfies the requirements of Melbourne Water. Shared paths identified on Plan 6 are to be constructed with a concrete surface. • Where a shared path is to be delivered on one side of a waterway as outlined in Plan 6, a path is also to be delivered on the other side of the waterway but may be constructed using crushed gravel or similar material. • On a construction or engineering plan approved under a subdivision permit, specification of any bicycle path on a connector road must also be to the satisfaction of Public Transport Victoria. All to the satisfaction of the Melbourne Water and the responsible authority.
R15	Bicycle parking facilities are to be provided by development proponents in convenient locations at key destinations such as parks and the town centre.
R16	The alignment of the off-road bicycle path must be designed for cyclists travelling up to 30 km/hr.
R17	Bicycle priority at intersections of minor 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.
R18	Subdivision layouts must form a permeable street network that provides convenient access to local open space and allows for the effective integration with neighbouring properties.
R19	Where a single street spans across multiple properties that street may consist of multiple cross sections so long as a suitable transition has been allowed for between each. Where that street has already been constructed or approved for construction to a property boundary, the onus is on the development connecting into that street to adopt a consistent cross-section until that suitable transition can be made.
R20	Streets must be constructed to property boundaries where an inter-parcel connection is intended or indicated in the structure plan, by any date or stage of development required or approved by the responsible authority.
R21	Where a parcel does not have access to the connector road or signalised access to the arterial road network, subdivision of neighbouring parcels must provide for a convenient connection via a local access level 2 street.
	PUBLIC TRANSPORT REQUIREMENTS
R22	A road nominated on Plan 6 as a potential bus route is to be constructed (including partial construction where relevant) in accordance with the corresponding cross section in the PSP and in accordance with the *Public Transport Guidelines for Land Use and Development*.
R23	Any roundabouts on roads shown as 'bus capable' on Plan 6 must be constructed to accommodate ultra-low-floor buses in accordance with the *Public Transport Guidelines for Land Use and Development*.
R24	Bus stop facilities must be designed as an integral part of town centres and activity generating land uses such as schools, sports fields and employment areas.

	WALKING, CYCLING ROAD NETWORK GUIDELINES
G11	Lighting should be installed along shared, pedestrian, and cycle paths linking key destinations, unless otherwise approved by the responsible authority.
G12	Street block lengths should not exceed 240 metres to ensure a permeable and low speed environment for pedestrians, cyclists and vehicles is achieved.
G13	Cul-de-sacs should not detract from convenient pedestrian and vehicular connections.



- Precinct Boundary
- Residential Area
- Existing Urban Area
- Retarding Basin/Wetland System
- Asset with built edge/urban edge
- Local Park
- Local Town Centre
- Local Town Centre High Street
- Local Access Street
- Signalised Intersection
- Existing Shared Trail (with bridge)
- Existing Bus Route
- Bus Capable Road
- Arterial Road
- Connector Street
- Road Closure
- Culvert Crossing
- Roundabout
- Pedestrian Signals
- Shared Trail

plan 6_transport and movement

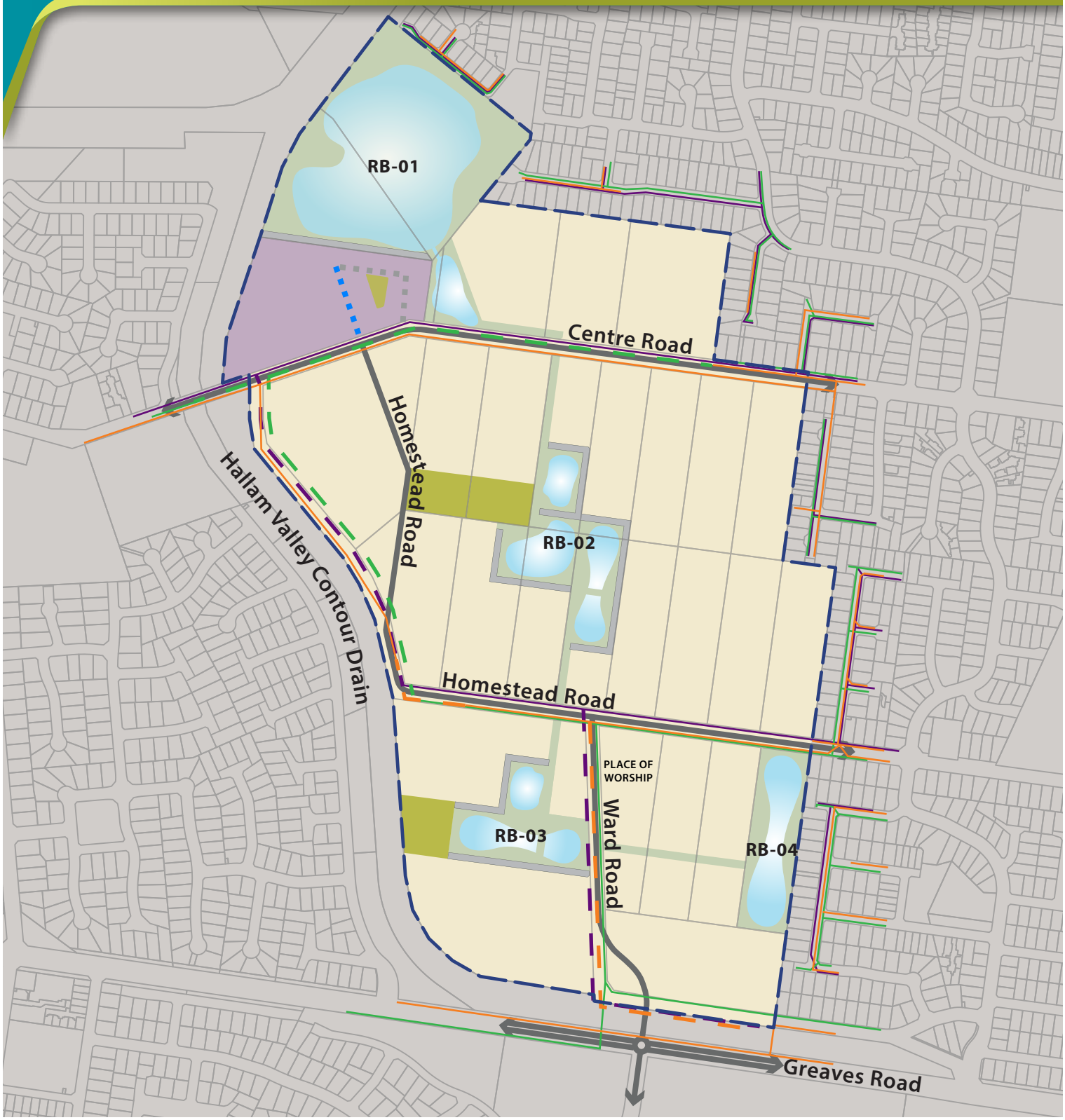
Scale: 1:7,500 @ A4

0 50 100 200 400m

N

G14	The frequency of vehicular crossovers on widened verges (a verge in excess of six metres) should be minimised through the use of a combination of: • Rear loaded lots with laneway access. • Vehicular access from the side of a lot. • Combined or grouped crossovers. • Increased lot widths.

ROAD NETWORK CONDITIONS	
C3	**Conditions for subdivision or building and works permits where land is required for road widening** Land required for road widening including right of way flaring for the ultimate design of any intersection within an existing or proposed local road must be transferred to or vested in Council at no cost to the acquiring agency unless funded by the *Berwick Waterways Development Contributions Plan*.



- Precinct Boundary
- Residential Area
- Existing Urban Area
- Retarding Basin/Wetland System
- Asset with built edge/urban edge
- Local Park
- Local Town Centre
- Local Town Centre High Street
- Local Access Street
- RB — Retarding Basin ID
- Arterial Road
- Connector Street
- Existing Telecommunication Service
- Proposed Telecommunication Service
- Existing Gas Main Service
- Proposed Gas Main Service
- Existing HV Electricity Service
- Proposed HV Electricity Service

plan 7_telecommunications, gas & electricity utilities

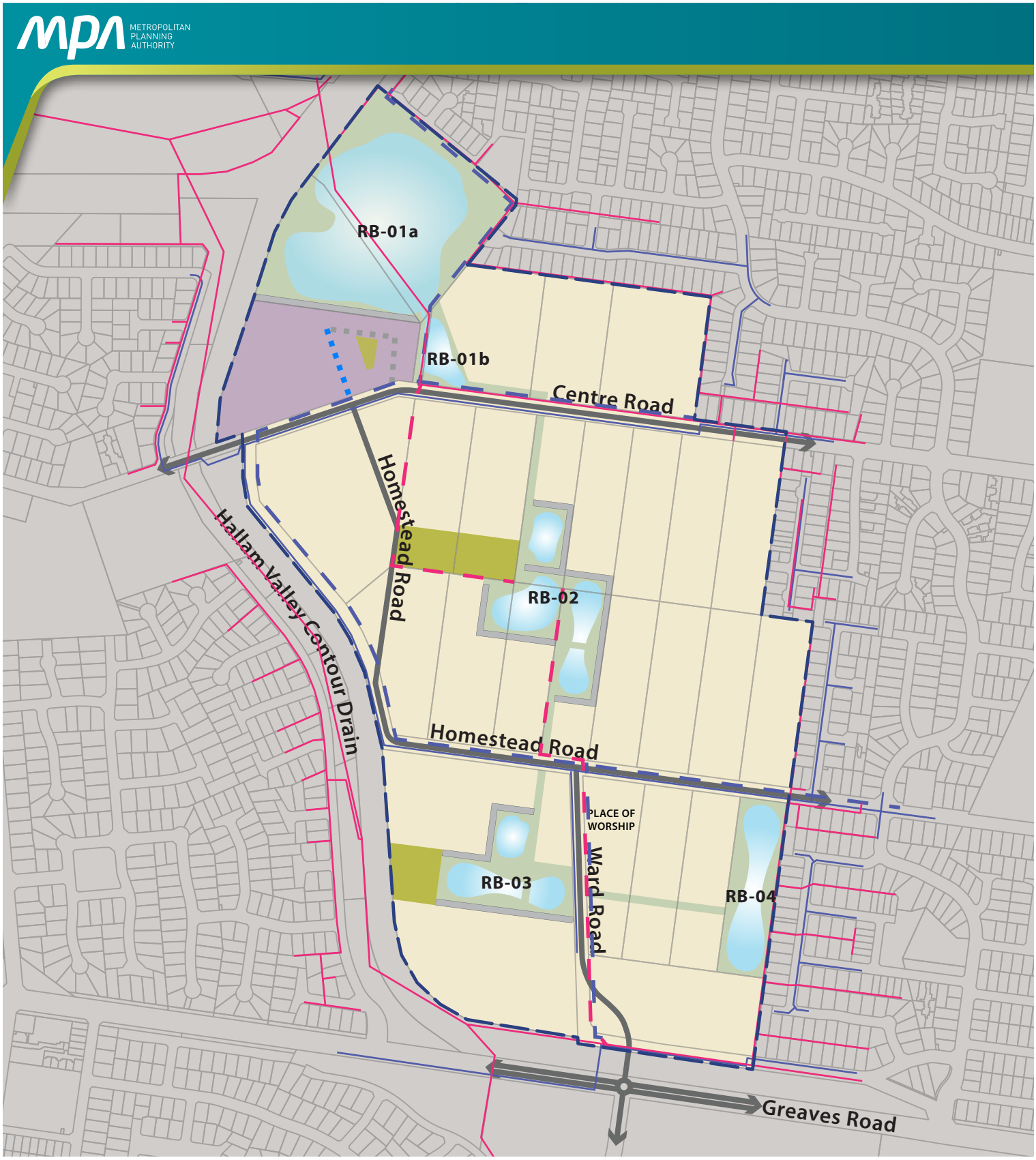
Scale: 1:7,500 @ A4

0 50 100 200 400m

N

3.5 Integrated water cycle management, flood protection, utilities & staging

	REQUIREMENTS
R25	All new lots are required to be filled to a minimum of 600mm above the 1 in 100 year flood level, or otherwise agreed by Melbourne Water and the responsible authority.
R26	Interim flood protection works must be constructed to enable the development of the Precinct. This is particularly so with respect to drainage works where development will not be permitted unless the required drainage and flood protection works as set out in Plan 8 and the accompanying cross sections are satisfied, to the satisfaction of Melbourne Water and the responsible authority.
R27	Consistent with Clause 56.01-2 and Clause 56.07 of the Casey Planning Scheme, VPP Practice Note 39, and any requirements or guidelines in this PSP, a subdivision application of 60 or more lots must include an Integrated Water Management Plan.
R28	Development must meet or exceed best practice stormwater quality treatment standards prior to discharge to receiving waterways as outlined on Plan 9, unless otherwise approved by Melbourne Water and the responsible authority.
R29	Final design and boundary 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.
R30	Stormwater conveyance, treatment and flood storage must be designed in accordance with the relevant Development Services Scheme, to the satisfaction of Melbourne Water and the responsible authority.
R31	A permit for subdivision must ensure that any contributions due, or monies that Melbourne Water require to secure the future provision of works, under a Development Services Scheme approved by Melbourne Water, must be paid to Melbourne Water prior to certification of the relevant plan of subdivision under the Subdivision Act 1988, or at another time as agreed by Melbourne Water.
R32	Delivery of underground services must be coordinated, located, and bundled (utilising common trenching).
R33	All new electricity supply infrastructure (excluding substations and cables of a voltage greater than 66kv) must be provided underground.
R34	Development is to commence first north of Centre Road. Thereafter the development front will commence in the south near Greaves Road and move progressively north to Centre Road. Alternative staging may be entertained provided the relevant flood mitigation requirements are met, to the satisfaction of Melbourne Water and the responsible authority.
R35	Development staging must provide for the delivery of ultimate (Phase 2) waterway and drainage infrastructure, including stormwater quality treatment and flood protection. Where this is not possible, development proposals must demonstrate how any interim solution adequately manages flood protection, flood conveyance and treats stormwater generated from the development and how this will enable delivery of an ultimate drainage solution, all to the satisfaction of Melbourne Water and the responsible authority.
R36	Development staging must provide for the timely provision and delivery of: • Connector streets and connector street bridges. • Street links between properties, constructed to the property boundary. • Connection of the on- and off-road pedestrian and bicycle network.



- Precinct Boundary
- Residential Area
- Existing Urban Area
- Retarding Basin/Wetland System
- Asset with built edge/urban edge
- Local Park
- Local Town Centre
- Local Town Centre High Street
- Local Access Street
- RB — Retarding Basin ID
- Arterial Road
- Connector Street
- Existing Water Main Service
- Proposed Water Main Service
- Existing Trunk Sewer Service
- Proposed Trunk Sewer Service

plan 7a_water main & sewer utilities

Scale: 1:7,500 @ A4

0 50 100 200 400m

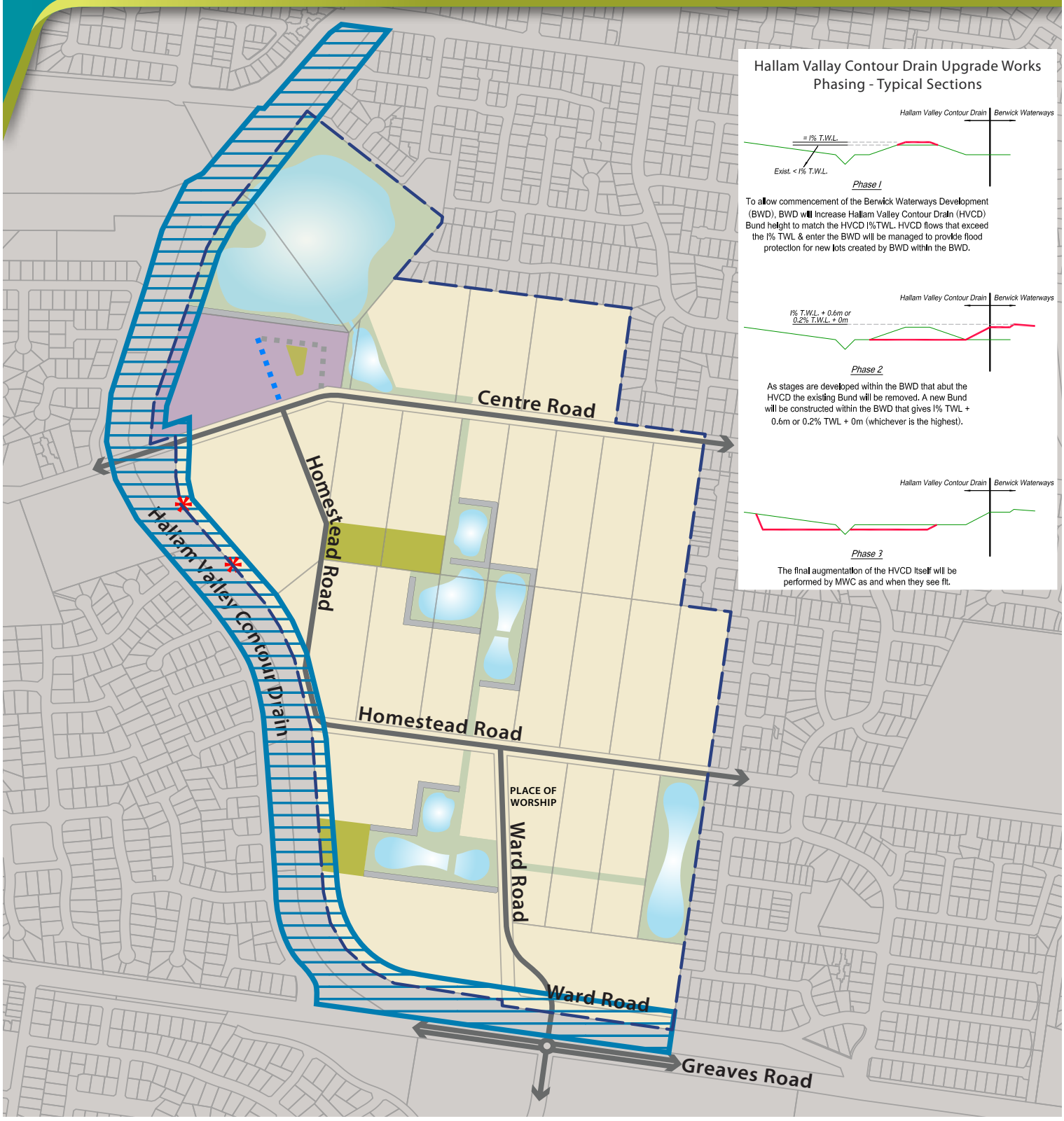
N

	GUIDELINES
G15	Streets should be the primary interface between development and the Hallam Valley Contour Drain, all wetlands and retarding basins. Public open space and lots with a direct frontage may be provided as a minor component of the waterway interface. Where lots with direct frontage are provided, they should be sufficiently set back from the waterway corridor, wetlands and retarding basins to allow for the provision of pedestrian and service vehicle access to the front of those lots, to the satisfaction of Melbourne Water and the responsible authority.
G16	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 WSUD initiatives.
G17	Development should include integrated water management initiatives to diversify water supply, reduce reliance on potable water and increase the utilisation of storm and waste water, contributing to a sustainable and green urban environment.
G18	Development should have regard to relevant policies and strategies being implemented by the responsible authority, Melbourne Water and South East Water, including any approved Integrated Water Management Plan.
G19	Where practical, integrated water management systems should be designed to: • Maximise habitat values for local flora and fauna species. • Enable future harvesting and/or treatment and re-use of stormwater
G20	Where the primary waterway or recreation functions are not adversely affected, land required for integrated water management initiatives (such as stormwater harvesting) should be incorporated within the precinct open space system, or adjacent to open space, as depicted on Plan 5, subject to the agreement of the relevant landowner and the responsible authority.
G21	Electricity substations and sewer pump stations should be located outside of key view lines and screened with vegetation.
G22	Existing above ground 66kv electricity cables should be removed and placed underground as part of the upgrade of existing roads.
G23	Design and placement of underground services in new or upgraded streets should utilise the service placement guidelines outlined in Appendix 4.5.
G24	Staging will be determined largely by the development proposals on land within the precinct and the availability of infrastructure services. Within this context, the following should be achieved: • Development staging should not create circumstances in which residents will be unreasonably isolated from community facilities. • Development staging should, to the extent practicable, be integrated with adjoining developments, including the timely provision of connecting roads and walking/cycling paths. • Access to each new lot must be via a sealed road.
G25	The early delivery of active open space, community facilities, local parks and playgrounds is encouraged within each neighbourhood and may be delivered in stages.

Table 5 Wetlands and Retarding Basins

ID	LOCATION	AREAS (HA) & OR CORRIDOR WIDTHS	RESPONSIBILITY
RB-01a	North of Centre Road	8.49	MWC
RB-01b	North of Centre Road	0.87	MWC
RB-02	South of Centre Road	2.02	MWC
RB-03	West of Ward Road	2.46	MWC
RB-04	East of Ward Road	2.02	MWC

MWC= Melbourne Water Corporation



Hallam Valley Contour Drain Upgrade Works Phasing - Typical Sections

Phase 1

To allow commencement of the Berwick Waterways Development (BWD), BWD will increase Hallam Valley Contour Drain (HVCD) Bund height to match the HVCD 1%TWL. HVCD flows that exceed the 1% TWL & enter the BWD will be managed to provide flood protection for new lots created by BWD within the BWD.

Phase 2

As stages are developed within the BWD that abut the HVCD the existing Bund will be removed. A new Bund will be constructed within the BWD that gives 1% TWL + 0.6m or 0.2% TWL + 0m (whichever is the highest).

Phase 3

The final augmentation of the HVCD itself will be performed by MWC as and when they see fit.

- Precinct Boundary
- Residential Area
- Existing Urban Area
- Retarding Basin/Wetland System
- Asset with built edge/urban edge
- Local Park
- Local Town Centre
- Arterial Road
- Connector Street
- Local Town Centre High Street
- Local Access Street
- Hallam Valley Contour Drain Upgrade Works
- * Interim Critical Works on Levee Location

plan 8_Hallam Valley contour drain works

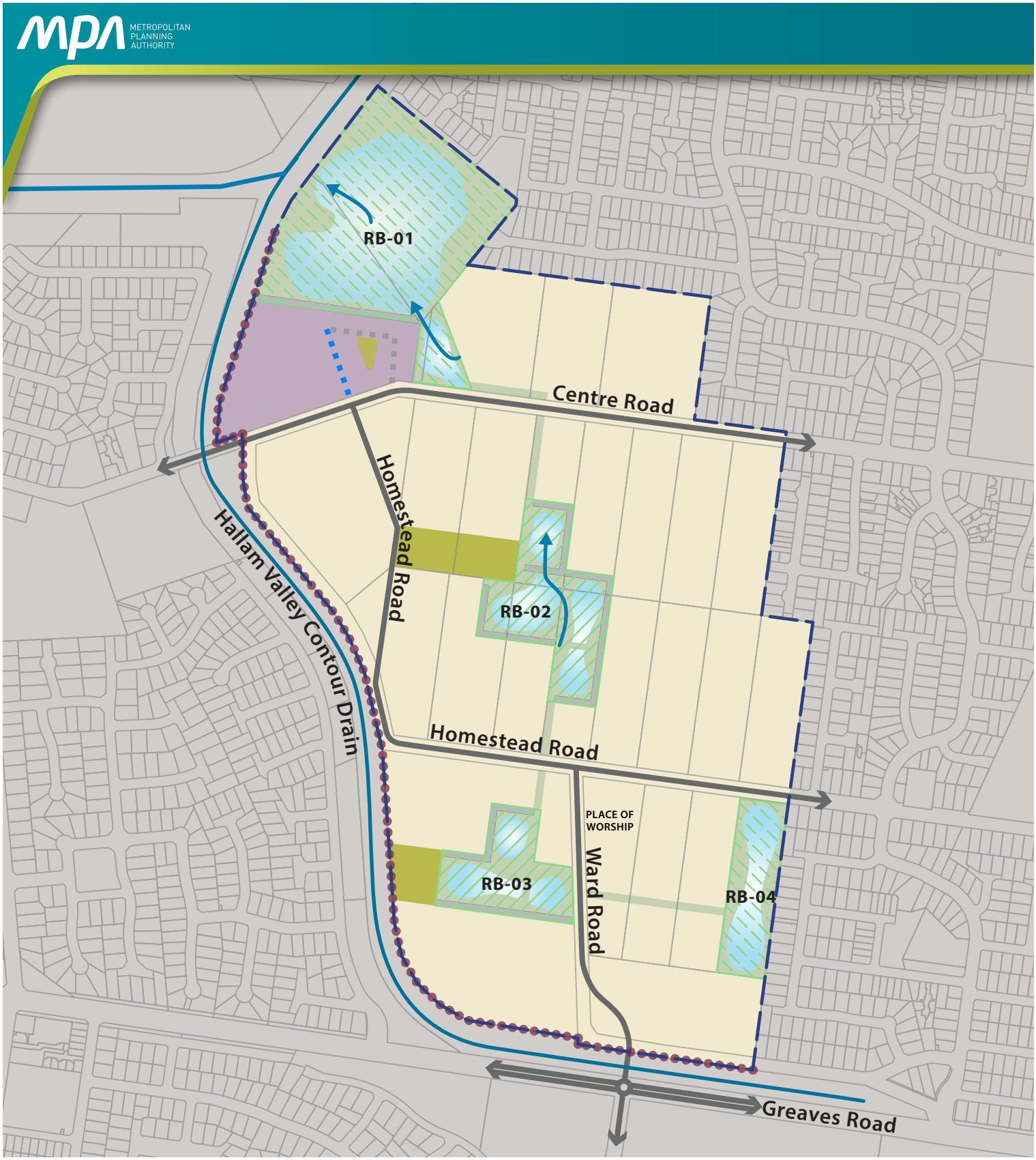
3.6 Precinct Infrastructure Plan & subdivision works

3.6.1 Precinct Infrastructure Plan

Refer to the Berwick Waterways DCP.

3.6.2 Subdivision Works

	SUBDIVISION WORKS REQUIREMENTS
R37	Subdivision of land within the Precinct must provide and meet the total cost of delivering the following infrastructure: • Connector roads and local streets. • Local bus stop infrastructure (where locations have been agreed in writing by Public Transport Victoria). • 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 DCP). • Council approved fencing and landscaping (where required) along arterial roads. • 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 those included in the DCP). • Bicycle parking as required in this document. • Appropriately scaled lighting along all roads, major shared and pedestrian paths, and traversing public open space. • Basic improvements to local parks and open space (refer open space delivery below). • Local drainage system. • Local street or pedestrian path crossings of waterways unless included in the DCP or outlined as 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. • Removal underground of existing above ground electricity lines along Centre Road and Homestead Road.
R38	**OPEN SPACE DELIVERY** All public open space (where not otherwise provided via the DCP) must be finished to a standard that satisfies the requirements of the responsible authority prior to the transfer of the public open space, including: • Removal of all existing and disused structures, foundations, pipelines, and stockpiles. • Clearing of rubbish and weeds, levelled, topsoiled and grassed with warm climate grass (unless conservation reserve requirements dictate otherwise). • Provision of water tapping, potable and recycled water connection points. Sewer and gas connection points must also be provided to land identified as an active reserve. • Planting of trees and shrubs. • Provision of vehicular exclusion devices (fence, bollards, or other suitable method) and • Maintenance access points. • Installation of park furniture including barbeques, shelters, furniture, rubbish bins, local scale playground equipment, local scale play areas, and appropriate paving to support these facilities, consistent with the type of public open space listed in the open space delivery guide (Table 4).
R39	Removal underground of existing above ground electricity lines along Centre Road and Homestead Road.



Precinct Boundary
Residential Area
Existing Urban Area
RB Retarding Basin with ID (existing)
RB Retarding Basin with ID (encumbered)
Local Park
Local Town Centre
Arterial Road
Connector Street
Contour Drain
Local Town Centre High Street
Local Access Street
Levee Bank to 1:100
Flood Water Flow

plan 9_Flood protection & integrated water cycle management

Scale: 1:7,500 @ A4

0 50 100 200 400m

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4.0 APPENDICES

APPENDIX A
PROPERTY SPECIFIC LAND BUDGET

PSP PROPERTY ID	TOTAL AREA (M2)	TOTAL AREA (HECTARES)	TRANSPORT			OTHER OPEN SPACE AVAILABLE FOR RECREATION		LOCAL PARKS AVAILABLE FOR RECREATION	TOTAL NET DEVELOPABLE AREA (HECTARES)
			DCP ROAD WIDENING PROJECTS	EXISTING ROAD RESERVE	DCP FLARING FOR INTERSECTIONS	EXISTING MELBOURNE WATER RETARDING BASIN / HALLAM VALLEY LEVEE	PROPOSED WATERWAY CORRIDOR/ WETLAND / RETARDING	P-01 LOCAL PARKS (PASSIVE AND OPEN SPACE)	
1	55898	5.59	0.000		0.000	5.59			0.00
2	29003	2.90	0.000		0.000	2.90			0.00
3	30007	3.00	0.000		0.000		0.72		2.28
4	20009	2.00	0.000		0.000		0.03		1.97
5	28481	2.85	0.000		0.000				2.85
6	48664	4.87	0.629		0.017				4.22
7	25858	2.59	0.297		0.000				2.29
8	105587	10.56	0.000		0.000		2.46	0.64	7.46
9	24604	2.46	0.000		0.000			0.75	1.72
10	24628	2.46	0.000		0.000			0.75	1.72
11	19476	1.95	0.000		0.000		1.13		0.82
12	19480	1.95	0.000		0.000		0.22		1.73
13	19483	1.95	0.000		0.000				1.95
14	20609	2.06	0.000		0.000				2.06
15	20,624	2.06	0.000		0.000				2.06
16	25,683	2.57	0.000		0.000		0.43		2.14
17	19,243	1.92	0.000		0.000		0.68		1.24
18	19,239	1.92	0.000		0.000		1.40		0.52
19	19,233	1.92	0.000		0.000				1.92
20	20,405	2.04	0.000		0.000				2.04
21	20,409	2.04	0.000		0.000				2.04
22	20,443	2.04	0.000		0.000				2.04
23	20,005	2.00	0.000		0.000		0.08		1.92
24	20,000	2.00	0.000		0.000		0.09		1.91
25	20,000	2.00	0.000		0.000		0.89		1.11
26	31,615	3.16	0.282		0.000				2.88
27	40,919	4.09	0.000		0.113			0.20	3.78
28	1,446	0.1446	0.000		0.000	0.1457			0.00
29	20,000	2.00	0.000		0.000	2.00			0.00
SUB-TOTAL	**791051**	**79.11**	**1.21**	**0.00**	**0.13**	**10.64**	**8.12**	**2.33**	**56.68**
ROAD RESERVE									
Centre Rd	20590	2.06		2.06					0.00
Ward Rd	13610	1.36		1.08					0.28
Homestead Rd	26118	2.61		1.85					0.76
SUB-TOTAL	**60318**	**6.03**	**0.00**	**4.99**	**0.00**	**0.00**	**0.00**	**0.00**	**1.04**
TOTAL PRECINCT		85.14	1.21	4.99	0.13	10.64	8.12	2.33	57.72

APPENDIX B
TOWN CENTRE DESIGN PRINCIPLES

LOCAL TOWN CENTRES

Principle 1 Provide every neighbourhood with a viable Local Town Centre as a focus of the community with a fine grain, closely spaced distribution pattern.	• Deliver a fine grain distribution pattern of highly accessible Local Town Centres generally on a scale of one Local Town Centre for every neighbourhood of 8,000 to 10,000 people. • Locate Local Town Centres with a distribution pattern of around one Local Town Centre for every square mile (2.58km2) of residential development. • Deliver a network of economically viable Local Town Centres including a supermarket and supporting competitive local shopping business, medical, leisure, recreation and community needs while allowing opportunities for local specialisation.
Principle 2 Locate Local Town Centres on a connector street intersection with access to an arterial road and transit stop.	• Locate the Local Town Centre on an arterial/connector intersection and ensure that the Local Town Centre is central to the residential catchment that it services while optimising opportunities for passing trade. • Locate the Local Town Centre with future railway stations or other forms of transit stops to benefit the Local Town Centre and to offer convenience for public transport passengers. • Other Local Town Centre locations may be considered where the location results in the Local Town Centre being central to the residential catchment that it serves and/or the location incorporates natural or cultural landscape features such as rivers and creeks, tree rows, topographic features or other heritage structures which assist in creating a sense of place.
Principle 3 Locate Local Town Centres in an attractive setting so that most people live within a walkable catchment of a Local Town Centre and relate to the centre as the focus of the neighbourhood.	• Ensure that 80-90% of households are within a 1km walkable catchment of a local or higher order Town Centre. • Locate Local Town Centres in attractive settings and incorporate natural or cultural landscape features such creeks and waterways, linear open space, pedestrian and cycle links and areas of high aesthetic value. • The design of the Local Town Centre should respect existing views and vistas to and from the Local Town Centre location.
Principle 4 Provide a full range of local community and other facilities including a supermarket, shops, medical and recreation uses.	• Land uses should be located generally in accordance with the locations and general land use terms identified on the Local Town Centre Concept Plan. • The design of the Local Town Centre should facilitate development with a high degree of community interaction and provide a vibrant and viable mix of retail, recreation and community facilities. • The creation of land use precincts within the centre is encouraged to facilitate the clustering of uses. For example a 'medical precinct' where similar or synergistic uses should be sited together to promote stronger trading patterns. • The design of the Local Town Centre should also encourage a pattern of smaller scale individual tenancies and land ownership patterns within the Local Town Centre to attract investment and encourage greater diversity and opportunities for local business investment. • The Local Town Centre should generally be anchored by one full line supermarket and supported by specialty stores unless otherwise noted on the Local Town Centre Concept Plan. • Supermarkets and other commercial or community anchors or secondary anchors within the Local Town Centre should be located diagonally opposite one another across the main street and/or town square to promote desire lines that maximise pedestrian movement within the public realm. • A small access mall that address a supermarket/other 'large box uses' may be considered as part of the overall design. Such access malls may have a limited number of internalised shops. The primary access to the mall should be from the main street and/or the town square. • Active building frontages should address the main street and town square to maximise exposure to passing trade, and promote pedestrian interaction.

Principle 4 (continued)	• Shopfronts should have varying widths and floor space areas to promote a diversity of trading opportunities throughout the Local Town Centre. • Flexible floor spaces (including floor to ceiling heights) should be incorporated into building design to enable localised commercial uses to locate amongst the activity of the Local Town Centre. • Mixed Use precincts should provide retail and/or office at ground level, and office, commercial and residential above ground level. • Childcare, medical centres and specialised accommodation (e.g. aged care/nursing home, student accommodation, and serviced apartments) should be located within the Local Town Centre and at the edge of the Local Town Centre to contribute to the activity of the centre and so these uses are close to the services offered by the centre. • Car parking areas should be located centrally to the site and to the rear and or side of street based retail frontages. • Car parking areas should be designed to accommodate flexible uses and allow for long term development opportunities. • Public toilets should be provided in locations which are safe and accessible and within the managed area of the property.
Principle 5 Focus on a public space as the centre of community life.	• A public space which acts as the central meeting place within the Local Town Centre must be provided. This public space may take the form of a town square, town park, public plaza space, public market place or a similar locally responsive option. • The public space should be located in a position where the key uses of the Local Town Centre are directly focuses on this public space to ensure that it is a dynamic and activated space. • The public space should be designed to function as the identifiable 'centre' or 'heart' with a distinctive local character for both the Local Town Centre and the broader residential catchment. • The public space should be designed as a flexible and adaptable space so that a range of uses can occur within this space at any one time. Such uses may include people accessing their daily shopping and business needs as well as providing a space where social interaction, relaxation, celebrations and temporary uses (such as stalls, exhibitions and markets) can occur. • The public space should be well integrated with pedestrian and cycle links around and through the Local Town Centre so that the public space acts as a 'gateway' to the activity of the centre. • The main public space or town square within the Local Town Centre should have a minimum area of 500m^2. Smaller public spaces which are integrated within the built form design, are surrounded by active frontages and facilitate high levels of pedestrian movement are also encouraged. • Footpath widths within and around the public space as well as along the main street should be sufficient to provide for pedestrian and mobility access as well as provide for outdoor dining and smaller gathering spaces.
Principle 6 Integrate local employment and service opportunities in a business friendly environment.	• A variety of employment and business opportunities should be planned through the provision of a broad mix of land uses and commercial activities. • A range of options and locations for office based businesses should be provided within the Local Town Centre. • Services and facilities to support home based and smaller businesses are encouraged within the Local Town Centre. • Appropriate locations for small office/home office ('SOHO') housing options which maximise the access and exposure to the activity of the Local Town Centre should be considered as part of the design process.

Principle 7 Include a range of medium and high density housing and other forms of residential uses within and surrounding the Local Town Centre.	• Medium and high density housing in and around the Local Town Centre is required to provide passive surveillance, contribute to the life of the centre and to maximise the amenity of the centre. • Medium and high density housing should establish in locations of high amenity around the Local Town Centre and be connected to the activity of the Local Town Centre through strong pedestrian and cycle links. • A range of housing types for a cross section of the community (such as retirement living) should be included in and around the Local Town Centre. • Specialised accommodation (such as aged/nursing care, student accommodation and serviced apartments) is encouraged at the edge of Local Town Centres with strong pedestrian and cycle links to the central activity area of the Town Centre. • The Local Town Centre design should avoid potential land use conflicts between residential and commercial uses by focusing on retail operations on the main street and around the town square and locating residential uses predominantly at the edge of the Local Town Centre and/or on upper levels. • Refer to the Small Lot Housing Code for further information about housing requirements for small lots around Local Town Centres.
Principle 8 Design the Local Town Centre to be pedestrian friendly and accessible by all modes including public transport, while enabling private vehicle access.	• The Local Town Centre should be easily, directly and safely accessible for pedestrians, cyclists, public transport modes, private vehicles, service and delivery vehicles with priority given to pedestrian movement, amenity, convenience and safety. • The Local Town Centre should provide a permeable network of streets, walkways and public spaces that provide linkages throughout the centre and designated pedestrian crossing points. • The main street should be designed to comply with the relevant cross sections found within the Precinct Structure Plan. • A speed environment of 40km/h or less should be designed for the length of the main street. • Public transport infrastructure/facilities should be planned for commuter friendly/convenient locations within the Local Town Centre. • Bus stops should be provided in accordance with the Department of Transport Public Transport Guidelines for Land Use and Development, to the satisfaction of the Department of Transport. • Bicycle parking should be provided within the street network and public spaces in highly visible locations and close to pedestrian desire lines and key destinations. • Supermarket and other 'large format' buildings should not impede on the movement of people around the Local Town Centre. • Key buildings within the Local Town Centre should be located to encourage pedestrian movement along the length of the street through public spaces. • The design of buildings within the Local Town Centre should have a relationship with and should interface to the public street network. • Car parking areas should be designated to ensure passive surveillance and public safety through adequate positioning and lighting. • Car parking areas should be designed to provide dedicated pedestrian routes and areas of landscaping. • On street car parking should be provided either as parallel or angle parking to encourage short stay parking. • Car parking ingress and egress crossovers should be grouped and limited. • Car parking ingress or egress and car parking areas accommodating heavy vehicle movements should be designed to limit the pedestrian/vehicle conflict. • Heavy vehicle movements (i.e. loading and deliveries) should be located to the rear and or side of street based retail frontages • Streets, public spaces and car parks should be well lit to Australian standards and with pedestrian friendly (generally white) light. Lighting should be designed to avoid unnecessary spill to the side or above. • All public spaces should respond appropriately to the design for mobility access principles.

Principle 9 Create a sense of place with high quality engaging urban design.	• Development should complement and enhance the character of the surrounding area by responding appropriately to key visual cues associated with the topography of the Local Town Centre location and its surrounds. • The Local Town Centre design should seek to minimise amenity and noise impacts resulting from the mix of uses by maintaining separation and transitional areas between retail and housing activities, such as open space, road networks and community facilities. • The design of each building should contribute to a cohesive and legible character for the Local Town Centre as a whole. • Sites in prominent locations (such as at key intersections, surrounding public spaces and terminating key view lines and vistas) should be identified for significant buildings or landmark structures. • The design of building frontages should incorporate the use of a consistent covered walkway or verandah to provide for weather protection. • The built form should define the main street and be aligned with the property boundary. • Street facades and all visible side or rear facades should be visually rich, interesting and well articulated and be finished in suitable materials and colours that contribute to the character of the Local Town Centre. • Corner sites, where the main street meets an intersecting and/or arterial road should: » Be designed to provide built form that anchors the main street to the intersecting road. This can be achieved through increased building height, scale and articulated frontages; » Incorporate either 2 storey building or 2 storey elements (such as awnings and roof lines); » Be developed to have a ground floor active frontage and active floor space component to the main street frontage; and » Not be developed for standard single storey fast food outcomes. • Materials and design elements should be compatible with the environment and landscape character of the broader precinct. • The supermarket and secondary anchors should have frontages that directly address the main street and/or town square so that the use integrates with and promotes activity within the main street and public spaces/thoroughfares. • Supermarkets or large format retail uses with a frontage to the main street should use clear glazing to allow view lines into the store from the street. (Planning permits for buildings and works should condition against the use of white washed windows, excessive window advertising and obtrusive internal shelving or 'false walls' offset from the glazing). • Secondary access to the supermarket from car parking areas should be considered where it facilitates convenient trolley access and does not diminish the role of the primary access from the main street and or town square. • The design and siting of supermarkets and other 'large format retail uses' should provide an appropriate response to the entire public domain. This includes but is not limited to car parking areas, predominantly routes and streets. • Retail uses along street frontages should generally include access points at regular intervals to encourage activity along the length of the street. • Retail and commercial buildings within the Local Town Centre should generally be built to the property line. • Public spaces should be oriented to capture north sun and protect from prevailing winds and weather. • Landscaping of all interface areas should be of a high standard as an important element to complement the built form design. • Urban art should be incorporated into the design of the public realm. • Street furniture should be located in areas that are highly visible and close to or adjoining pedestrian desire lines/gathering spaces and designed to add visual interest to the Local Town Centre.

Principle 9 (continued)	• Wrapping of car parking edges with built form, to improve street interface, should be maximised. • Car parking areas should provide for appropriate landscaping with planting of canopy trees and dedicated pedestrian thoroughfares. • Screening of centralised waste collection points should minimise amenity impacts with adjoining areas and users of the centre. • Where service areas are accessible from car parks, they should present a well designed and secure facade to public areas. • Mechanical plant and service structure roofs should be included within roof lines or otherwise hidden from view.
Principle 10 Promote localisation, sustainability and adaptability.	• The Local Town Centre should promote the localisation of services which will contribute to a reduction of travel distance to access local services and less dependence on the car. • The Local Town Centre should be designed to be sympathetic to its natural surrounds by: » Investigating the use of energy efficient design and construction methods for all buildings; » Including Water Sensitive Urban Design principles such as integrated stormwater retention and reuse (e.g. toilet flushing and landscape irrigation); » Promoting safe and direct accessibility and mobility within and to and from the Local Town Centre; » Including options for shade and shelter through a combination of landscape and built form treatments; » Ensuring buildings are naturally ventilated to reduce the reliance on plant equipment for heating and cooling; » Promoting passive solar orientation in the configuration and distribution of built form and public spaces; » Grouping waste collection points to maximise opportunities for recycling and reuse; » Promoting solar energy for water and space heating, electricity generation and internal and external lighting; and » Investigating other opportunities for the built form to reduce greenhouse gas emissions associated with the occupation and the ongoing use of buildings. • Encourage building design which can be adapted to accommodate a variety of uses over time. • Ensure the Local Town Centre has an inbuilt capacity for growth and change to enable adaptation and the intensification of uses as the needs of the community evolve.
Principle 11 Promote public transport use.	• Facilitate safe and efficient operation of public transport and bus services. • Encourage use of public transport by locating bus stops in locations which are accessible, safe and convenient.

APPENDIX C
STREET CROSS SECTIONS

Service Placement Guidelines

STANDARD ROAD CROSS SECTIONS

Figures 003 and 004 in the Engineering Design and Construction Manual for Subdivision in Growth Areas (April 2011) outline placement of services for a typical residential street environment. This approach is appropriate for the majority of the 'standard' road cross sections outlined in Appendix C containing grassed nature strips, footpaths and road pavements.

NON-STANDARD ROAD CROSS SECTIONS

To achieve greater diversity of streetscape outcomes in Melbourne's growth areas, which enhances character and amenity of these new urban areas, non-standard road cross sections are required. Non-standard road cross sections will also be necessary to address local needs, such as fully sealed verges for high pedestrian traffic areas in town centres and opposite schools. This PSP contains suggested non-standard 'variation' road cross sections, however other non-standard outcomes are encouraged.

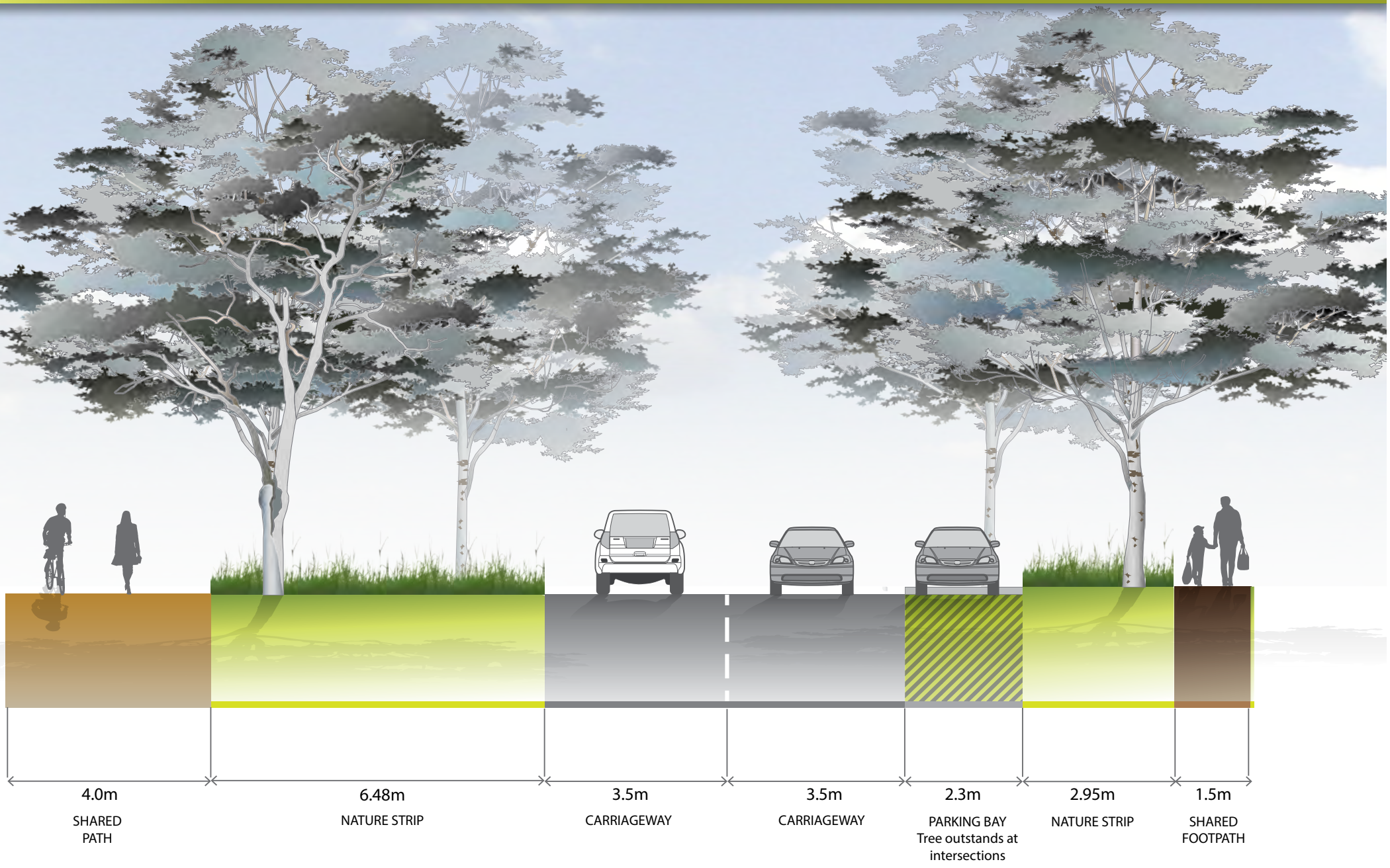
For non-standard road cross sections where service placement guidance outlined in Figure 003 and 004 in the Engineering Design and Construction Manual for Subdivision in Growth Areas (April 2011) is not applicable, the following service placement guidelines will apply.

	UNDER PEDESTRIAN PAVEMENT	UNDER NATURE STRIPS	DIRECTLY UNDER TREES[1]	UNDER KERB	UNDER ROAD PAVEMENT	WITHIN ALLOTMENTS	NOTES
SEWER	Preferred	Possible	Possible	No	Possible	Possible[3]	
POTABLE WATER	Possible[4]	Preferred	Preferred	No	No	No	Can be placed in combined trench with gas
RECYCLED WATER	Possible[4]	Preferred	Preferred	No	No	No	
GAS	Possible[4]	Preferred	Preferred	No	No	No	Can be placed in combined trench with potable water
ELECTRICITY	Preferred[4]	Possible	Possible	No	No	No	Pits to be placed either fully in footpath or nature strip
FTTH/TELCO	Preferred[4]	Possible	Possible	No	No	No	Pits to be placed either fully in footpath or nature strip
DRAINAGE	Possible	Possible	Possible	Preferred	Preferred	Possible[3]	
TRUNK SERVICES	Possible	Possible	Possible	Possible	Preferred	No	

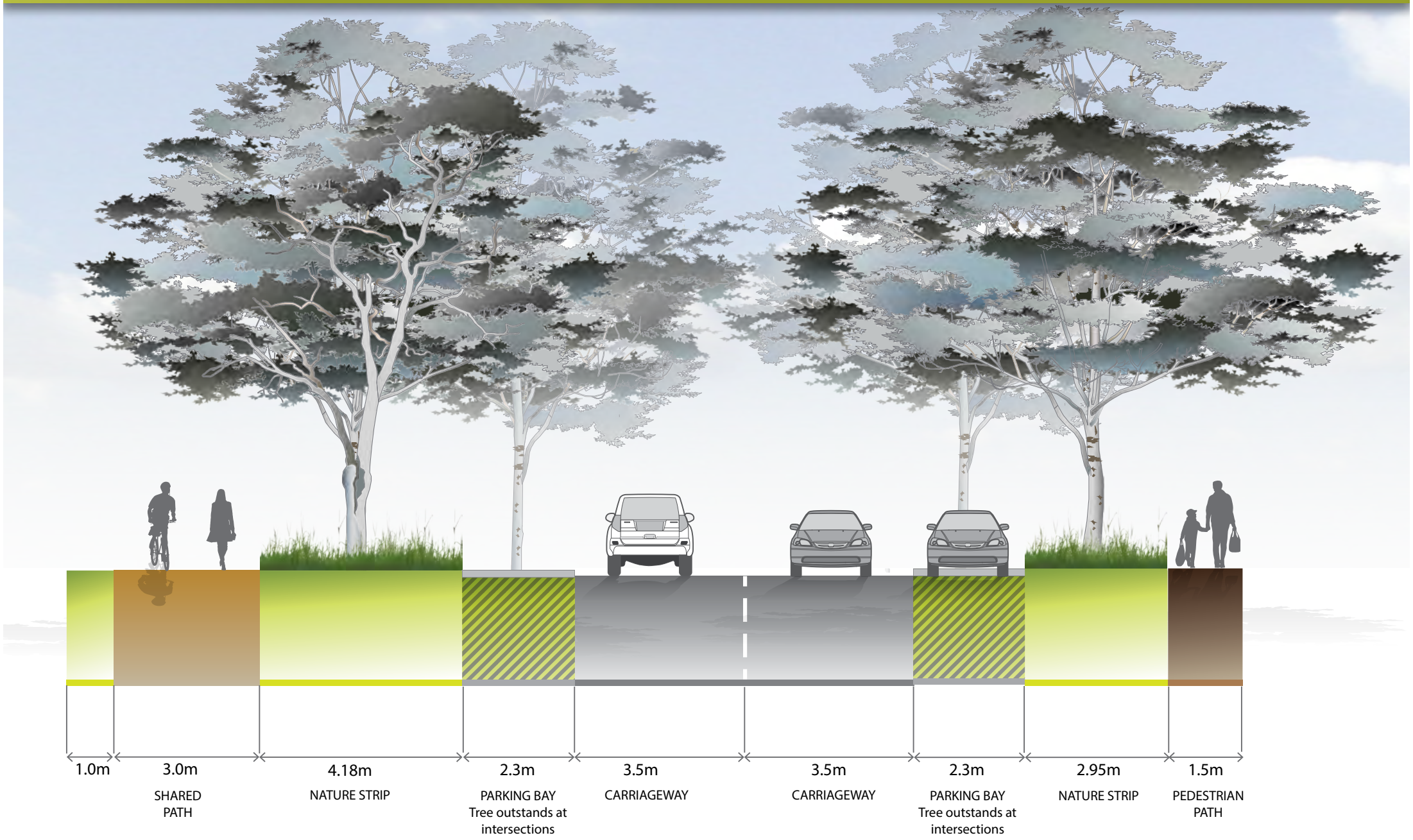
NOTES
1 Trees are not to be placed directly over property service connections
2 Placement of services under road pavement is to be considered when service cannot be accommodated elsewhere in road reserve. Placement of services beneath edge of road pavement/parking bays is preferable to within traffic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

GENERAL PRINCIPLES FOR SERVICE PLACEMENT

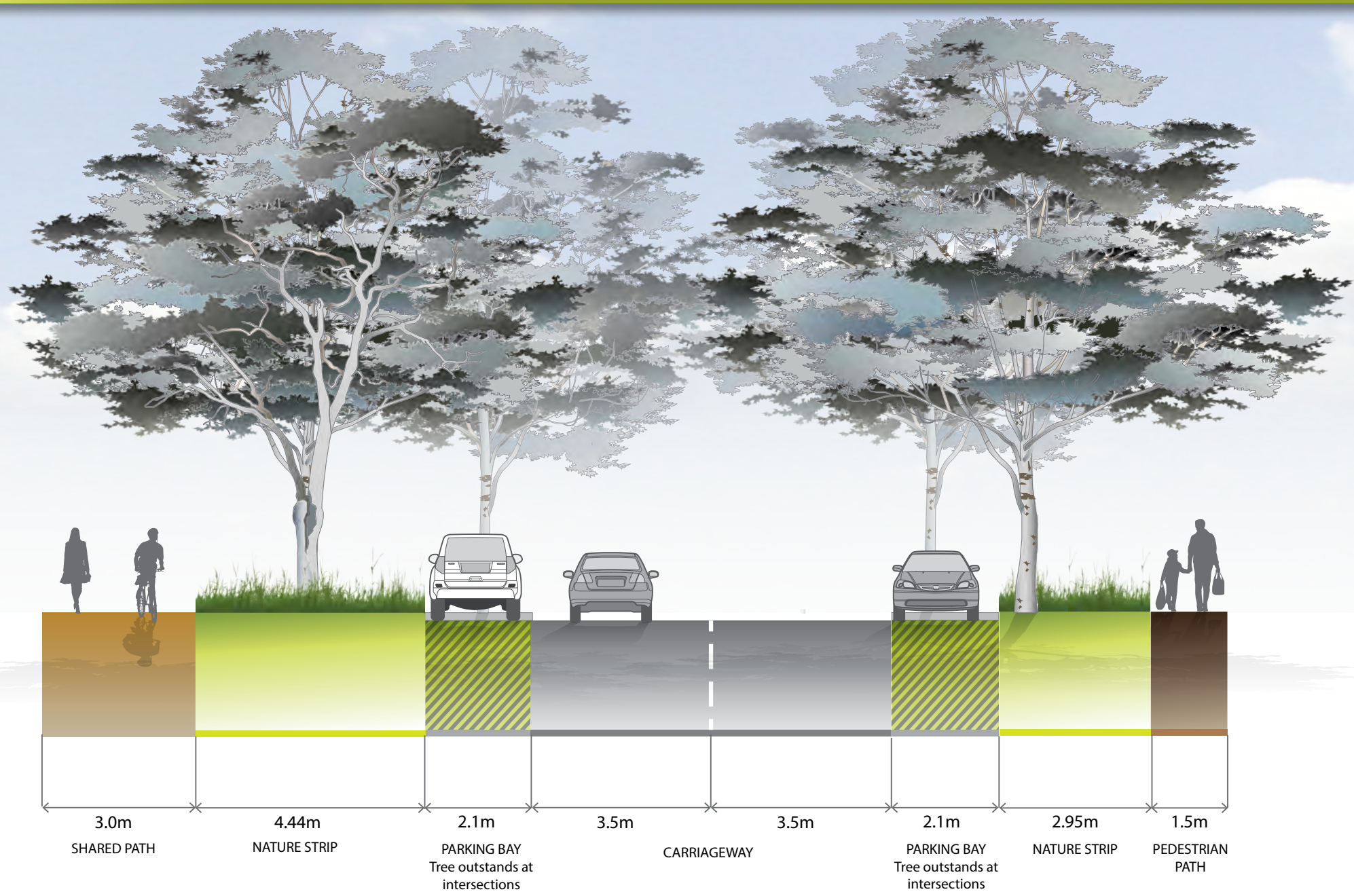
- Place gas and water on one side of road, electricity on the opposite side
- Place water supply on the high side of road
- Place services that need connection to adjacent properties closer to these properties
- Place trunk services further away from adjacent properties
- Place services that relate to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



Centre Road (24.28m Road Reserve)



Centre Road (24.28m Road Reserve)



Ward Road (24.14m Road Reserve)