Craigieburn R2 Precinct Structure Plan

September 2010

Amendment C120 to the Hume Planning Scheme

This document forms part of a set of three incorporated documents applying to the development of the Craigieburn R2 precinct being the:

Craigieburn R2 Native Vegetation Precinct Plan

Craigieburn R2 Precinct Structure Plan

Craigieburn R2 Development Contributions Plan

Any person making or considering a planning permit application in the Craigieburn R2 precinct should consult all three documents for relevant requirements.

PLANS & CROSS SECTIONS

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FIGURES

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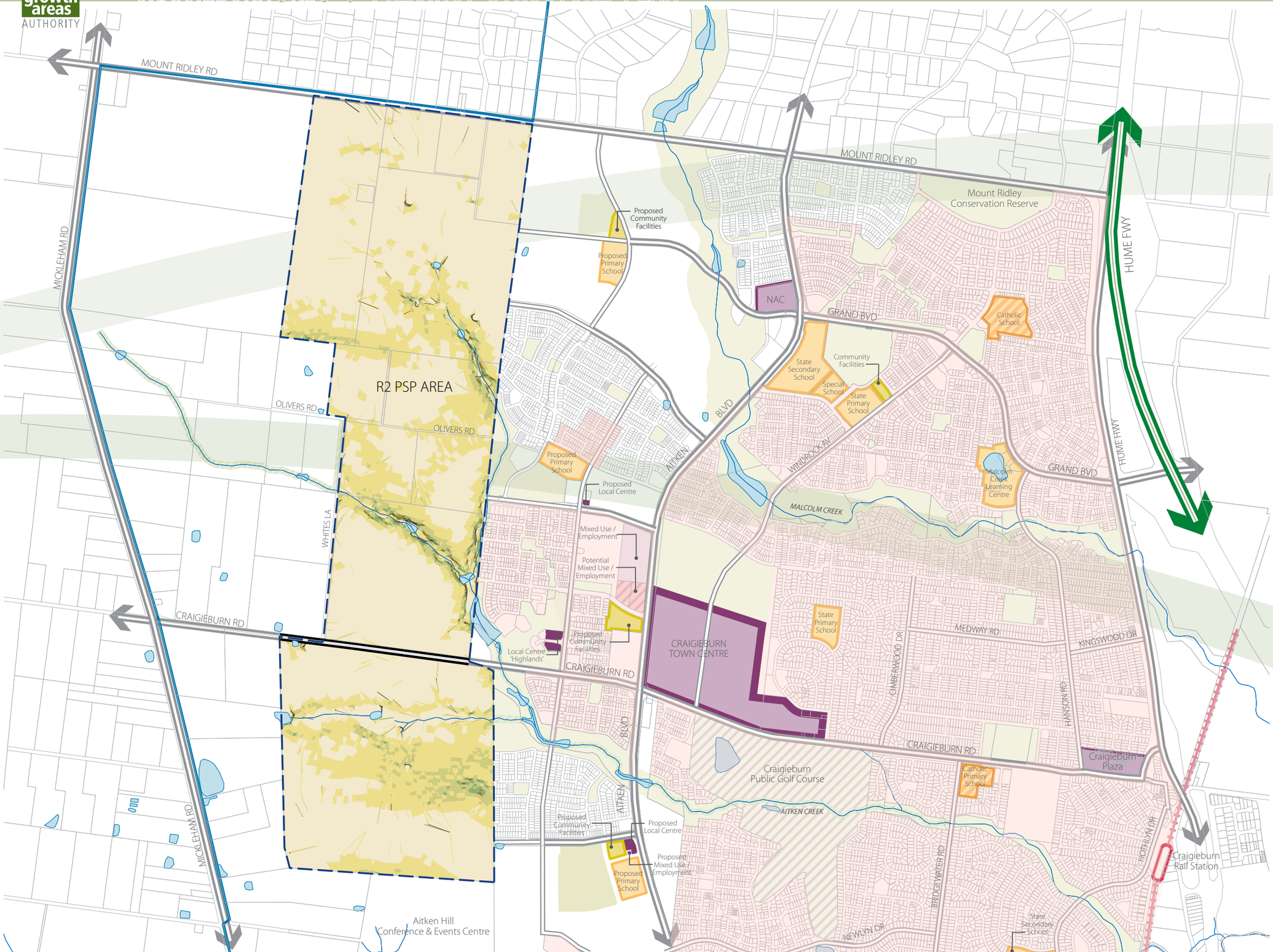

- Precinct Structure Plan Area
- Urban Growth Boundary
- Freeway
- Arterial Road
- Residential Connector Street
- Railway Line & Station
- Town Centre
- Neighbourhood Activity Centre
- Local Centre
- Mixed Use / Employment
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- Watercourse
- Waterbody
- Existing Urban Area (Outside PSP)
- Encumbered Open Space (Outside PSP)
- Significant Regional Open Space (Outside PSP)

TRACT REF NO. POST EXHIBITION 308153 P PSP 01.15

SCALE 1:20 000
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Plan 1

precinct structure plan area

craigieburn R2 precinct structure plan

1.0 INTRODUCTION

1.1 Role of the Precinct Structure Plan

This precinct structure plan (the PSP) has been prepared by the Growth Areas Authority (GAA) with the assistance of the Hume City Council, Government agencies, service authorities and major stakeholders.

The PSP is a long-term plan to guide future urban development. It describes how the land is expected to be developed, the services planned to support development and how they will be delivered.

The Precinct Structure Plan:

- Is a strategic plan which guides the delivery of a quality urban environment in accordance with the Victorian government guidelines.
- Enables the transition of non-urban land to urban land.
- Sets the vision for how land should be developed and the desired outcomes to be achieved.
- Outlines 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, affordable lifestyle.
- Enables the assessment, protection and enhancement of biodiversity values in the context of the surrounding and long term urban development.
- Details the form and conditions that must be met by future land use and development.
- Provides the basis for the use and development controls that apply in the schedule to the Urban Growth Zone and the permits that may be granted under the Schedule to the zone.
- Provides developers, investors and local communities with certainty about future development.

The PSP is informed by:

- The State Planning Policy Framework set out in the Hume Planning Scheme, including the Growth Area Framework Plans and the Precinct Structure Planning Guidelines, and
- The Local Planning Policy Framework of the Hume Planning Scheme and other local policies and strategies (in Clause 21 and 22).

1.2 Land to which the Precinct Structure Plan Applies

The PSP applies to approximately 455 hectares of land shown on Plan 1.

The PSP area is generally bound by Mt Ridley Road to the north and the Aitken Hill Conference Centre to the south. The western boundary follows Whites Lane, Olivers Road and rural property boundaries. The eastern boundary is the extent of zoned urban land forming part of the 'Highlands Estate' (a residential neighbourhood in Craigieburn).

1.3 Implementation

The PSP is implemented by:

- Development proponents who develop land generally in accordance with this PSP;
- The Victorian Government and the Hume City Council by funding, delivering and managing a range of infrastructure and services to support the development of the precinct; and,
- Non-government service providers and individuals such as volunteers who deliver and manage services;
- Any relevant agreement prepared under Section 173 of the Planning and Environment Act 1987.

The Precinct Structure Plan is implemented through the Hume Planning Scheme, including:

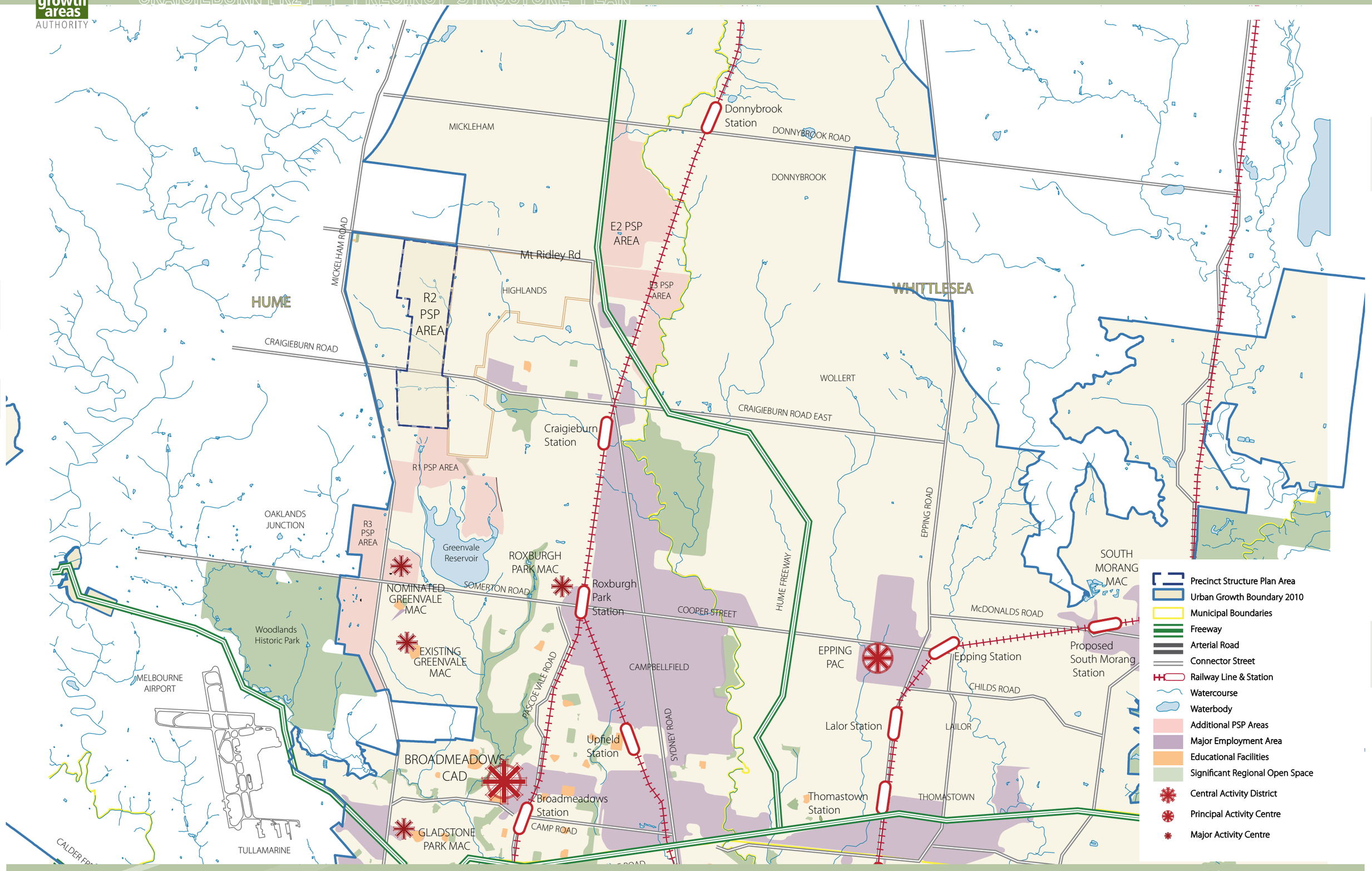
- The Schedule to the Urban Growth Zone in Clause 37.07;
- The Craigieburn R2 Development Contributions Plan (an incorporated document used through Clause 45.06);
- The Craigieburn R2 Native Vegetation Precinct Plan (an incorporated used through Clause 52.16);
- Open space requirements under Clause 52.01 of the Scheme; and,
- Other requirements of the Scheme.

1.4 Reference Material

A Glossary and other information such as technical studies supporting the preparation of this PSP are listed in Section 7.2 – Supporting Information.

1.5 Monitoring and review

The GAA and Hume City Council will jointly monitor implementation of the PSP. Its effectiveness will be evaluated regularly, at least every five years. The PSP may be revised and updated following review.



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Plan 2

metropolitan & regional context

craigieburn R2 precinct structure plan

2.0 LOCAL CONTEXT AND SITE DESCRIPTION

2.1 Metropolitan and Regional Context

The precinct is located approximately 25km from the Melbourne CBD in Melbourne's North Growth Area as shown in Plan 2. Melbourne's North Growth Area generally extends north from Somerton Road (east of the Sydney rail line) and Craigieburn Road (west of the Sydney rail line) to just south of the Wallan township. It includes parts of the suburbs of Greenvale and Craigieburn, and the localities of Donnybrook, Kalkallo and Beveridge in the City of Hume, the City of Whittlesea and the Shire of Mitchell. The area is generally bordered by Mickleham Road to the east and Darebin Creek and the Outer Metropolitan Ring Road to the west.

The growth area described above was introduced immediately prior to adoption of this PSP. Before this, Melbourne's urban growth area extended only to the western and northern edges of this precinct in this part of the city ("the Hume Growth Area"). This PSP was prepared in the context of the former urban growth area and was guided by the 2006 Hume Growth Area Framework Plan. The Hume Growth Area Framework Plan is still and incorporated and guides urban expansion in this precinct. A new growth area framework plan will be prepared for the expanded growth area. This information below describes the information available at the time of preparation of this PSP.

The area is characterised by strong population growth occurring on a number of fronts. The population base of Hume City Council is projected to increase from its current level of approximately 150,000 residents to over 200,000 people by 2020.

Broadmadows has been identified as the Central Activities District for the region and is planned to provide additional employment to the Growth Area. More locally, the proposed Craigieburn Town Centre is planned to be a regional town centre (designated Major Activity Centre) serving existing and future residents of the growth corridor. The Craigieburn Town Centre site is situated on the north-eastern corner of Craigieburn Road and the proposed Aitken Boulevard (E14) Transit Route, making it easily accessible from the surrounding region. The Town Centre is planned to eventually provide around 50,000sqm of retail floorspace and a significant employment and services precinct.

In addition, the Hume Growth Area:

- Is a strategic transport corridor of State and national significance;
- Functions as a gateway to Melbourne for interstate and international visitors;
- Has large areas available for future employment and industrial development;
- Almost 50% of Hume's workforce is employed within the municipality;
- Has significant water catchments including the localized catchment for Greenvale Reservoir (a portion of which falls within the PSP boundary) , creek corridors, remnant vegetation and stone resources on its east and west boundaries as well as the Greenvale Reservoir located south of the PSP area;
- Has important landscape features such as volcanic cones; and,
- Biodiversity assets including grasslands and grassy woodlands.

The Hume Growth Area Plan:

- Supports greater residential development and employment uses around existing rail-based activity centres, including the Broadmeadows Central Activities District (CAD) and Transit City, Roxburgh Park and the Craigieburn Station;
- Links the Greenvale Reservoir regional park to both the Merri Creek corridor and the Metropolitan trails network;
- Requires neighbourhood parks and waterway corridors with natural assets such as remnant native vegetation to be established, many within walking distance of residential areas.

Areas to the west of the PSP area have been identified as investigation areas for future urban development and while there is no certainty as to the future of this area, planning for the PSP area should consider its potential, even if it is long term.

2.2 Local Context

2.2.1 History

The traditional indigenous owners of land within the precinct were the Wurundjeri people.

Since European settlement of the Craigieburn area the land has been predominantly used for farming and agricultural purposes with a long history of pastoral activities. Craigieburn retained its rural character until the 1970's when housing development increased transforming Hume into a metropolitan fringe growth area.

2.2.2 Surrounding neighbourhoods

A number of residential neighbourhoods exist within the immediate surrounding context of the precinct as shown in Plan 3. These are described below:

- Craigieburn

Craigieburn is located to the east of the precinct and the Highlands Estate with a population of over 25,000 residents and the potential to grow to more than 50,000 residents. There are two major town centres on Craigieburn Road with good access to the proposed Aitken Boulevard (E14) Transit Route, the Hume Freeway and Craigieburn Metropolitan Rail Station.

- Highlands Estate

The Highlands Estate is located immediately to the east of the R2 PSP area and forms the current western edge of Craigieburn. The estate is currently under development and is expected to be completed within 5-10 years. The R2 PSP will create road, pedestrian and public transport links into the Highlands Estate via the continuation of Grand Boulevard, and a range of higher order and local roads.

- Roxburgh Park.

Roxburgh Park is located to the south east of the R2 PSP area, east of the proposed Aitken Boulevard (E14) Roxburgh Park is separated from the precinct by Aitken Hill and the Highlands Estate.

- Greenvale.

Greenvale is located to the south of the PSP area and has developed consistently since the 1970's and provides for, generally lower density residential development.

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2.2.3 Transport and movement

The planned road network is influenced by the principal arterial road network consisting of the major North/South roads of Mickleham Road and the future Aitken Boulevard (E14) Transit Route and East/West links of Mt Ridley Road, Craigieburn Road and Somerton Road.

The Principal Public Transport Network (PPTN) provides access to the Craigieburn Railway Station, situated approximately 4 km to the east.

In addition, the Hume Growth Area Plan provides for the transport needs of the growth area by:

- Making provision for a future public transport network including both the Principal Public Transport Network (rail and bus) and other local bus services;
- Making provision within the road network for an Orbital Smart Bus Service on Somerton Road south of the PSP area;
- Proposing public transport investments including completing the electrification of the rail line to Craigieburn Station (now complete), and bus services between major activity centres;
- Supporting improved road and public transport connections with the Tullamarine airport precinct;
- Identifying a proposed major road network including identification of the E14 as a central north-south road, helping to alleviate potential congestion on Mickleham Road and the Hume Highway; and,
- Providing potential for connectivity west of the precinct.

The existing and proposed connector road network in the developing urban area to the east of the precinct provides several opportunities for integration of the precinct road network at well spaced intervals. This provides a basis for new east/west connector roads and the potential upgrade of Mt Ridley Road to an arterial, linking with Aitken Boulevard (E14 Transit Route). Craigieburn Road, Mt Ridley Road and Grand Boulevard provide the primary links between the precinct, the Hume Highway and its associated employment areas.

growth areas AUTHORITY

MOUNT RIDLEY RD
MICKLEHAM RD
OLIVERS RD
WHITES LA
CRAIGIEBURN RD
R2 PSP AREA
Proposed Community Facilities
Proposed Primary School
NAC
Mount Ridley Conservation Reserve
GRAND BVD
Catholic School
State Secondary School
Special School
Community Facilities
State Primary School
HUME FWY
HUME HWY
BLVD
AITKEN
WINDROW AVE
Proposed Primary School
Proposed Local Centre
Mixed Use / Employment
Potential Mixed Use / Employment
Malcolm Creek Learning Centre
MALCOLM CREEK
Local Centre 'Highlands'
Proposed Community Facilities
CRAIGIEBURN TOWN CENTRE
State Primary School
GIMBERWOOD DR
MEDWAY RD
KINGSWOOD DR
HANSON RD
Craigieburn Plaza
Craigieburn Public Golf Course
AITKEN CREEK
Catholic Primary School
BROCKEMYER RD
HOPKINS DR
Craigieburn Rail Station
Proposed Community Facilities
Proposed Local Centre
Proposed Mixed Use / Employment
Proposed Primary School
Aitken Hill Conference & Events Centre
NEWLYN DR
State Secondary School

- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- Freeway
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- Neighbourhood Activity Centre
- Local Centre
- Mixed Use / Employment
- Conference Centre
- Community Facilities
- Government Education Facilities
- Non Government Schools
- Watercourse
- Waterbody
- Existing Urban Area (Outside PSP)
- Future Urban Area (Outside PSP)
- Golfcourse (Outside PSP)
- Encumbered Open Space (Outside PSP)
- Significant Regional Open Space (Outside PSP)
- Low Density Residential (Outside PSP)
- Rural Land (Outside PSP)

TRACT REF NO. POST EXHIBITION 308153 P PSP 03.15

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Plan 3

existing local context plan
craigieburn R2 precinct structure plan

2.2.4 Employment and activity centres

The hierarchy of activity centres within the Hume region is established by the Growth Areas Framework Plans and Hume planning policies.

The hierarchy includes:

1. Central Activities District – Broadmeadows.
2. Major Activity Centres – The proposed Craigieburn Town Centre, Craigieburn, Roxburgh Park and Greenvale
3. Neighbourhood Activity Centres – proposed within R1, R2 and the Highlands Estate.

The new residents moving into the PSP area will form part of the core catchment for the Craigieburn Town Centre.

The Hume R2 PSP area has proximity to the following key employment areas:

- The existing Hume Highway Employment Area;
- Expansion of the Hume Highway employment area to the North; and,
- The expanded Melbourne Airport employment area.

2.2.5 Open Space

The precinct has convenient access to major metropolitan and regional parkland including Woodlands Historic Park and Greenvale Reservoir Park.

Woodlands Historic Park was established as a public park in 1980 and now totals over 700 ha. Greenvale Reservoir Park offers visitors 53ha of open space adjacent to the Greenvale Reservoir. Both parks are about 8km by road, or 10 minutes drive, from the precinct.

Craigieburn Public Golf Course is located 2km to the east of the site.

In addition, the Hume Growth Area Plan provides for regional open space by:

- Supporting the development of Merri Creek as a 'bio-link' and open space corridor and protecting all water courses draining through the area;
- Protecting woodlands and grasslands along the Merri Creek corridor and around Donnybrook, and remnant red gum and grey box woodlands in the north;
- Linking the Greenvale Reservoir regional park to both the Merri Creek corridor and the metropolitan trails network. This includes investigation of opportunities to extend the open space connection from Greenvale north to Mt Aitken;
- Providing for establishment of neighbourhood parks and waterway corridors with natural assets such as remnant native vegetation – many within walking distance of residential areas;
- Extending the principal bicycle network and the metropolitan trail network to key locations such as the upper Merri Creek valley; and,
- Identifying a number of other areas for further investigation on the basis of their potential significance for flora and fauna conservation.

2.2.6 Community facilities

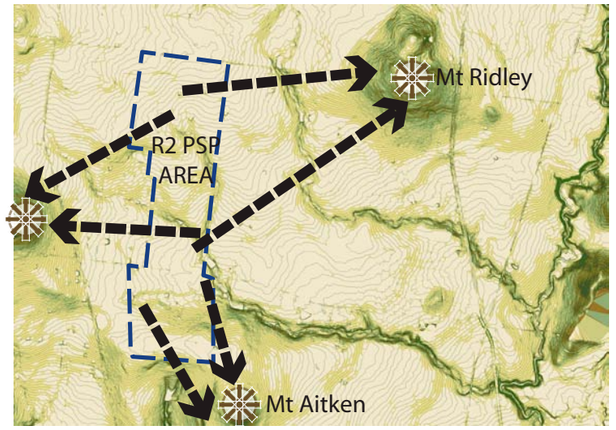
Craigieburn has significant existing social, health and community infrastructure as can be seen in Plan 3. Most of these facilities are located in the existing Craigieburn township:

- Craigieburn Leisure Centre,
- Craigieburn Bowling Club,
- Craigieburn Golf Course,
- Craigieburn Education and Community Centre,
- Craigieburn Library,
- Craigieburn Health Services,
- Craigieburn Functions Lounge, and,
- Craigieburn Youth Centre.

The proposed Craigieburn Town Centre will service many of the higher order community facilities needs of the precinct.

CLOVERLEA COTTAGE
HISTORIC SITE
ABORIGINAL SITE
ABORIGINAL SITE
ABORIGINAL SITE
ABORIGINAL SITE
ABORIGINAL SITE
ABORIGINAL SITE
ABORIGINAL SITE
RIDGE LINE - FALL TO GREENVALE RESERVOIR CATCHMENT
MOUNT RIDLEY RD
MICKLEHAM RD
OLIVERS RD
WHITES LA
CRAIGIEBURN RD
Proposed Community Facilities
Proposed Primary School
NAC
Mount Ridley Conservation Reserve
GRAND BVD
Catholic School
State Secondary School
Special School
Community Facilities
State Primary School
ASPIRATION BVD
WINDROCK WAY
Malcolm Creek Learning Centre
MALCOLM CREEK
HUME HWY
Proposed Primary School
Proposed Local Centre
Mixed Use / Employment
Potential Mixed Use / Employment
Proposed Community Facilities
Local Centre - Highlands
CRAIGIEBURN TOWN CENTRE
State Primary School
MELWAY RD
KINGSWOOD DR
CHERRYWOOD DR
HAMPSTEAD RD
Craigieburn Public Golf Course
AITKEN CREEK
Catholic Primary School
Craigieburn Plaza
Craigieburn Rail Station
Aitken Hill Conference & Events Centre
BALDERSTON RD
KENTON DR
State Secondary School

VIEW ANALYSIS



There are existing views from the site to Mt Ridley, Mt Aitken and the West however, are not deemed significant.

- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- Plains Grassy Woodlands
- Plains Grasslands
- Remnant trees
- Significant Existing Windrows
- Historic Site
- Aboriginal Site
- Watercourse
- Waterbody
- Significant Regional Open Space (Outside PSP)

TRACT REF NO. POST EXHIBITION 308153 P PSP 06.15

SCALE 1:20 000
0 200 400 1000

Plan 4

precinct features

craigieburn R2 precinct structure plan

2.3 Precinct Features

2.3.1 Heritage

The traditional indigenous owners of the precinct were the Wurundjeri people.

Twelve Aboriginal sites have been recorded. Initial investigations have confirmed that one site has been incorrectly recorded and a request has been made to remove the site from the Victorian Aboriginal Heritage Register. All of the remaining sites are surface artefact scatters.

The plan area has been identified as being potentially sensitive for Aboriginal cultural values and therefore further investigation is being undertaken (a complex CHMP).

There are six recorded post settlement historic sites / places within the activity area. Cloverlea Cottage at 505 Mt Ridley Road is subject to a Heritage Overlay. No sites are listed on the National Trust Register or the Australian Heritage Database. These six sites are a homestead complex, a rural homestead ruin and the remnants of four dry stone walls. The historic cultural heritage values of these sites have been investigated.

2.3.2 Biodiversity

The objective is to retain and enhance significant remnant native vegetation within identified biodiversity protection areas and where possible within future development.

As a result of the area's history of farming, the precinct has mostly been cleared of significant areas of flora and fauna. However, the precinct retains some significant biodiversity values, such as:

- three Ecological Vegetation Classes including Plains Grassy Woodland, Creekline Grassy Woodland and Plains Grassland – all classified as Endangered in the Volcanic Plains Bioregion with a high conservation significance as defined in Victoria's Native Vegetation Management; a framework for action (DNRE 2002)
- the EPBC listed community Natural Temperate Grassland of the Victorian Volcanic Plain represented in eight patches of native vegetation within the precinct
- approximately 170 large old remnant eucalypt trees – predominantly River Red Gums
- three flora species of national or state significance recorded in the precinct.– Pale-flower Cranesbill (Geranium sp. 3), Matted Flax Lily (Dianella amoena) and River Swamp Wallaby Grass (Amphibromus fluitans)
- Golden Sun Moth (Synemon plana) (Critically Endangered – EPBC Act and Endangered in Victoria and listed as threatened under the FFG Act) was recorded on sites 1, 2a, 3, 5 and 6 and the majority of the R2 precinct is considered habitat for Golden Sun Moth.
- a pair of Hardhead ducks (Vulnerable in Victoria) were detected within the large dam on Aitken Creek
- the following regionally significant fauna was recorded in the precinct: Purple-crowned Lorikeet (Glossopsitta porphyrocephala), White-fronted Chat (Epthianura albifrons), Wedge-tailed Eagle (Aquila audax) and Eastern Three-lined Skink (Acritoscincus duperreyi)
- microbats including White-striped Freetail Bat (Tadarida australis), Gould's Wattled Bat (Chalinolobus gouldii), Lesser Long-eared Bat (Vespadelus darlingtoni) and Little Forest Bat (Vespadelus vulturnus) were detected in hollows within large remnant eucalypts
- Eastern Grey Kangaroo (Macropus giganteus) and a range of other fauna species of local significance were recorded in the precinct
- Fat-tailed Dunnart (Near Threatened in Victoria), Black Falcon (Vulnerable in Victoria) and Growling Grass Frog (Vulnerable EPBC Act, Endangered in Victoria and listed as threatened under the FFG Act) were identified as having a high likelihood of occurrence in the precinct.
- two significant flora species have a medium likelihood of occurrence in the study area – Austral Cranesbill (Gera-mium solanderi var. solanderi s.s) and Plump Swamp Wallaby Grass (Amphibromus pithogastris) (Endangered in Victoria and listed as threatened under the Flora and Fauna Guarantee Act 1988).
- nineteen other state/and or nationally significant fauna species were determined to have a low-medium to high likelihood of occurrence in the precinct.
- two branches of the Aitken Creek occur in the study area. The creek and associated water bodies provide habitat for numerous wetland birds, fish and amphibians.

2.3.3 Topography and landform

Most of the PSP area lies between 212m and 236m to the Australian Height datum, ("AHD"). It is relatively flat, except for a low ridge from Mt Aitken that divides the catchment of the Greenvale Reservoir from the majority of the plan area.

The area is generally very open with planted wind breaks being a landscape feature. Most of the existing windrows are in reasonably good health and condition.

2.3.4 Catchments and drainage

The plan area forms the upper catchment and main drainage lines of the Aitken Creek. The plan area effectively forms the headwaters of the creek and provides little definition or form in the upper reaches of this creek. South of the rise emanating from Mt Aitken (South of Craigieburn Road) a small area of land in the south of the plan area falls to the Greenvale Reservoir catchment.

This main Aitken Creek Catchment drains to a more significant and defined watercourse on Aitken Creek to the south-east of the PSP area and eventually joins Merri Creek. Aitken Creek forms one of the main distinguishing geographical features and open space links through Craigieburn.

A small area of land south of the rise emanating from Mt Aitken (south of Craigieburn Road) drains to the Greenvale Reservoir catchment in the south.

<u>Protection of Greenvale Reservoir:</u>

Melbourne Water has specific requirements for the flows towards the Reservoir from any urban development. It is diverted away to other drainage line catchments for up to a 1 in 1 million year event. This will necessitate earthworks and modification to the drainage line south of the southern ridgeline.

Further detail on these is in Section 6 of this plan.

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3.0 VISION AND INTEGRATED NEIGHBOURHOOD DESIGN

3.1 Vision

The vision is a high-level statement of what is sought to be achieved for the new community. The vision has guided the design of the future urban structure and may inform future decisions about detailed planning, such as planning permits.

The vision for the R2 PSP area is:

A place where people can enjoy a healthy, affordable, quality lifestyle and sustainable living. This is built on the foundations of a walkable street and trail network with access to public transport services, housing and lifestyle choices, local schools, and safe, attractive and functional open space areas which offer a broad range of recreational pursuits.

A residential community that is well integrated with a wider urban area that includes the Highlands Estate to the east and potential future urban growth areas to the west.

A community that consists of two distinct residential communities located north and south of Craigieburn Road. Each to be serviced with centrally located Neighbourhood Activity Centres, schools, active open spaces and community facilities.

The northern Neighbourhood Activity Centre is the main focus for the community to the north of Craigieburn Road and has the capacity to grow in future to service a larger population beyond the plan boundaries.

The neighbourhoods provide opportunities for public transport use and alternatives to car travel through a permeable road and open space network.

A community that has access to local retail and recreational opportunities within walking distance.

Watercourses and drainage lines are central to an integrated open space network, providing pedestrians and cycle path linkages with the objective of integrating with a wider open space network.

Local employment opportunities are provided within the plan area at Neighbourhood Activity Centres and the Mixed Use Precinct. In addition, this plan area is within close proximity to the significant employment generators in the Hume corridor, Melbourne Airport and the future Craigieburn Town Centre.

A diversity of employment opportunities will be provided through mixed use activity centres and the Mixed Use Precinct on Craigieburn Road. Home based businesses will also be encouraged close to activity centres.

A community which is developed in a logical and orderly manner, provides services and facilities which not only support the community at an early stage of development, but which can be built with sufficient capacity to maintain high standards of services in perpetuity.

A community that has a diversity of housing product including higher density housing close to services.

Access to affordable housing will be provided by the minimisation of costs in the delivery of essential infrastructure and services and through the efficient use of land for new urban purposes.

3.2 Urban Structure

The Future Urban Structure (Plan 5) illustrates how the PSP responds to the features of this site and how the precinct will be developed over time to achieve the Victorian Government's and Hume City Council's objectives for sustainable growth.

Sections 3.2.1 to 3.2.7 describe how the Precinct Structure Plan delivers the vision and an integrated neighbourhood design.

3.2.1 Establish a sense of place and community

The R2 PSP establishes a framework for the development of a more sustainable urban structure by interlinking land use and transport nodes with the residential neighborhoods to create a built environment which supports the development of a strong community and sense of place for Craigieburn.

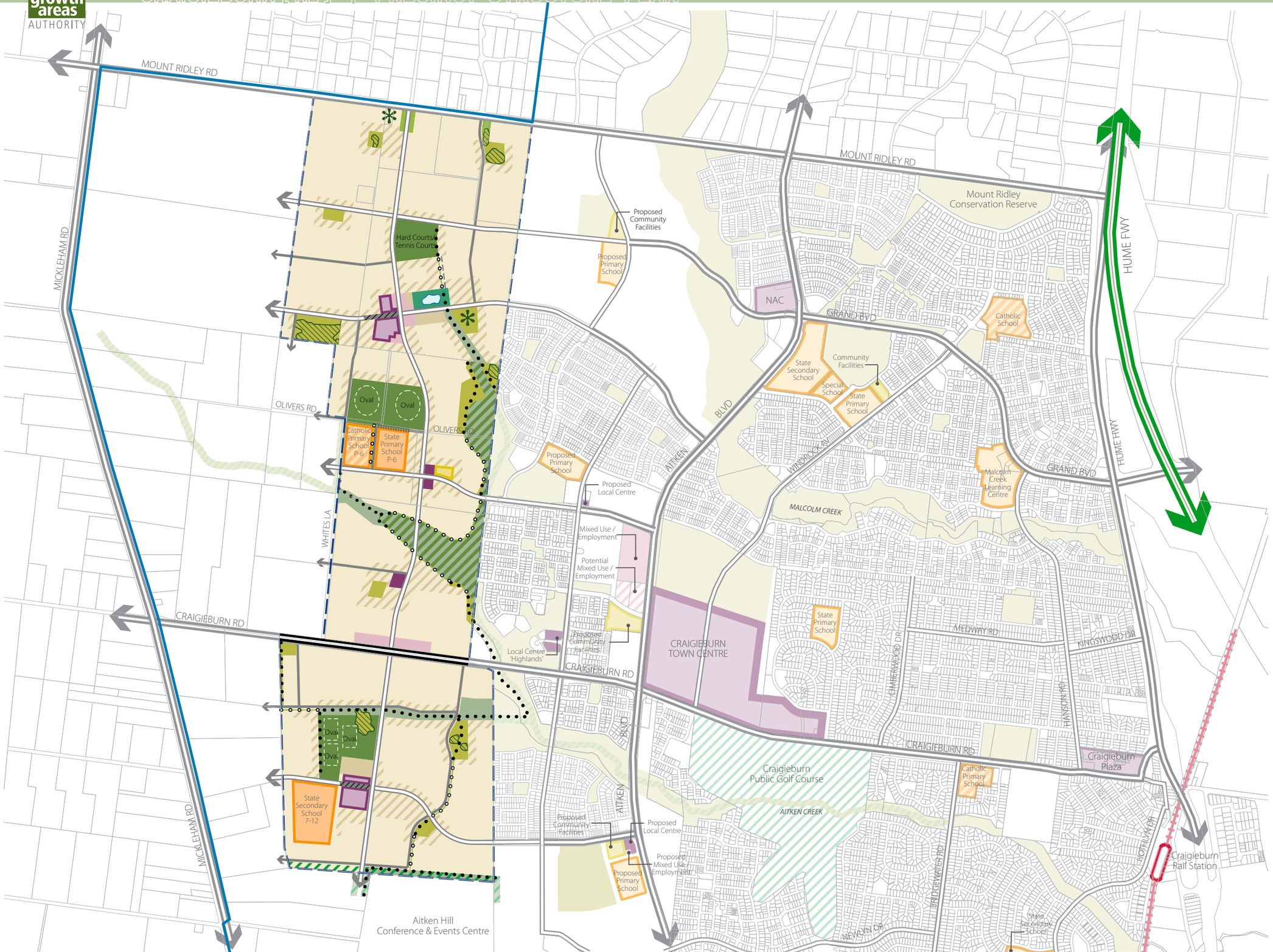
A sense of place and community is fostered through the careful planning for the provision of community infrastructure such as schools, sporting fields and other community facilities. The plan serves to consolidate the key services for the residential community on the central transport spine and ensure each facility is as central to its catchment as possible, while linked to other services on the principal road and pedestrian cycle network. The plan seeks to respond to natural features by retaining them within the public realm in prominent locations and viewlines to create points of difference and reinforce the valued character of Craigieburn.

The environment for positive community interaction is further enhanced by the location of the neighbourhood activity centres. The provision of shops to meet weekly and convenience shopping needs will promote interaction through the provision of formal and informal meeting spaces. This is further enhanced by the specific desire to see the neighbourhood activity centres develop over time as places that offer much more than just retail services. As a result, the centres will provide opportunities to establish non-retail related businesses which service both the immediate community and the broader catchment to acknowledge the importance of office components in neighbourhood activity centres in boosting local employment opportunities.

3.2.2 Greater housing choice, diversity and affordability

The future urban structure provides for a range of lifestyle opportunities by achieving diversity of housing and lot sizes throughout the precinct. A minimum average density of 15 dwelling per net developable ha is required across the precinct.

Conventional residential densities, intermixed with medium density housing, will be accommodated throughout the neighborhoods in order to achieve a diverse range of lot sizes. The focus for higher density housing will be the activity centres and local parks. Optimising housing close to activity centres will be imperative to the centre's success. Medium density housing will be encouraged along the main bus routes to support public transport.



- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- Arterial Road
- Residential Connector Street
- NAC Connector Road
- Access Street - Lv2
- Access Street - Lv1
- Special Access Driveway
- Shared Path (within open space)
- Shared Path (within landscaped road reserve)
- Conventional Density
- Medium Density
- High Density
- Neighbourhood Activity Centre
- Local Centre
- Mixed Use / Employment
- Community Facilities
- Government Education Facilities
- Non Government Schools
- Reservoir Protection Mechanism
- Interim Reservoir Protection Mechanism
- Active Open Space / Playing Fields
- Passive Open Space
- Linear Open Space / Windrow
- Encumbered Open Space / Stormwater Management
- Biodiversity Protection Area/ Stormwater Management
- Native Vegetation Protection Area Encumbered
- Retarding Basin
- Heritage Site
- Watercourse
- Waterbody

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SCALE 1:20 000
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Plan 5

future urban structure plan
craigieburn R2 precinct structure plan

3.2.3 Create highly accessible and vibrant activity centres

The future urban structure provides for a sustainable network of neighbourhood activity centres which will provide local employment opportunities and community based services within walkable catchments.

All of the centres will be low speed street based centres, serviced by bike and pedestrian trails and public transport, offering a mix of retail, non-retail commercial and other mixed use employment opportunities.

The location of the neighbourhood activity centres which are central to 800m to 1000m residential catchments will reduce the dependency on motorised private transport by developing a variety of destinations within a reasonable walking distance from the residential neighbourhoods.

A number of local activity centres have been nominated on this plan. These are indicated or preferred locations for small retail and service centres within walking distance to the majority of residents within the plan area.

While initially only local retail services of up to 1000sqm are envisaged, the exact nature and content of each centre must be flexible and enable a response to retail demand over time to evolve.

3.2.4 Provide for local employment and business activity

The neighbourhood activity centres will support a variety of local services such as public transport, child care, medical, financial, legal, retail and accounting and will provide space for other local economic development opportunities.

The two neighbourhood activity centres are distributed within the precinct in order to ensure their long term economic strength and to generate and add to a diversity of walkable destinations within the precinct. The exposure to passing trade through direct access from the connector road network and principal public transport route reinforces their long term viability and encourages more efficient use of motor vehicles by being situated in locations which are easily accessible from a multi-purpose trip perspective.

A mixed use employment precinct is also provided along Craigieburn Road. It is intended to provide for a range of uses which do not require a retail centre location e.g. commercial uses and trades, which require main road exposure and access.

3.2.5 Employment in the Precinct

An objective of the PSP is to maximise local employment opportunities. This objective is to be met having regard to the major existing and future employment opportunities within Hume (including at Melbourne Airport, Hume Employment Corridor and the future Craigieburn Town Centre) which are all within proximity to the PSP.

To meet the emplyment objective, the plan is to provide a range of local service opportunities within activity centres and mixed use "Service/Business" areas which will create opportunities for local employment. Table 2 identifies the potential jobs created by activities proposed within the PSP and speculates on private services likely to be provided to a residential population of the size proposed.

Based on the assessment in Table 2, approximately 1,800 jobs could be provided within the plan area, which equates to approximately 0.4 jobs per household and this is 30% of total job demand created by the plan.

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Table 1: Labour Force to Jobs in Hume Comparison

Employment Sectors	Resident Labour Force (%)	Jobs (%)	MSD Resident Labour Force (%)	MSD Jobs (%)
Manufacturing	20	10	13	13
Retail trade	13	19	6	12
Construction	9	10	7	5
Health care & social assistance	8	10	10	10
Transport, postal & warehousing	6	5	5	5
Wholesale trade	7	6	6	6
Education & training	5	11	8	8
Accommodation & food services	4	7	6	6
Public administration & safety	4	3	5	5
Professional, scientific & technical services	4	4	8	9
Other services	4	4	4	4
Financial & insurance services	3	2	5	5
Administrative & support services	3	2	4	3
Inadequately described/Not stated	3	1	3	1
Information media & telecommunications	2	1	3	3
Agriculture, forestry & fishing	1	2	1	1
Arts & recreation services	1	2	2	2
Rental, hiring & real estate services	1	2	1	2
Electricity, gas, water & waste services	1	0	1	1
Mining	0	0	0	0

Table 2: Estimated Employment Demand

Land use based employment generators	Measure	Jobs	Qty in Precinct Structure Plan	Est. Jobs
Kindergarten	Jobs/centre	5	2	10
Primary School	Jobs/school	40	1	40
Secondary School	Jobs/school	90	1	90
Multi Purpose Community Centre	Jobs/centre	10	1	10
Retail	Jobs/1000 sq m	30	19,000m^2	570
NAC Office/Non retail commercial	Jobs/1000 sq m	25	15,000m^2	375
Medical Centre	Jobs/practitioner	3	1	3
Private childcare centre	Jobs/100 places	20	2	40
Home based business	Jobs/dwelling	0.1	5,200	520
Employment area (mixed use)	jobs/ha (Inc. assoc. office)	30	5ha	150
Total estimated				**1,808 Jobs**

3.2.6 Provide Better Transport Options

Travel to Work Statement

The urban structure established by the R2 PSP responds to the need for urban development to be more ecologically, socially and economically sustainable. A key requirement for a more sustainable urban structure is to design the PSP areas in such a way to reduce travel distances, travel times and carbon emissions for travel to work.

The Journey to Work Statement outlines how the development of land in the PSP area will positively affect the lives of residents and residents of surrounding areas on a daily basis. This is established by undertaking some analysis of the types of jobs predicted in the area based on the land use assumptions and understanding how the provision of local services and employment land within the PSP area can accommodate the expected job demand. The PSP plans to reduce travel distances to work by providing:

An efficient road and public transport network

The location and distribution of the road network grid promotes efficient movement within the precinct with strong connections to the surrounding area in all directions. The grid sets the foundations for a highly permeable and connected precinct which directly link to the employment and services located in Craigieburn and the Hume Corridor and allows for long term development beyond this PSP boundary.

The road network supports efficient movement through the distribution of lower order roads forming approximately an 800m sub-grid which has the effect of reducing congestion at major intersections. This in turn provides the basis for the provision of efficient public transport by creating the ability to locate over 95% of all dwellings within 400m of a future public transport service route which would run along the main arterial and connector road grid. Where required, the incorporation of bus prioritisation measures may be incorporated to assist in delivering a more efficient public transport network within the plan area.

A walkable street structure orientated to promote energy efficient dwelling layout

The existing arterial road grid of Mickleham Road, Mt Ridley Road, Somerton Road and the proposed Aitken Boulevard (E14) does not easily incorporate a traditional "Square Mile Grid" road pattern. This plan seeks to supplement the arterial road layout with a road network based on roads at approximately 800m separation integrated with existing or proposed roads adjoining the plan area.

The 1 mile and 800 metre grid informs an internal street layout which in turn supports passive solar lot orientation, permeable and connected residential neighbourhoods, and walkable neighbourhoods with functional and viable destinations located in key strategic parts of the precinct (i.e. schools, shops and passive and active open space).

Attractors located to promote walking to frequently used services

The location of activity centres, schools and community facilities, open space and the cycle/pedestrian network will promote a local street structure which facilitates safe walking and cycling for all residents. The PSP ensures that all residents will be within walking distance (approx 400m) of an activity centre, community facilities, active and passive open space.

Local employment

The provision of local schools and community oriented services central to this new community along with local retail and business opportunities within the neighbourhood activity centres and mixed use employment precinct generate opportunities for people to work locally. This has the added benefit of building a sense of place and community.

The need to travel to work will also be reduced by provision of shop top residences and other forms of development which encourage working in or close to home.

Support for Craigieburn Town Centre

The urban structure will facilitate access to Craigieburn Town Centre for employment.

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3.2.7 Climate change and environmental sustainability

Energy Statement

The future urban structure responds to climate change and environmental sustainability by:

- Reducing travel distances to 'everyday' services and facilities.
- Encouraging travel by means other than private car by providing walking, cycling, and bus links to new residential neighbourhoods.
- Encouraging efficient movements by a network of roads based on the traditional 1 mile (1.6km) grid of arterial roads and connector roads typically based on an 800m grid. The road grid also provides public transport access to key destinations.
- All arterial and key connector roads are to incorporate shared paths to provide links to existing path networks and good east west neighbourhood connections.
- Integration of the road network with linear open space network to encourage easy walking and cycling access to key destinations within and outside the precinct. The connector roads include dedicated on-road bike paths and wide pedestrian paths.
- Designing all connector roads to accommodate bus movements.
- Extending and introducing new local bus services throughout R2 (linking to key regional destinations such as Craigieburn Town Centre) along the road network grid.
- At the subdivision level the urban grid encourages the design of residential lots to feature passive solar orientation, providing the ability to reduce carbon dioxide emissions per household.

Planting

Priority should be given to selecting species for planting (especially trees) which respond to challenges presented by climate change and drought. Tree species selected for street planting and open spaces should generally be drought tolerant native Australian species except at sites which warrant 'feature planting' such as entranceways or sites of special interest.

Water Sensitive Urban Design

Water Sensitive Urban Design ("WSUD") features for the open space network will provide for water quality treatment, retardation and high quality self-sustaining landscapes. The main water sensitive features of the precinct include treatment ponds in the headwaters of the Aitken Creek catchment draining via formalised overland flow paths, only partly within existing defined channels, to the main Aitken Creek and pond area immediately east of the plan area. An opportunity exists to enhance waterways by creating a defined watercourse in the upper reaches of the catchment while rehabilitating the lower reaches.

Native vegetation

Although farming has resulted in clearing of significant areas of flora and fauna, the precinct retains some significant biodiversity features. These include endangered vegetation and rare and threatened flora. The precinct contains approximately 170 large old remnant eucalypt trees that provide important habitat for a range of fauna that requires tree hollows. This plan seeks to retain where feasible native vegetation and remnant trees and the associated habitat within biodiversity protection areas, local parks and reserves. Where native vegetation removal cannot be avoided, it will be offset.

Native fauna

The site provides a range of habitats for fauna. Most significant is the presence of Golden Sun Moth (Synemon plana) (Critically Endangered – EPBC Act and Endangered in Victoria and listed as threatened under the FFG Act). The species has been found throughout the site and the majority of the Craigieburn precinct is considered habitat for Golden Sun Moth. A range of other fauna was surveyed on the site including species that are reliant on tree hollows.

3.2.8 Deliver accessible, integrated and adaptable community facilities

Central to each of the Plan precincts (both north and south of Craigieburn Road) are the two main neighbourhood activity centres. In addition to providing retail services, the centres will be the main community services hubs providing both public and private infrastructure. Community facilities are located on the central transport spine, the central connector road and located on the main transport routes.

The future urban structure supports walking and cycling links to activity centres, employment areas and areas of open space. The open space network and linear pedestrian and cycle network forms an integral community asset. The open space assets will be linked with local and linear parks, active playing fields, road verges and view corridors. The linear trail network will follow watercourses radiating out from the more defined Aitken Creek channel.

These corridors comprise a network of trails and series of multifunctional open spaces that serve as drainage corridors and passive recreational opportunities.

- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- 8 Precinct & Precinct No. Area
- Arterial Road
- Conventional Density
- Medium Density
- High Density
- Neighbourhood Activity Centre
- Local Centre
- Mixed Use / Employment
- Community Facilities
- Government Education Facilities
- Non Government Schools
- Reservoir Protection Mechanism
- Interim Reservoir Protection Mechanism
- Active Open Space / Playing Fields
- Passive Open Space
- Linear Open Space / Windrow
- Encumbered Open Space / Stormwater Management
- Biodiversity Protection Area/ Stormwater Management
- Native Vegetation Protection Area Encumbered
- Retarding Basin

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Plan 6

land budget plan
craigieburn R2 precinct structure plan

3.3 Land use budget

The Land Use Budget is outlined in Table 3: 'Summary land use budget' with a more detailed property specific land use budget in Table 5: 'Property specific land use budget' the outcomes of which are depicted in Plan 6: Land Use budget.

3.4 Demographic projections

The preparation of the Craigieburn R2 PSP has assumed an average household size of 2.8 persons per household to 2031 (based on Victoria in Future 2008) as the basis for estimating the future population within the precinct. In the longer term, this household size is forecast to gradually decline towards the metropolitan average which is around 2.5 people per dwelling.

Characteristics of the community that the PSP plans are:

- A higher proportion of families with young children than the metropolitan average;
- A higher proportion of families without children than the metropolitan average;
- A higher proportion of population in the 0-9 and 30-39 age groups than the metropolitan average; and
- A lower proportion of population in the 55-65 age group than the metropolitan average.

The proportion of residents at or reaching retirement age by 2031 is projected to increase significantly in line with the metropolitan average.

<u>The Hume area has:</u>

- A population younger than the Melbourne metropolitan average with a high proportion of residents (about 29%) aged 15 years or younger;
- Average per capita incomes lower than the Melbourne Metropolitan average but household incomes similar or even higher than the metro average due to higher than average household sizes;
- High level of home ownership (in the order of 90% of all households);
- A higher than average proportion of traditional families, with about 70% of all households comprising a couple with dependent children.

Characteristic of most growth areas in the early stages of development, household size often peaks well above 3 persons per household. This forms the basis of infrastructure and service planning by the Hume City Council and is supported by a detailed analysis and population model that is available from Council.

3.4.1 Land Use Budget Summary

The vision and the urban structure for the Craigieburn R2 Precinct acknowledges the role of the PSP area as providing an opportunity for young families to move into the Hume corridor.

The Urban Structure attempts to establish a positive framework within which a range of housing outcomes can be delivered with the diversity of housing options increasing in proximity to Activity Centres and open space.

The grid based transport network offers a high level of permeability and external connectivity which endeavors to support the early establishment of a range of community and other facilities.

The plan also incorporates key character elements such as preservation of landscape elements and natural features, to assist in the creation of a sense of place.

A sense of place will also be created through the development of an urban community with central neighbourhood and local Activity Centres providing community services and recreational hubs.

Refer to Table 3 for the summary of the land use budget.

Table 3: Summary Land Use Budget

Description	Area		
	Hectares	% of Total Prec	% of NDA
TOTAL PRECINCT AREA (ha)	455.29	100.00%	
Transport			
6 Lane Arterial Roads	5.04	1.11%	1.40%
Subtotal	5.04	1.11%	1.40%
Community Facilities			
Community Services Facilities	0.70	0.15%	0.19%
Subtotal	**0.70**	**0.15%**	**0.19%**
Government Education			
Government Schools	11.50	2.53%	3.18%
Subtotal	**11.50**	**2.53%**	**3.18%**
Open Space			
Encumbered Land Available for Recreation			
Encumbered Open Space / Stormwater Management	9.72	2.13%	2.70%
Biodiversity Protection Area / Stormwater Management	18.03	3.96%	5.00%
Subtotal	**27.75**	**6.09%**	**7.7%**
Native Vegetation Protection Area	5.21	1.14%	1.44%
Retarding Basins	2.01	0.44%	0.56%
Bund	2.53	0.56%	0.70%
Interim Bund	1.37	0.30%	0.38%
Subtotal	**11.12**	**2.44%**	**3.08%**
Unencumbered Land Available for Recreation			
Active Open Space	23.85	5.24%	6.60%
Passive Open Space	14.12	3.10%	3.91%
Subtotal	**37.97**	**8.34%**	**10.51%**
Totals Open Space	**76.84**	**16.87%**	**21.29%**
NET DEVELOPABLE AREA (NDA) ha	**361.20**	**79.34%**	

Table 4: Estimated Residential Lot Yield

Description	R2 PSP Area		
Retail / Emp & Other	**Hectares**		
Neighbourhood Activity Centre (retail & office)	5.20		
Local Centre	1.21		
Other Mixed Use / Employment	3.68		
Subtotal	**10.09**		
Connector Roads	**Hectares**		
Connector Road	22.65		
NAC Connector Road	0.88		
Subtotal	**23.53**		
Residential	**NRA (Ha)**	**Dwell / NRHa**	**Dwellings**
Residential - Conventional Density Residential	257.50	15	3862
Residential - Medium Density	67.61	20	1352
Residential - High Density	1.77	35	62
Subtotal Against Net Residential Area (NRA)	**327**	**16**	**5276**
Combined Res/ Retail / Emp / Other	**NDA (Ha)**	**Dwell / NDHa**	**Dwellings**
Totals Residential Yield Against NDA	**361.20**	**14.7**	**5276**

Table 5: Property specific land use budget

Property Number	Total Area (Hectares)	Transport			Employment & Activity Centres			Community		Encumbered Land Available for Recreation						Unencumbered Land for Recreation		Total Net Developable Area (Hectares)	Key Percentages				Passive Open Space Development Target %	Difference	Equivalent Land Area (Hectares)
		Arterial Road	Residential Connector Roads	NAC Connector Roads	Neighbourhood Activity Centre	Local Centre	Mixed Use / Employment	Community Facilities	Government Schools	Encumbered Open Space / Stormwater Management	Biodiversity Protection Area / Stormwater Management	Native Vegetation Protection Area - Encumbered	Retarding Basin	Bund	Interim Bund	Active Open Space	Passive Open Space		Net Developable Area % of Precinct	Active Open Space % NDA	Passive Open Space % NDA Includes Linear Open Space	Total Passive & Active Open Space %			
		Not included in NDA	Included in NDA	Included in NDA	Included in NDA	Included in NDA	Included in NDA	Not Included in NDA	Not included in NDA	Not included in OS %	Not included in OS %	Not included in OS %	Not included in OS %	Not included in OS %	Not included in OS %	Included in OS %	Included in OS %	Not including Arterial Roads, Community, Govt Schools & Recreation							
Property 1	55.58	0.00	2.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.59	0.00	0.00	0.00	0.00	2.45	50.55	90.94%	0.00%	4.84%	4.84%	3.91%	0.93%	0.47
Property 2	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	100.00%	0.00%	0.00%	0.00%	3.91%	-3.91%	-0.03
Property 3	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	100.00%	0.00%	0.00%	0.00%	3.91%	-3.91%	-0.02
Property 4	10.54	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68	9.86	93.59%	0.00%	6.85%	6.85%	3.91%	2.94%	0.29
Property 5	8.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.18	8.22	97.50%	0.00%	2.21%	2.21%	3.91%	-1.70%	-0.14
Property 6	13.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00	0.00	0.74	12.38	88.95%	0.00%	5.99%	5.99%	3.91%	2.08%	0.26
Property 7	76.70	0.00	6.31	0.49	2.61	0.00	1.25	0.00	0.00	1.63	0.00	0.00	2.01	0.00	0.00	5.00	1.62	66.44	86.62%	7.53%	2.44%	9.96%	3.91%	-1.47%	-0.98
Property 8	25.30	0.00	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.32	0.34	0.00	0.00	0.00	5.16	3.29	12.18	48.15%	42.36%	27.04%	69.40%	3.91%	23.13%	2.82
Property 9	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.19	42.86%	133.33%	0.00%	133.33%	3.91%	-3.91%	-0.01
Property 10	12.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.34	0.00	8.00	64.85%	54.21%	0.00%	54.21%	3.91%	-3.91%	-0.31
Property 11	16.45	0.00	1.05	0.00	0.00	0.00	0.00	0.00	3.50	0.25	0.00	0.00	0.00	0.00	0.00	0.19	0.00	12.52	76.09%	1.50%	0.00%	1.50%	3.91%	-3.91%	-0.49
Property 12	17.32	0.00	2.12	0.00	0.00	0.60	0.00	0.70	0.00	0.00	2.02	0.00	0.00	0.00	0.00	0.00	0.14	14.46	83.53%	0.00%	0.94%	0.94%	3.91%	-2.97%	-0.43
Property 13	65.59	0.00	2.12	0.00	0.00	0.61	2.44	0.00	0.00	2.06	11.54	0.00	0.00	0.00	0.00	0.00	1.43	50.57	77.10%	0.00%	2.82%	2.82%	3.91%	-1.09%	-0.55
Property 14	146.90	3.31	6.77	0.39	2.59	0.00	0.00	0.00	8.00	5.38	0.00	1.35	0.00	2.53	1.37	8.38	3.54	113.04	76.95%	7.41%	3.13%	10.54%	3.91%	-0.78%	-0.88
RR1 - Existing Road Reserve	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.07	0.42	72.34%	0.00%	15.68%	15.68%	3.91%	11.77%	0.05
RR2 - Existing Road Reserve - *Olivers Road*	1.03	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.54	0.00	0.34	32.94%	158.88%	0.00%	158.88%	3.91%	-3.91%	-0.01
RR3 - Existing Road Reserve - *Whites Lane*	1.19	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	66.08%	0.00%	0.00%	0.00%	3.91%	-3.91%	-0.03
RR4 - Existing Road Reserve - *Craigieburn Road*	1.73	1.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00%	0.00%	0.00%	3.91%	-3.91%	0.00
Total	**455.29**	**5.04**	**22.65**	**0.88**	**5.20**	**1.21**	**3.68**	**0.70**	**11.50**	**9.72**	**18.03**	**5.21**	**2.01**	**2.53**	**1.37**	**23.85**	**14.12**	**361.20**	**79.34%**	**6.60%**	**3.91%**	**10.51%**	**3.91%**	**0.00%**	**0.00**

growth areas AUTHORITY

PRECINCT 1 - Rural Inteface

- Transitional precinct providing buffer between Rural land to north & higher density to south.
- Local focus & access towards Mount Ridley Road.
- Incorporates key landscape elements into open space structure. Includes existing windrows to create entry statement and existing remnant trees to increase the overall visual amenity of the precinct.
- Generally lower residential density with pockets of higher density residential around both passive and active open space.

PRECINCT 2 - Northern Urban Core

- Urban core comprising of neighbourhood activity centre and mixed use employment co-located with higher density residential. Providing for increased walkable catchments that maximise the usage of these facilities and reinforces surrounding town centre character.
- Activity centre focused along 'main' style street and located at intersection of both pedestrian & vehicular transport networks. This creates an accessible community hub and further reinforcing town centre character.
- Higher density residential focus around acitivity centre helps provide flexibility for differing housing typologies catering for a variety of differing lifestyles.
- Co-location of government and non government school's near active open space to ensure efficient use of facilities.
- Incorporate key landscape elements including drainage lines and significant vegetation into open space structure to increase the visual amenity of the precinct.
- Pedestrian and cycle movement incorporates shared paths along open space and integrating with higher level roads to provide a dedicated pedestrian and cycle network. This links the activity centre and community uses with the internal and external open space network creating a safe and scenic environment for users.

PRECINCT 3 - Creekline Inteface

- Precinct is defined by natural features including drainage lines, windrows & existing vegetation.
- Transitional precinct providing buffer between precincts containing activity centres north & south.
- Higher density residential placed around open space, localised centres and centralised community facilities. This will help both provide for increased walkable catchments maximising use and creating the flexibility for differing housing typologies catering for a variety of differing lifestyles.
- Incorporate key landscape elements including drainage lines and significant vegetation into open space structure to increase the visual amenity of the precinct.
- Incorporate an integrated shared path network based upon existing key landscape elements creating a safe and scienic environment for pedestrian and cycle users.
- Mixed use employment located on Arterial Road to maximise traffic exposure leading to and from Craigieburn Town Centre and Hume Fwy.

PRECINCT 4 - Southern Urban Core

- Precinct separated from northern precincts by the arterial nature of Craigieburn Road.
- Urban core comprising of neighbourhood activity centre focused along a 'main' style street with adjoining higher density residential. This will provide for increased walkable catchments, maximising usage of these facilities and reinforcing surrounding town centre character.
- Activity centre located at intersection of both pedestrian and vehicular transport networks creating a accessible community hub.
- Higher density residential focus around acitivity centre and open space network helps provide flexibility for differing housing typologies catering for a variety of differing lifestyles.
- Government high school located adjacent to active open space to provide direct access and to ensure efficient use of facilities.
- Incorporate key landscape elements including drainage lines and significant vegetation into open space structure to increase the visual amenity of the precinct.
- Pedestrian and cycle movement incorporates shared paths traversing open space and integrating with higher level roads to provide a dedicated pedestrian and cycle network. This will link the activity centre and community uses with the internal and external open space network creating a safe and scienic environment for users.

Precinct Structure Plan Area
Urban Growth Boundary 2010
Precinct

MOUNT RIDLEY RD
MICKLEHAM RD
OLIVERS RD
WHITES LA
HUME FWY
Mount Ridley Conservation Reserve
Hard Courts/ Tennis Courts
Oval
Catholic Primary School
State Primary School
Potential Mixed Use / Employment
Local Centre 'Highlands'
Proposed Primary School
Malcolm Creek Learning Centre
GRAND BVD
MEDWAY RD
KINGSWOOD DR
CAMBERWOOD DR
HANSON RD
CRAIGIEBURN RD
Craigieburn Plaza
Catholic Primary School
Craigieburn Rail Station
BROADWATER RD
NEWMAN DR
State Secondary School
Public Golf Course
Aitken Hill Conference & Events Centre
State Secondary School 7-12

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Plan 7
image and character
craigieburn R2 precinct structure plan

4.0 ELEMENTS

This chapter sets out objectives and planning and design guidelines for the following elements:

- Image and character
- Housing
- Community Facilities
- Open Space and Natural Systems
- Employment & Activity Centres
- Transport and Movement
- Utilities & Energy

Each element includes:

Objectives:

An objective describes the desired outcome to be achieved in the completed development.

Plans:

A plan sets out a spatial expression of objectives.

Planning and Design Guidelines:

Planning and design guidelines including figures and tables that:

- must be met; or
- should be met.

The responsible authority has the discretion to consider (and approve) an application which does not strictly accord with the plan if the responsible authority considers that the alternative plan meets the required objectives.

4.1 Image and character

4.1.1 Image and character objectives

The image and character objectives are a guideline for the preparation of subdivision plans and town planning applications.

The image and character objectives are to:

- Create a built environment that is functional, safe, aesthetically pleasing and that promotes a strong sense of place for future residents.
- Utilise (where possible) the limited remaining natural features such as remnant trees and watercourses as enhancements to the urban environment.
- Establish a strong sense of place largely through the creation of focal points to the new community at Neighbourhood Activity Centres and the central service Mixed Use Precinct.
- Preserve view corridors to and from significant landscape features and ensure development does not detract from the visual amenity of the area.
- Demonstrate a response to the natural land form of the area through appropriate management of soil erosion, overland flow and water quality and ensuring development does not detract from visual amenity.
- Develop a distinctive neighbourhood character with a strong emphasis on elements which contribute to community identity as the focal point for the new community.
- Design sustainable streetscapes and open space landscapes which require minimal inputs of water, energy and chemicals and which can be maintained to a high standard with minimal management intervention.
- Conserve and enhance the limited recognised heritage places and remnant windrows and tree planting where possible.

4.1.2 Implementation

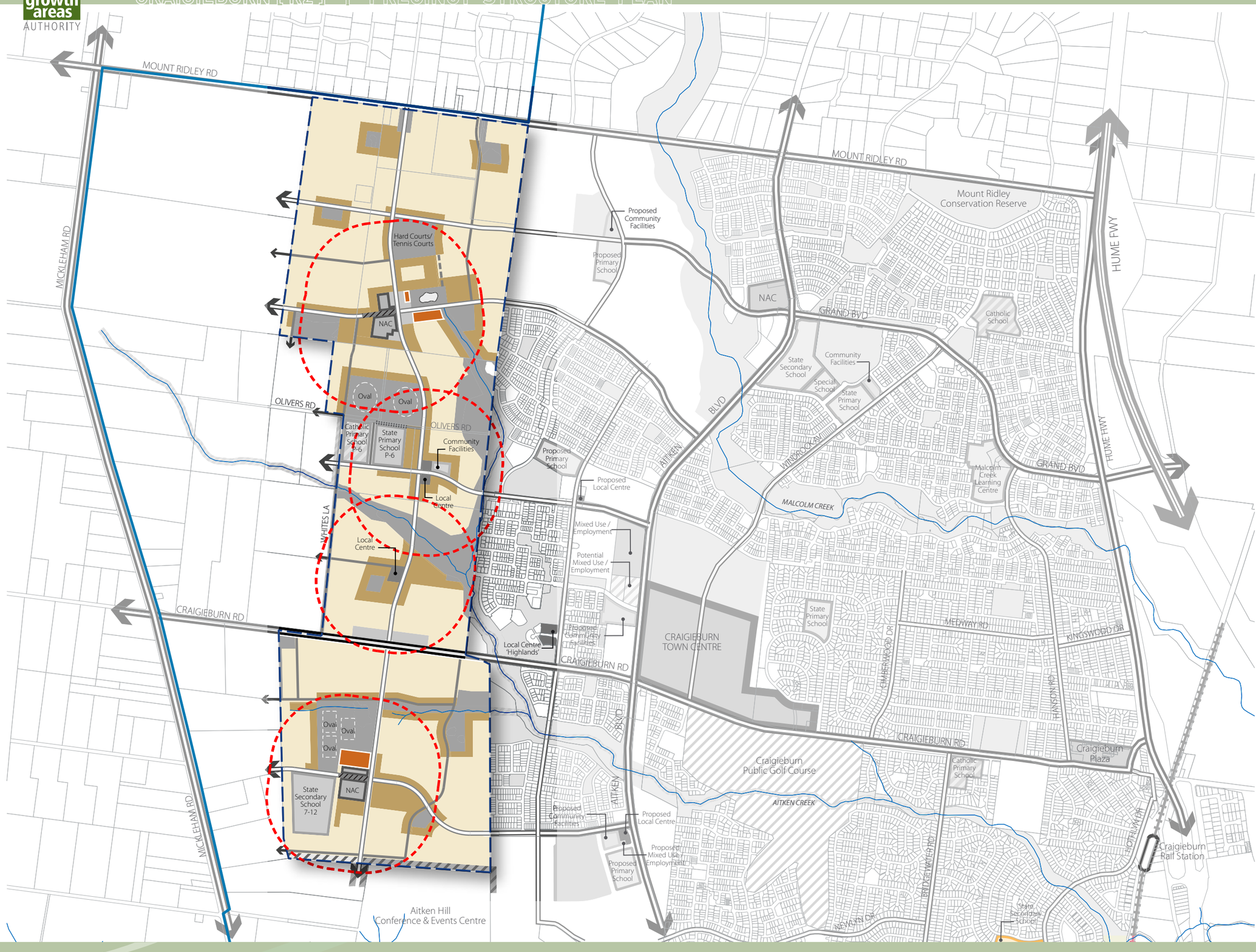
The objectives for image and character are met by implementation of all the following:

- Plan 5: Future Urban Structure Plan
- Plan 7: Image and Character Plan
- Planning and design guidelines set out under 4.1.3.

4.1.3 Planning and design guidelines

The following planning and design guidelines must be met:

An application for subdivision should address the requirements of Clause 56.01 and Clause 37.07 (Urban Growth Zone).



- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- Conventional Density
- Medium Density
- High Density
- 400m Pedestrian Walkability Catchment from NAC's and Local Centres

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Plan 8

housing

craigieburn R2 precinct structure plan

4.2 Housing

4.2.1 Housing objectives

To provide a diversity of lot sizes and housing types to satisfy the future needs of the new community as follows:

- To achieve an average of at least 15 dwellings per Net Developable Hectare (NDHa) throughout the Precinct Structure Plan area;
- To provide medium and higher residential housing densities close to services and amenity by locating them proximate to activity centres, open space, community hubs and public transport;
- To provide residential neighbourhoods that promote livability through high urban design standards, creating attractive streetscapes and a distinctive neighbourhood character;
- To increase conventional lot densities above historical patterns, and seek to integrate housing with activity centres and mixed use areas;
- To provide diverse housing options that achieve higher housing densities within the walkable catchment of the main street core of a neighbourhood activity centre;
- To provide large integrated housing sites (including for example medium density housing, retirement villages or other specialised housing forms) within or adjoining activity centres, and overlooking local and linear open space;
- Allow for home based employment opportunities; and,
- Encourage flexibility in subdivision design and planning/building approvals to enable better adaptation of housing to changing needs and a response to the local environment.

4.2.2 Implementation

The objectives for image and character are met by implementation of all the following:

- Plan 5: Future Urban Structure Plan
- Plan 8: Housing Plan
- Planning and design guidelines set out in 4.2.3.

4.2.3 Planning and design guidelines

Residential development across the PSP must include a full range of dwelling densities, including: 'conventional' density residential lots, 'medium' density residential lots, higher density/specialised housing. These terms are defined in the glossary in Section 7.1.

Conventional Density Housing should:

- Achieve an average of 15 lots per NRHa (net residential hectare).
- Seek to incorporate some opportunity for medium or high density housing with the majority of housing meeting the nominated density.

Medium Density Housing should:

- Achieve a minimum average of 23 dwellings per NRHa.

Higher Density Housing should achieve an average of 35 dwellings per NRHa.

- Development of Medium Density or High Density housing is encouraged to:
- Seek to provide the majority of housing at the density nominated but integrate with some conventional density, i.e. present diversity of product while emphasising a higher proportion of housing at the designated density;
- Be developed as part of an integrated development site and designed to comply with Clause 54 or 55 of the Hume Planning Scheme;
- Be developed to include specialised housing such as retirement or an aged care facility;
- Be provided predominantly in areas within 400 m walkable catchment of the main street core of an activity centre;
- Be overlooking, abutting or be within close proximity of public open space, community hubs and public transport; and,
- Be provided in a variety of forms – terrace / townhouse development, smaller 'town' lots, shared driveway housing, integrated development sites as well as retirement villages / nursing home care facilities.

The Precinct Structure Plan encourages higher housing density to be achieved for individual development sites above the minimum requirements specified.

Flexibility has purposely been provided to support alternative lot distribution patterns to promote greater housing diversity throughout the precinct.

The housing density distribution patterns shown on Plan 8 represent preferable locations for conventional, medium and higher density housing. Table 6 estimates the lot mix required to meet the overall dwelling yields. An alternative lot mix and spatial distribution may be considered providing the housing objectives are still able to be met.

Table 6 shows the breakdown of proposed housing densities within the precinct.

Table 6: Distribution of Densities

Density Target	Total Ha	Total No. Dwellings	% of Total Net Residential Area	% of Total Lots	Av. Lot Size m2
Net Developable Area	361				
Net Residential Area	327				
Conventional Residential Density (Min. Av. of 15 lots per NRHa)	257.50	3862	78.75%	73.20%	500
Medium Density Housing (inc retirement) (Min. Av. 20 dwellings per NRHa)	67.61	1352	20.71%	25.60%	304
High Density/Specialised Housing (Min Av. 35 dwellings per NRHa)	1.77	62	0.54%	1.20%	214

- Precinct Structure Plan Area
- Urban Growth Boundary
- Community Facilities
- Government Education Facilities
- Non Government Schools
- Active Open Space / Playing Fields
- 1000m Pedestrian Walkability Catchment from Significant Community Facilities

TRACT REF NO. POST EXHIBITION 308153 P PSP 11.15

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Plan 9

community facilities
craigieburn R2 precinct structure plan

4.3 Community facilities

4.3.1 Community facilities objectives

The objectives for community facilities include:

- Provide a community hub within the precinct as focal points for community activity and interaction, based on central neighbourhood and local activity centres.
- Support the early provision of facilities such as local parks, playgrounds, and community meeting places in each neighbourhood as residents move in.
- Support the provision of facilities such as schools, children's services, health facilities and formal recreation facilities as the population thresholds are reached.
- Plan for a range of community facilities, cultural venues and services to meet the varying needs of local residents, both public and private.
- Plan and design for community facilities to reflect high quality architecture and flexible design for a range of uses to accommodate changing community needs over time.
- Plan for community facilities to be located within proximity of activity centres, and if possible co-located with active and passive open space.
- Plan for community facilities to be accessible by public transport, walking and cycling.
- Co-locate schools with active open space to provide an opportunity to share facilities.

4.3.2 Implementation

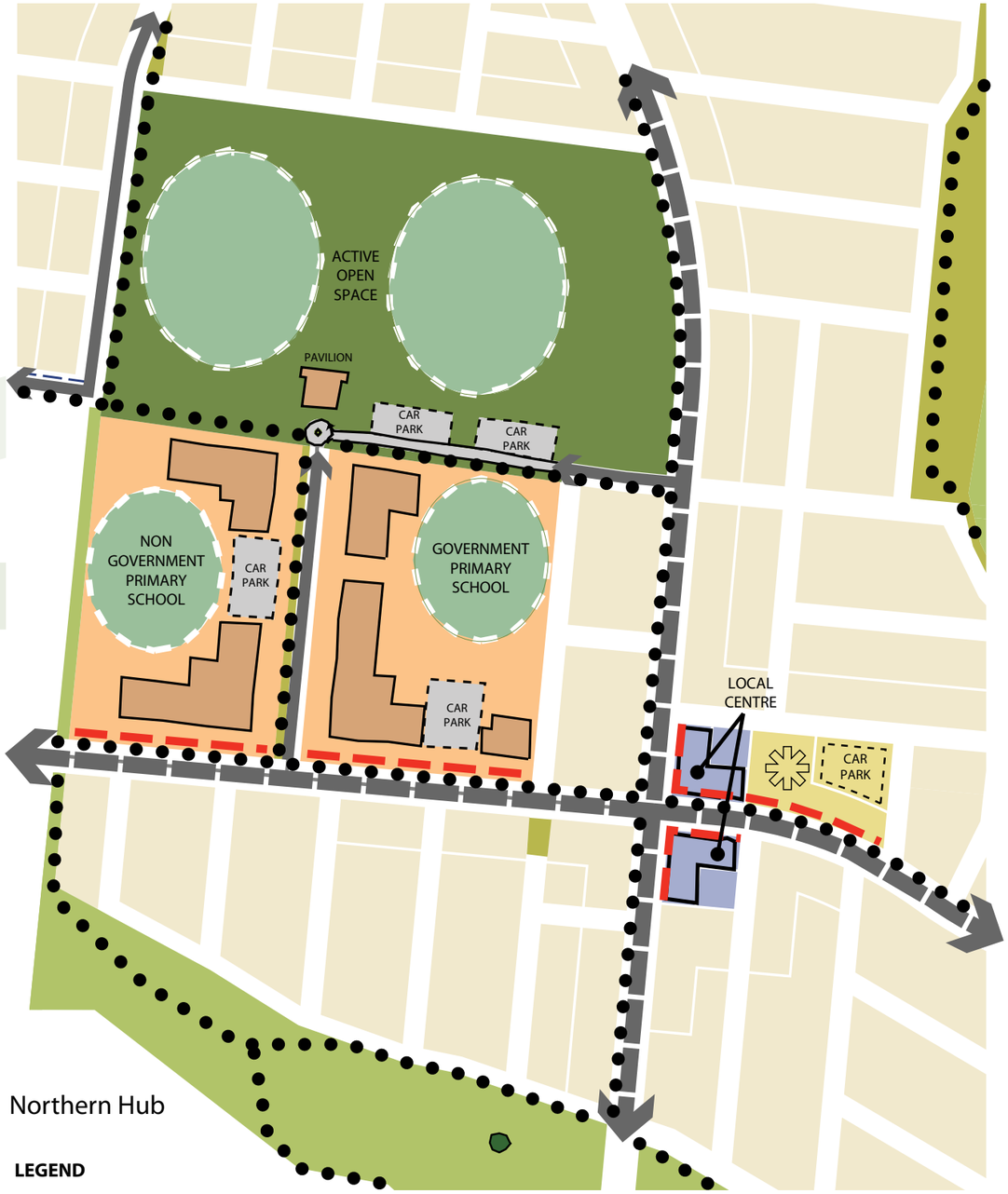
The objectives for community facilities are met by implementation of all the following:

- Plan 5: Future Urban Structure Plan
- Plan 9: Community Facilities;
- Table 7: Community Facilities;
- Planning and design guidelines set out in 4.3.3 including Plan 10: Community Hubs.

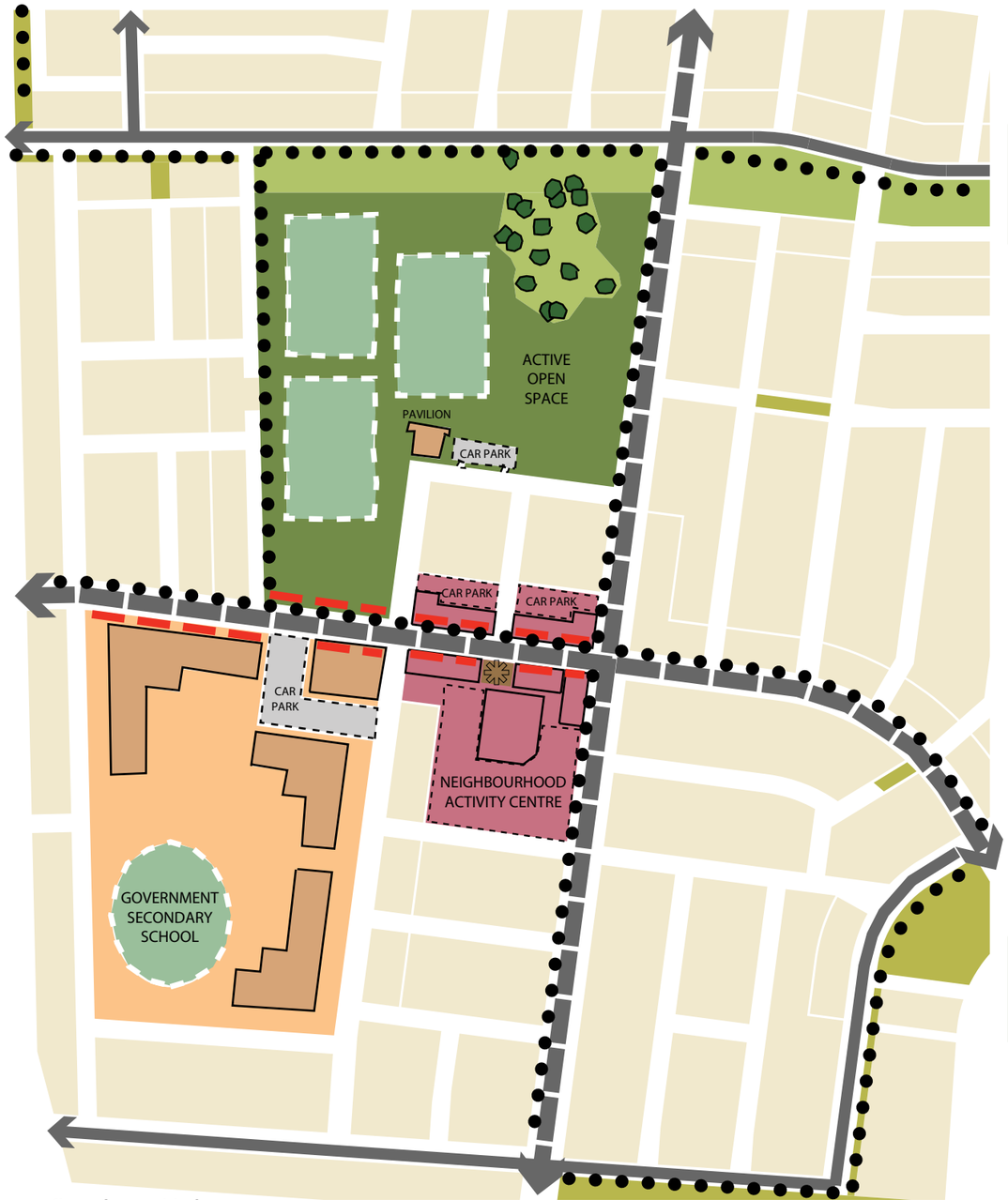
Table 7: Community Facilities

Northern Area		
Facilities and services	**Location**	**Responsibility**
State Primary School P-6	Northern Community Hub	DEECD
Maternal & Child Health	NAC	Hume Council
Community meeting space & NGO consulting rooms	NAC	Hume Council
Active Open Space	Northern Community Hub	Hume Council

Southern Area		
Facilities and services	**Location**	**Responsibility**
State Secondary School 7-12	Southern Community Hub	DEECD
Active Open Space	Southern Community Hub	Hume Council



Northern Hub



Southern Hub

LEGEND

- Neighbourhood Activity Centre
- Local Centre
- Community Facilities
- School Campus
- Town Square
- Active Open Space
- Encumbered Open Space
- Open Space or Landscaped Reserves
- Connector Street
- Access Street - Level 2
- Indented Parking
- Bicycle Path

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SCALE NTS

Plan 10

community hubs

craigieburn R2 precinct structure plan

4.3.3 Planning and design guidelines

The following planning and design guidelines must be met:

- Community infrastructure to be integrated with council facilities and open spaces.
- Co-location of community centres with proposed children's playgrounds, recreation infrastructure and kindergartens is encouraged.

The following planning and design guidelines should be met:

- Education and community services (public and private) and other activities (such as childcare centres and nursing homes) are encouraged:
  - Within and or adjoining community hubs.
  - Within and or on the edge of activity centres.
  - On either connector streets or arterial roads where access can be provided safely.
  - Within walking distance of public transport.
  - Private services should, where appropriate, integrate with Council community centres, Activity Centres or local hubs.

4.3.4 Community Facilities Delivery Statement

It is important that community facilities are delivered in an integrated and co-ordinated manner to maximise both early and cost effective provision. The following statements guide these outcomes:

Integrated, efficient and timely facility provision

- Funding opportunities and partnerships should be sought to support early provision of community facilities.
- The Growth Areas Authority will work closely with Hume Council through infrastructure working groups to explore and pursue opportunities for partnership approaches to support integrated and timely provision of key community facilities.
- Potential funding sources to be considered include:
- Craigieburn R2 Development Contributions Plan.
- Hume Council Capital Works Program.
- Development Proponent Funding. This may include an injection of additional funding, or potential for a development proponent to deliver an item in the Development Contributions Plan through in-kind works. Provision of in-kind works requires approval by the Hume City Council as the Collecting Agency.
- State Grants Programs. The State Government has many grants programs with funding potential across a broad range of community facilities and services.
- Growth Areas Development Fund. The Hume City Council may make an application to the Growth Areas Authority for funding to support the provision of community facilities in the precinct.
- Non-government organisations. Some community infrastructure may be able to be delivered by the Council working in partnership with non-government organisations.

Community Hub Concept Planning

Delivery of integrated and timely community facilities is an evolving task that takes place in stages over a long period of time in response to the changing needs of the community. It is evolving in the sense that it involves many stakeholders with priorities that are subject to change over time. Models for service delivery and the facilities designed to implement those models also change over time as new approaches are adopted. The Precinct Structure Plan has been designed to be flexible enough to be able to accommodate change over time.

The plan will be in part serviced by expanding facilities outside the PSP area to the east.

The Draft Community Hub Plans provide an indicative design solution. Alternative approaches that are to the satisfaction of the Responsible Authority may be considered where they achieve community facilities objectives.

Co-ordination and delivery of the community hub will be greatly assisted by the establishment of:

- One integrated local community centre will be provided central to the PSP area and include:
  - Site area of 0.7ha.
  - Building floor area of at least 1050m^2.
  - Double preschool, maternal and child health, meeting rooms etc.
- A governance model for the concept and master planning. One approach is for this to be facilitated by Hume Council through a community hub steering committee.
- The development of community hub concept plans. These are provided as an indicative design solution.
- Master plans that provide detail for the delivery of the concept plans.

The governance arrangements and engagement is an important part of identifying, discussing and resolving issues around facility design, ownership, leasing, capital works funding, service delivery funding, management and maintenance and upgrade over time.

The opportunities for integrated facility delivery apply equally to sporting facilities as they do to items such as community centres and schools. Opportunities for shared use of clubhouse and pavilion buildings is possible and may be accommodated through flexible facility design and integration through hub master planning.

Where facilities are associated with schools, they should be designed concurrently to preserve the potential for integrated facility delivery and maximise sharing opportunities.

Open space

Individual development proponents are required to provide improvements to local parks and passive open space including earthworks, grassing, tree planting, local playgrounds and shared paths and footpaths, furniture and paving.

Provision will be resolved during the implementation phase of the Precinct Structure Plan.

The active open space areas will benefit from the preparation of a master plan to guide their staged delivery over time, consistent with the establishment of the community hubs discussed above. These processes will benefit from a governance model being established to support the master planning and the ongoing implementation and management of the reserves consistent with other approaches across the municipality.

growth areas AUTHORITY

MOUNT RIDLEY RD
MICKLEHAM RD
OLIVERS RD
WHITTLA
CRAIGIEBURN RD
HUME FWY
BLVD
AITKEN
GRAND BVD
WINDOOR AVE
MALCOLM CREEK
AITKEN CREEK
MEDWAY RD
KINGSWOOD DR
CEMBERWOOD DR
HANSON RD
BALDERSTONE RD
FORSYTH DR
NEWMAN DR

Hard Courts/ Tennis Courts 5.00 ha
Oval
Oval
10.48ha
Oval
Oval
Oval
8.38ha
NAC
NAC
NAC
Catholic Primary School P-6
State Primary School P-6
State Secondary School 7-12
Community Facilities
Local Centre
Local Centre
Local Centre 'Highlands'
Proposed Community Facilities
Proposed Primary School
Proposed Local Centre
Mixed Use / Employment
Potential Mixed Use / Employment
Proposed Community Facilities
Proposed Primary School
Proposed Community Facilities
Proposed Local Centre
Proposed Mixed Use / Employment
Proposed Primary School
Aitken Hill Conference & Events Centre
Mount Ridley Conservation Reserve
NAC
Catholic School
State Secondary School
Special School
Community Facilities
State Primary School
Malcolm Creek Learning Centre
CRAIGIEBURN TOWN CENTRE
State Primary School
Craigieburn Public Golf Course
Catholic Primary School
Craigieburn Plaza
Craigieburn Rail Station
State Secondary School

- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- Reservoir Protection Mechanism
- Interim Reservoir Protection Mechanism
- Active Open Space / Playing Fields
- Passive Open Space
- Linear Open Space / Windrow
- Encumbered Open Space / Stormwater Management
- Biodiversity Protection Area/ Stormwater Management
- Native Vegetation Protection Area Encumbered
- Retarding Basin
- Watercourse
- Significant Regional Open Space (Outside PSP)
- Encumbered Open Space (Outside PSP)
- 400m Pedestrian Walkability Catchment from Active and Passive Open Space

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Plan 11

open space network
craigieburn R2 precinct structure plan

4.4 Open Space and Natural Systems

4.4.1 Open Space and Natural Systems Objectives

- To provide a variety of open space types to meet the active and passive recreation needs of the community and where possible protect and restore environmental values and features.
- To establish a network of appropriately sized, connected and distributed open spaces to meet local and district open space needs.
- To establish an attractive urban environment with a strong sense of place through the provision of well designed landscaping of open spaces as well as the road and corridor networks.
- To implement open space development standards and planting regimes which facilitate sustainable maintenance practices in relation to water and energy consumption.
- To plan for the long term conservation and enhancement of areas of significant native vegetation, fauna habitat and waterway linkages.
- To protect areas set aside for biodiversity protection through the appropriate alignment of paths and the provision of a transitional zone between biodiversity protection areas and other uses.

4.4.2 Implementation

The objectives for open space and natural systems are met by implementation of all the following:

- Plan 5: Future Urban Structure Plan
- Plan 11: Open Space Network Plan;
- Plan 12: Biodiversity and Vegetation Plan;
- Section 4.4.4 and Table 8: Distribution of Passive Open Space;
- Table 8a: Open Space Planning and Design Guidelines;
- Planning and design guidelines set out in 4.4.3.

4.4.3 Planning and design guidelines

The guidelines outlined in Table 8A should be met and also apply to the development of land adjacent to or abutting active, passive and linear open space. In summary, the following objectives should be met:

- Design of open spaces should be contemporary in nature and innovative where possible.
- A reserve of at least 60 metres (30 metres from either side of the creek centre-line) is required along the length of Aitken Creek and its northern tributary for drainage and hydraulic purposes.
- Early provision of land for active open space is encouraged to provide for community needs early in the development phase.
- Existing vegetation within proposed parks (both indigenous and exotic) is retained and rehabilitated wherever possible.
- Optimise road frontages to parks.
- For Passive Open Space, a minimum of 0.75ha is required and is subject to Council's dimensions to allow for effective usable space.

4.4.4 How To Make A Public Open Space Contribution In This Precinct

Further to the public open space contribution required at Clause 52.01 of the Hume Planning Scheme, this provision sets out the amount of land to be contributed by each property (refer to Plan 6 for property numbers) in the precinct and consequently where a cash contribution is required in lieu of land. Where 'Table 8: Distribution of passive open space' in this precinct structure plan specifies:

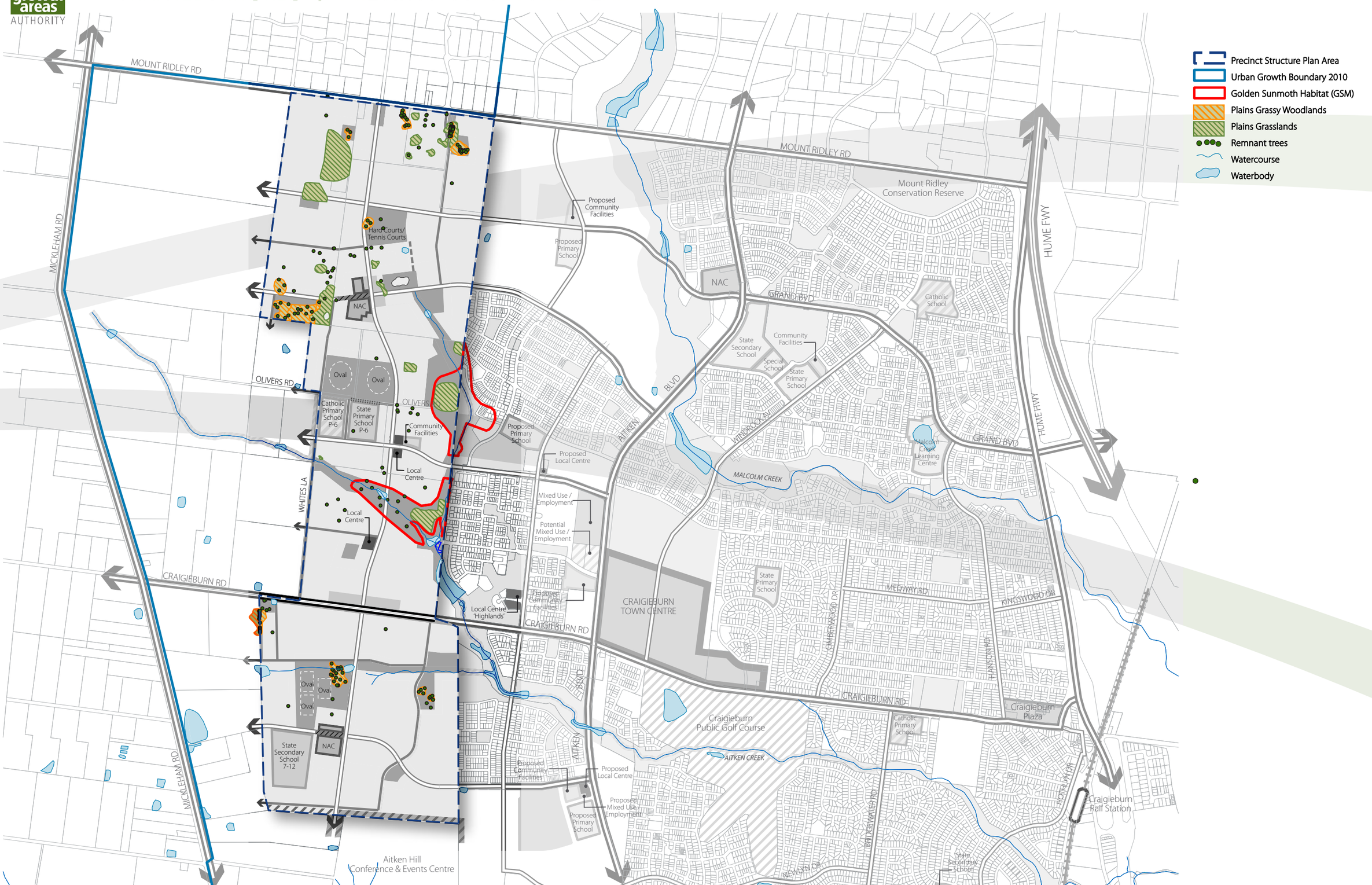
- 0% of the land as Passive Open Space ('POS'), the contribution is a cash contribution of 3.91% of the site value.
- more than 0% and less than 3.91% of the land as POS, the contribution is a land contribution equal to the percentage specified in Table 8 as POS and a further cash contribution that is equal to the difference in value between the land contribution and 3.91% of the site value.
- more than 3.91% of the land as POS, the contribution is a land contribution equal to the percentage specified in Table 8 as POS.

In the latter instance, the subdivider may request that the responsible authority reimburse the subdivider for the difference in site value between 3.91% and the amount of POS specified for that land in Table 8, to the satisfaction of the responsible authority.

The responsible authority may accept a variation to the specific amounts of land set out in Table 8 provided the total amount of public open space land and/or cash contribution provided is equal to the amount required in Clause 52.01.

Table 8: Passive Open Space Distribution

Property Number	Total Area (Hectares)	Passive Open Space (Hectares)	Total Net Developable Area (Hectares)	Passive OS % nda
Property 1	55.58	2.45	50.55	4.84%
Property 2	0.85	0.00	0.85	0.00%
Property 3	0.41	0.00	0.41	0.00%
Property 4	10.54	0.68	9.86	6.85%
Property 5	8.43	0.18	8.22	2.21%
Property 6	13.92	0.74	12.38	5.99%
Property 7	76.70	1.62	66.44	2.44%
Property 8	25.30	3.29	12.18	27.04%
Property 9	0.45	0.00	0.19	0.00%
Property 10	12.33	0.00	8.00	0.00%
Property 11	16.45	0.00	12.52	0.00%
Property 12	17.32	0.14	14.46	0.94%
Property 13	65.59	1.43	50.57	2.82%
Property 14	146.90	3.54	113.04	3.13%
A Existing Road Reserve	0.58	0.07	0.42	15.68%
B Existing Road Reserve - Olivers Road	0.00	0.00	0.34	0.00%
B Existing Road Reserve - Whites Lane	0.00	0.00	0.79	0.00%
C Existing Road Reserve - Craigieburn Road	0.00	0.00	0.00	0.00%
TOTAL	**455.29**	**14.12**	**361.20**	**3.91%**



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Plan 12

biodiversity & vegetation

craigieburn R2 precinct structure plan

4.4.5 Biodiversity Assets

Native vegetation in the precinct includes:

- three high or very high significance EVCs: Plains Grassy Woodland, Creekline Grassy Woodland and Plains Grassland, endangered within the VVP bioregion.
- EPBC listed Natural Temparate Grassland of the VVP.
- 170 large remnant eucalypts with very high to high conservation values.
- Flora species including EPBC listed Matted Flax-lily and River Swamp Wallaby Grass, and state significant Pale-flowered Cranesbill.
- Habitat values within the precinct include:
- Habitat corridors within the study area along two branches of the Aitken Creek, rock lined fences and stone walls.
- Habitat nodes are located throughout the site in rock features, mature eucalypts, grassland patches and exotic vegetation.

Fauna species recorded include:

- Golden Sun Moth listed as critically endangered under the EPBC Act, and is listed under the FFG Act and considered endangered in Victoria;
- State and regionally significant Hardhead Duck, Micro-bats, Purple-crowned Lorikeet, White-fronted Chats, Wedge-tailed Eagle and Eastern Three-lined Skink

4.4.6 Biodiversity Objectives

- To plan for the long term conservation management of areas of significant native vegetation and fauna habitat in accordance with the Biodiversity Plan', Section 4.5 of the PSP and the Craigieburn Native Vegetation Precinct Plan,
- To plan for biodiversity values unable to be retained to be offset to permanently protect areas,
- To enhance the biodiversity within managed watercourses to provide habitat and ecological connectivity throughout the precinct as the area develops in accordance with the Craigieburn PSP.

4.4.7 Implementation

The objectives for biodiversity are met by implementation of all the following:

- Section 4.4.8: Biodiversity Planning and Design Guidelines;
- The Craigieburn R2 Native Vegetation Precinct Plan;
- Plan 12: Biodiversity & Native Vegetation;
- Provisions of the Urban Growth Zone; including relevant schedule
- Open Space Planning and Design Guidelines 4.4.9.

4.4.8 Biodiversity Conservation Planning and Design Guidelines:

The following planning and design guidelines should be met:

- Street trees and public open space landscaping will contribute to habitat for indigenous animals; in particular tree-dwelling animals and birds. Where appropriate, the use of indigenous trees is encouraged along streets and in parks. Lower height indigenous planting is encouraged where it is compatible with the planning and design guidelines for street tree planting and delivery of public open space;
- Revegetation should use locally indigenous species complementary to indigenous Ecological Vegetation Communities where possible;
- Where indigenous trees are not appropriate in landscaping, then Australian species should be used wherever possible;
- Linear parks, water ways and widened road reserves should support the connection of areas capable of supporting plants and animal habitat through appropriate design and planting;
- Strategic revegetation should link and develop habitat areas with a particular emphasis on enhancing corridors of native vegetation along the creek and drainage lines that link to areas downstream.

4.4.9 Open Space Planning and Design Guidelines

The following planning and design guidelines must be met in relation to the provision of passive open space (unencumbered):

- Landscaped areas are to be designed for low maintenance
- North-south alignment of cricket wickets and/or football ovals.
- The total provision of open space for each land parcel must be consistent with the open space requirements in Table 8 unless otherwise agreed in writing by the responsible authority. Additional open space may be provided but is not to receive an open space credit.
- An alternative provision of land for passive open space to that shown in Plan 11 is generally in accordance with this plan provided the passive open space (unencumbered) is:
- Located so as not to reduce the walkable access to local parks demonstrated in Plan 11
- A minimum area of 0.75ha in area unless collocated with other unencumbered open space (e.g. active open space)
- Able to support any particular planned use of the reserve
- As far as practicable regular in form with a minimum average width of approximately 50 metres
- Fronted by a connector road or key local road on at least one side.

Further Planning and Design guidelines for open space in the Precinct are in Table 8a.

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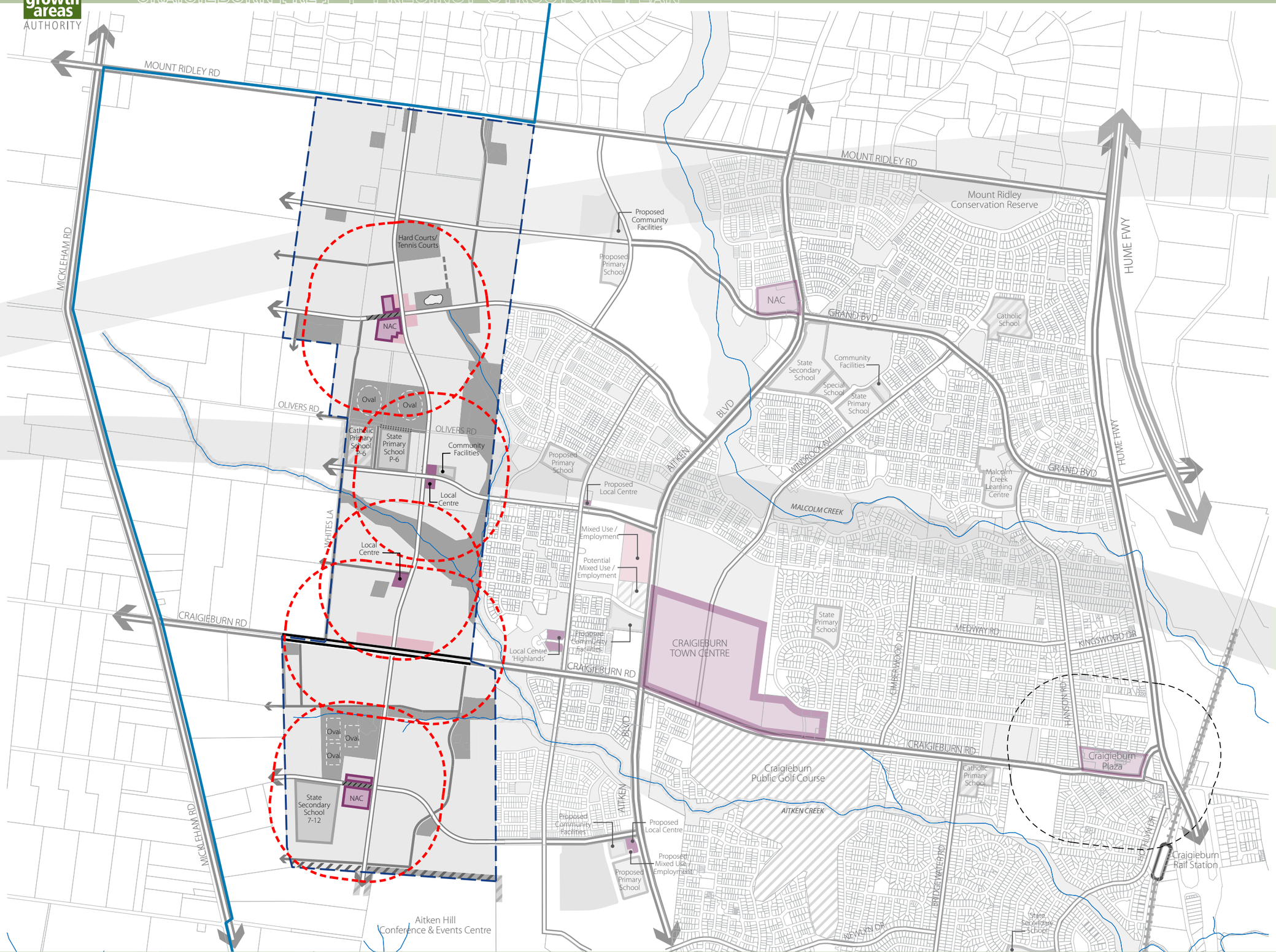
Table 8A: Open Space Planning and Design Guidelines

Design Issue	Planning and Design Guidelines
General	• Passive parks should cater for a broad range of users by providing a mix of spaces and planting to support both structured and informal recreational activities. • Active recreation reserves should be designed to allow possible co-location and sharing opportunities between complementary sports and adjoining school facilities. • Parks should contain both cleared open areas for unstructured activities, as well as areas for shade and shelter. • The appropriate mix of infrastructure in parks must be provided to the satisfaction of the responsible authority.
Interface with road network	• Open spaces must have a road frontage to all edges except where these are otherwise addressed by active frontage from careful design of residential, commercial or community facility development. • Streetscape planting and paths must complement and integrate with the adjoining parkland design
Interface with adjoining development	• The open space network will be enhanced by careful design of residential, community and commercial development adjacent to it. • The primary frontage of development that immediately abuts open space areas should address and promote use and surveillance of the parkland. • Development abutting open space must be well articulated and facilitate passive surveillance with windows, balconies, and pedestrian access points. • Development should avoid the rear of properties or blank walls abutting parklands. • Where fencing is required it should be low scale and permeable to facilitate public safety and surveillance. • Landscaping of adjoining development must complement the park landscape design.
Interface with conservation areas	• The design of parks and open space corridors can enhance and preserve areas of conservation significance provided this does not undermine the open space function of the space. • Landscape master planning of open space containing native vegetation conservation areas must be designed to protect sensitive areas from vehicle or pedestrian traffic. • Where appropriate, provide buffer zones between a use or development likely to detrimentally impact retained native vegetation and the retained native vegetation. • Sensitive design of transitional zones between biodiversity protection areas and waterways is required to protect natural features and habitat.
Interface with drainage system	• The design of drainage reserves, retarding basins and wetlands is to improve existing conditions and integrate with the open space network. • Pedestrian and bicycle paths must be incorporated into the drainage system to connect the open space and street network. • Pedestrian bridges and boardwalks should be incorporated into the path network of the drainage system to facilitate permeability of neighbourhoods. • Paths, bridges and boardwalks should be designed to be above a minimum of the 1:10 year flood line to the satisfaction of the relevant authority. • Park seating should be provided adjacent footpaths at least every 250 metres along paths.
Park buildings	• The design standards of park buildings should make use of sustainable construction techniques (for example solar power lighting). • Park buildings should be sited and designed to integrate with and complement landscaping and should not dominate the parkland. • Park buildings should be sited to frame park spaces and should avoid splitting up otherwise usable and effective spaces. • Park buildings should be contemporary in design with orientation, materials choices and design detailing to minimise resource use and maximise sustainability performance. • Material choice shall complement the proposed landscape character
Public safety and lighting	• Open spaces must be designed to be safe and comfortable places that encourage use by a wide range of people. • The use of the design principles known as "Crime Prevention Through Environmental Design" ("CPTED") should guide the design of open spaces and the infrastructure it contains: • Surrounding land uses should provide passive surveillance to adjoining open space and planting design should promote a highly visible public realm. • The detailed design of open spaces that immediately abut development shall complement and enhance the function and safety of that development. • Open space path systems must facilitate clear, direct and easy movement to and from key destinations. • Lighting in open spaces should be restricted to reserve entrances, activity nodes, community event gathering points, car parks and path intersections. • Light fittings should be energy efficient and 'cut-off' type to direct light where it is required and reduce unnecessary spill to sides or above.
Landscape character and vegetation	• The selection of plant species should be based on the ability of the species to survive in the urban environment and enhance the local character. To this end, Australian species should be used wherever possible. • Alternative Exotic and Australian native species and cultivars can be used as a planting feature to highlight planting at entries, key focal points and boulevards.

growth areas AUTHORITY



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Plan 13

employment & activity centres
craigieburn R2 precinct structure plan

Other park landscaping elements and infrastructure	• The design and siting of landscape elements and infrastructure will compliment the area. • Park infrastructure such as playgrounds, shelters, BBQ's picnic tables, toilets etc should be clustered in nodes. Park planting themes should enhance and complement these nodes. • Park seating should be provided at least every 250m along any open space path networks. • Where pavilions and club houses are planned or already exist, these should be the location for public toilets. • Use of bollards and fencing should be well targeted, maximise transparency and generally kept to a minimum. • Where car parking is required within parks, it should be sensitively designed to minimise large areas of hard surfaces and maximise tree and ground level planting. Safe pedestrian access should be integrated within car park designs.
Signs	• Parks and sports fields will be clearly signed. • Generally, signs within parks should be kept to a minimum with locations focussed on key access or interpretation points and major pedestrian / cycle routes. • Design and materials choice should be contemporary and should complement other park design elements.
Water sensitive urban design	• The design and layout of open spaces will maximize water use efficiency, stormwater quality and long term viability of vegetation through the use of Water Sensitive Design ("WSUD") initiatives. • WSUD principles should be used so that excess run-off water from within, or where appropriate, external to the park, is directed to support park planting and / or rain gardens rather than being diverted to drains. • Warm season grasses should be used within passive reserves and sports fields to minimise potable water use.

4.5 Employment and activity centres

4.5.1 Employment and activity centres objectives

- The objectives for employment and activity centres are:
- To increase economic development and gross regional production within the Hume City Council so that;
  - Demand on regional transport infrastructure is reduced;
  - Transport costs for households and businesses is reduced;
  - Quality of life, family and community stability is enhanced;
- To facilitate the provision of local services as part of neighbourhood activity centres and as part of the proposed Mixed Use Precinct for Craigieburn Road;
- To encourage the development of a broad range of business; and
- To provide local activity centres, central to residential communities to provide for limited daily retail needs and as a focal point for the local community.

Hume Corridor and Airport

The location of extensive existing and proposed employment areas within the Hume Highway corridor cannot be disregarded and will provide considerable job opportunities for the growing residential population in Hume.

With almost 50% of the local population employed within the municipality, Hume has the highest ratio of local workforce employed locally of all Melbourne's growth areas. The planned increase in employment generators both along the Hume Highway and at Melbourne Airport will continue to provide for increased local employment opportunity.

Neighbourhood Activity Centres

The neighbourhood activity centres (NAC's) provide the principal retail and local service centres for communities both north and south of Craigieburn Road. The dominant centre, with capacity to grow, will be in the north. As service centres each will provide a range of activities which have the capacity to provide local employment opportunities in the retail and services sector. Employment and activity centre locations are identified on Plan 16.

Northern Activity Centre

The northern Activity Centre is located on the central north/south connector road at the junction of an east/west connector. The primary catchment for this centre will be the PSP area north of Craigeburn Road as well as the residential development east of the PSP (Highlands Estate).

The centre is anticipated to support up to 6,550m^2 gross floorspace including 1,250m^2 of office, providing for one major and one minor supermarket and specialty shops. The centre will not only provide retail floorspace but function as a neighbourhood service centre. Opportunities for local services and employment include:

- Office (local professional or service provider)
- Medical centre
- Private child care
- Banking
- Residential
- Dining and entertainment.

Opportunities exist at the detailed planning stage to integrate housing into the centre as a mixed use opportunity, particularly at the interface with residential areas.

Southern Activity Centre

Located on the main north/south arterial road, south of Craigieburn Road, the centre will function as the only retail based centre south of Craigieburn Road, It will serve adjoining urban development both within the existing approved urban areas to the east and the possible future growth area to the west. The overall primary catchment is likely to be approximately 3,000 lots supporting a supermarket based centre with specialty shops.

Because of the smaller size of the centre and overall catchment area, compared to the north, local services and employment activity is also likely to be more limited. The centre should provide up to 6,700m^2 gross floorspace and a range of local services and employment, in addition to retail including:

- Private Child Care
- Medical
- Offices
- Non Retail Shop Front
- Dining and Entertainment

Local Activity Centres

Local Activity Centres (LAC's) provide for the more immediate retail and service needs at the local level generally within a walkable catchment. This will extend to several small shops and a possible small supermarket. These centres should provide only for convenience retail (ie a small supermarket) and should not undermine the retail viability of the neighborhood centres within the PSP and surrounding areas.

Employment opportunities will be limited due to the size of local centres providing only limited retail and potential for local service delivery such as child care and limited office/home based employment.

The exact nature and function of these centres is difficult to predict at this early planning phase and ultimately their development and range of services will evolve to respond to the needs of the community.

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Flexibility is required in planning at precinct structure plan level with specific detail to be resolved at planning permit stage.

Local Activity Centre South

The neighbourhood surrounding this activity centre, and its passing trade is anticipated to support approximately 500m^2 of floor area. It will not be focused solely on retail uses. The presence of a major bus stop serving the surrounding pedestrian catchment of around 1,000-1,500 dwellings and community uses such as a child care centre support viability. Office and local small business may locate here. From an urban design perspective, the centre provides a real heart and sense of place for residents.

Uses may include:

- Retail (deli, general store, newsagent, fresh food, café)
- Service (hairdresser, communications, real estate, community bank)
- Office (accountant, lawyer, IT)
- Community (child care centre, meeting hall)
- Residential (densities above 20 dwellings per hectare in shop top, apartment or townhouse types)

Local Activity Centre North

The neighbourhood surrounding this activity centre, and its passing trade is anticipated to support approximately 1,000m^2 + of floor area and is more focused on retail uses. The presence of a small supermarket and major bus stop serving the surrounding pedestrian catchment of around 1,500-2,000 dwellings will support viability. Office and local small business can also be found. From an urban design perspective, the centre will provide a real heart and sense of place for residents given its 'village' character and walkability.

Uses may include:

- Retail (small supermarket, fresh food, café)
- Service (hairdresser, communications, real estate, community bank)
- Office (accountant, lawyer, IT)
- Residential (densities above 20 dwellings per hectare in shop top, apartment or townhouse types)

Mixed Use Precinct (Highway Service Business)

The Mixed Use Precinct is a mixed use opportunity to provide commercial activity that benefits from exposure to the high volumes of traffic on the main arterial road network. Flexibility needs to be maintained to enable responsiveness to the needs of the growing community.

The Craigieburn Road interface is intended to provide for non-retail activity taking benefit from passing trade and as a service business hub for the community. From an urban design perspective, it acts as a buffer to the core residential area behind it. Built form allows predominately active uses to face south to Craigieburn Road and predominately residential uses face north.

Uses may include:

- Small showrooms/warehousing (plumbing supplies, pet supplies, hardware, etc)
- Light-industry (automotive trades, cottage industry/manufacture)
- Office (building companies, health club, call centre)
- Fast food
- Residential, not dense but could be shop-top to rear

4.5.2 Implementation

The objectives for employment areas are met by implementation of all the following:

- Plan 5: Future Urban Structure Plan.
- Plan 13: Employment Areas & Activity Centres Plan
- Table 9: Hierarchy of Activity Centres
- Planning and design guidelines set out in 4.5.3 including:
- Figures 1 & 2
- Table 10: Neighbourhood Activity Centres Urban Design Framework Guidelines

LEGEND

- Activated Frontage
- Town Square
- Primary Retail Anchor
- Retail
- Mixed Use/Non Retail Commercial
- Open Space
- Pedestrian Link/Public Space
- Medium / High Density Residential
- Conventional Density Residential
- Connector/Main Street
- Access Street Level 2
- Car Parking
- Vehicle Access to Parking

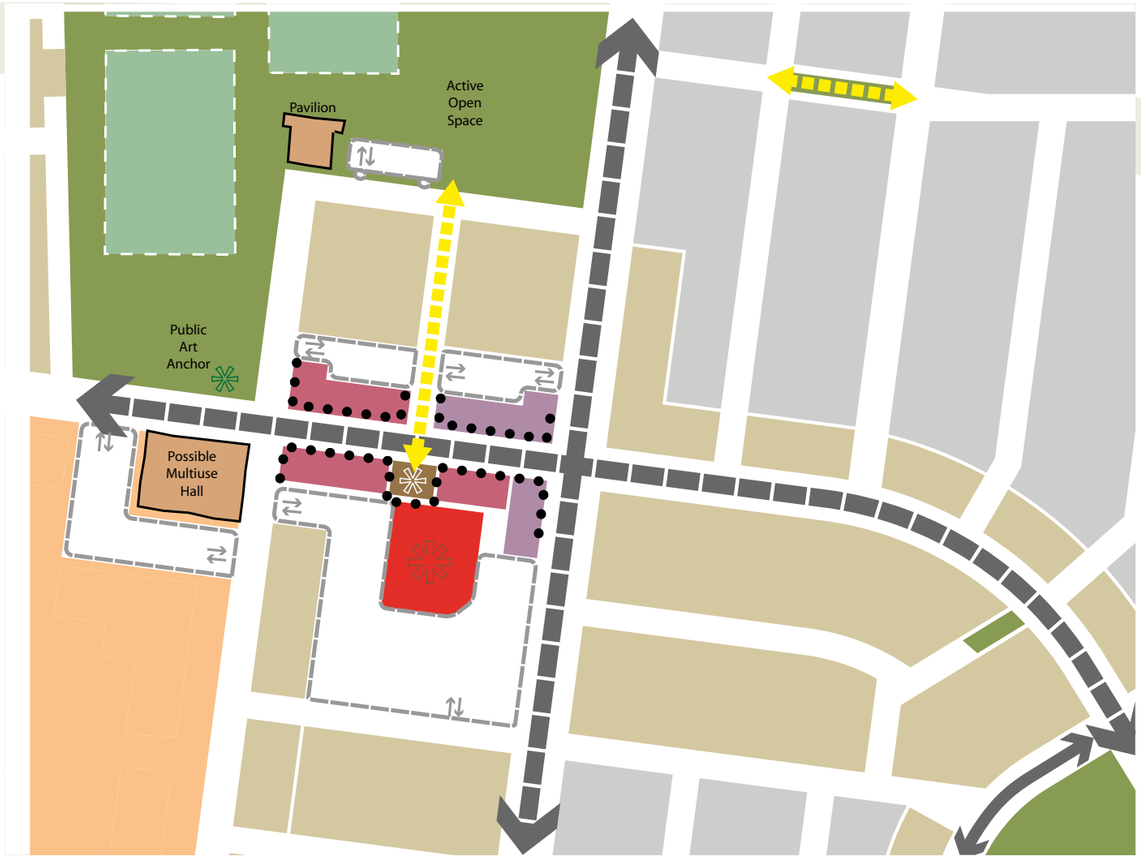

Figure 1 Southern Neighbourhood Activity Centre (Indicative Design Solution)

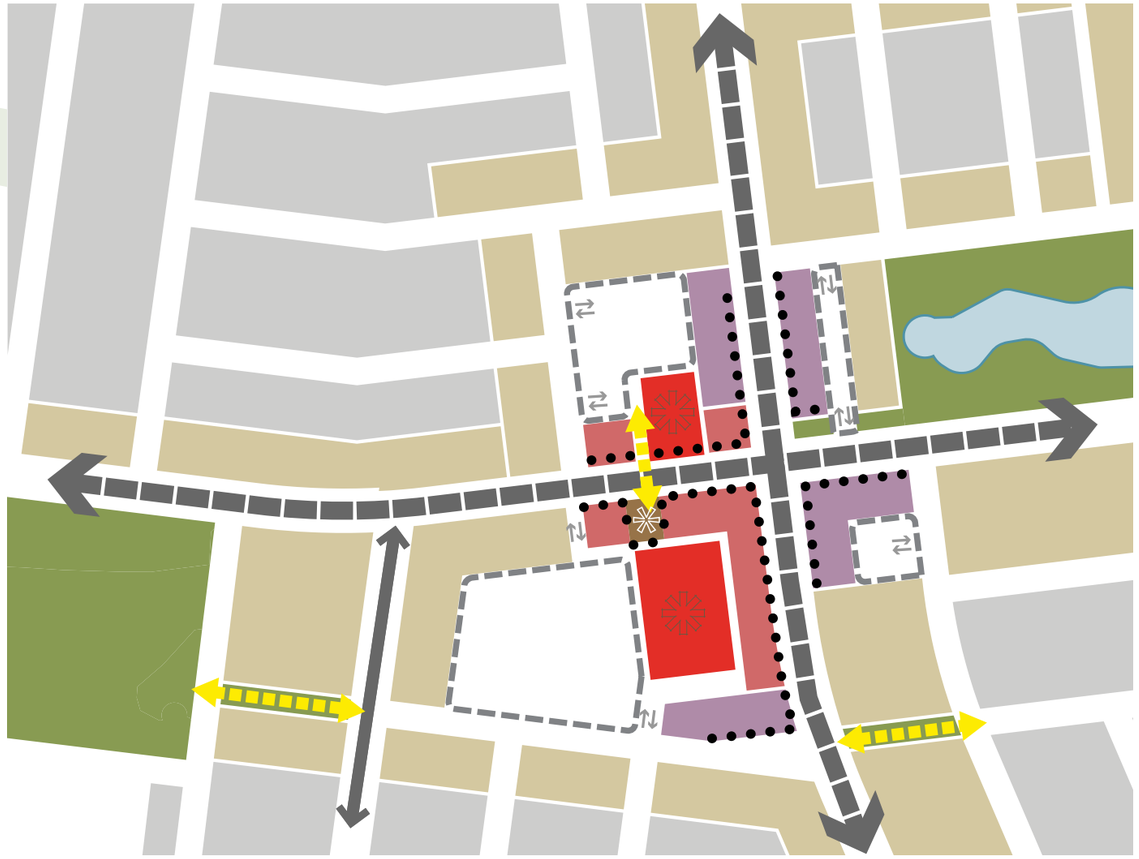

Figure 2 Northern Neighbourhood Activity Centre (Indicative Design Solution)

4.5.3 Planning and design guidelines

The urban design framework should:

- Be consistent with the role and function for the activity centre set out in Table 9: Hierarchy of Activity Centres.
- Set out building design guidelines including the interface with streets and other public spaces, heights, materials, and articulation to create a strong urban character.
- Set out the design of streets including street design and widths, pedestrian access and areas, car parking, paving materials and street furniture.
- Set out arrangements for access to the activity centre from adjoining arterial roads and other roads as approrpiate
- Set out the location of public spaces within the activity centre including a town park / square where appropriate.
- Include an overall landscape concept for the activity centre.
- Set out guidelines to improve environmental sustainability including integrated water management and energy conservation.
- Set out provisions for car parking including the location and design of car parking areas and car parking rates for proposed uses within the activity centre.
- Set out how public transport will be integrated with the activity centre (recommendations are to be developed in consultation with the Department of Transport).
- Set out design guidelines for the provision of advertising signs.
- Set out arrangements for the provision of service areas for deliveries and waste disposal including access for larger vehicles and measures to minimise the impact on the amenity of the activity centre and adjoining neighbourhoods.
- Show how opportunities for housing and future commercial expansion can be incorporated into the activity centres.
- Bus stops to be provided in locations with direct proximity to major public transport trip attractors.

Table 9: Hierarchy of Activity Centres

Activity Centre	Role and function
Northern Neighbourhood Activity Centre	• Serves the PSP area north of Craigieburn Road, existing residential to the east and potential urban development to the west. • Integrated with Council Community Centre • Indicative retail floorspace 5,300sqm (minimum). • Provides one major, one possible minor supermarket and specialty shops • Provides local services including offices, medical, childcare, banking, dining, recreation, entertainment. • Opportunity for a residential component.
Southern Neighbourhood Activity Centre	• Serves the PSP area to the South of Craigieburn Road, existing development to the east and potential urban development to the west. • Integrated with Council Community Centre. • Indicative retail floorspace 5700sqm • Provides a supermarket and specialty shops • Provides a range of local services including childcare, medical, offices, dining. recreation, entertainment
Northern Local Activity Centre	• Serves a catchment approximately half the size of a Neighbourhood Activity Centre. • Indicative retail floorspace 1,000 sqm • Provides a small 'convenience' supermarket and specialty retail shops • Also provides office, banking and other local services • Opportunity for a residential component
Southern Local Activity Centre	• Indicative retail floorspace 500 sqm • Small shops • Local office uses • Other local services • Opportunity for a residential component.
Mixed Use Precinct	• A non-retail based commercial centre which relies on road exposure and access • Provides for small showrooms and warehousing • Light industry • Offices • Fast food • Opportunity for residential component.

Table 10: Activity Centre Urban Design Framework Guidelines

Design Issue	Planning and Design Guidelines
Public realm	• All buildings along the main street must provide an active edge. This is to be achieved by orienting buildings to the main street and providing direct access from the street frontage. • The design of building frontages should incorporate the use of covered walkways or verandahs to provide for weather protection. • Long building facades and continuous concrete walls, with minimal articulation, activity or visual interest should be avoided. • The design of each building should contribute to a cohesive and legible character for the centre as a whole. • Street facades and any exposed side or rear facades should be 'activated' via innovative architectural design which contributes aesthetically to the character of the activity centre. • Sites in prominent locations should be identified for significant buildings or landmark structures. • Urban art should be incorporated into the design of the public realm. • Streets, public spaces and car parks should be well lit. • The NAC urban structure should provide a permeable network of streets, walkways, and public spaces that provide linkages throughout the centre. • Bus stops should be provided in accordance with the Department of Transport Guidelines. • Public toilets should be provided in locations which are safe and accessible. • All public spaces should respond appropriately to the design for mobility access principles. • Footpaths widths should be sufficient to provide for pedestrian and mobility access, outdoor dining and gathering spaces along the 'main street' frontages. The main street through the NAC should be generally in accordance with the NAC Connector Road Cross Section in the Transport and Movement Element.
Design Response	• Set out building design guidelines including building heights, materials and architectural features. • Include a street network through the NAC which facilitates safe pedestrian and cycling links to the surrounding area. • Facilitate development with a high degree of community interaction and provide a vibrant and viable mix of retail, recreation and community cohesion. • The built form should be aligned with the property boundary of the "main street". • Development should complement and enhance the character of the surrounding area by responding appropriately to key visual cues associated with the topography of the site and surrounds. • Development should not adversely impact on the amenity of the surrounding residential areas. • Key view lines / sight lines into and out of the activity centre should be incorporated in the overall design. • Plant structures on the roof are included within roof lines or otherwise hidden.

Interface with the road network	• The design of buildings should respond appropriately to the street network
	• Landscaping of the interface is to be of a high standard and is considered to be an important element to complement the built form design.
	• Corner sites, where the "main street" meets an arterial road:
	  • Should be designed to provide built form that anchors the "main street" to the arterial road, this could be achieved through the use of a substantial multi - storey building located at the corner;
	  • Should not be developed for standard single storey fast food outlets; and,
	  • Should be developed to have a ground floor retail floor space component to the "main street" frontage

Distribution of uses	• Retail and other commercial or community anchors or secondary anchors within the NAC should be located diagonally opposite one another across the 'main street' to promote 'desire lines' that maximises pedestrian movement along the length of the street. • Building frontages should address the 'main street' to maximise exposure to passing trade, promote active frontages and pedestrian inter-action. • Shopfronts should have varying widths and floor space areas to promote a diversity of trading opportunities throughout the NAC. • Flexible floorspace (including floor to ceiling heights) should be incorporated into building design to enable localised non-retail commercial uses to be integrated within the 'main street'. • A variety of employment and business opportunities should be planned through the provision of community, retail and non-retail commercial activities. • A mix of uses should include retail and office at ground level, and office, non-retail commercial and residential above ground level. • Childcare, medical centres and specialised accommodation (e.g. aged care/nursing home, student accommodation, serviced apartments) are encouraged within the NAC and at the edge of centre. • The creation of land use precincts within NAC's are encouraged to facilitate the clustering of uses. For example a 'medical precinct' where similar or synergistic uses are sited together to promote stronger trading patterns.

Design Issue	Planning and Design Guidelines
Supermarket and other 'large box uses'	• Supermarkets within NACs should not impede the movement of people within the NAC. • Supermarkets or large floorplate shops 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 and excessive window advertising). • The design and sitting of Supermarkets and other 'large box uses' should provide an appropriate response to the entire public domain. This includes but is not limited to car parking areas, pedestrian routes and streets. • The supermarket and secondary anchors should have frontage that directly addresses the 'main street' so that the use integrates with and promotes activity within the 'main street'. • Secondary access to the supermarket from car parking areas is appropriate where it facilitates convenient trolley access and does not diminish access from the 'main street'. • Small access malls that address a supermarket / other 'large box uses' can form part of the overall design. Such access malls may have a limited number of internalised shops. The primary access to these malls must be from the 'main street'.
'Main street' traffic	• Traffic should be managed to ensure pedestrian safety. • The 'main street' cross section must priorities pedestrian movement and be generally in accordance with the NAC Cross Section shown in Section 4.6.3. • A speed environment of 40km/h should be designed for. • Bus stops located within the 'main street' should be designed in accordance with the Department of Transport Guidelines and provided in locations which promote the efficient movement of pedestrians and vehicular traffic to the satisfaction of the Director of Public Transport. Bus stops should be located in direct proximity to major public transport trip attractions. • A Traffic Impact Assessment Report must be prepared generally in accordance with VicRoads Guidelines for the preparation of Traffic Impact Assessment Reports to the satisfaction of the VicRoads.

Design Issue	Planning and Design Guidelines
Parking	• 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 ensure passive surveillance and public safety through adequate positioning and lighting. • Car parking areas should be designed to accommodate flexible uses. • The retail strips should include on-street parking provided as either parallel or angle parking to encourage short stay parking. • Car parking ingress and egress crossovers should be grouped and limited. • Car park ingress and egress and car parking areas including 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. • Car parking areas should provide for appropriate landscaping and planting of canopy trees.
Public transport	• Access to bus stops within the 'main street' should be designed to incorporate the public transport network outlined in Plan 15 in consultation with the Department of Transport. • Provision should be made to locate public transport infrastructure / facilities at commuter friendly / convenient locations within the activity centre.
Service Areas (e.g. loading and waste storage)	• A UDF should demonstrate that the provision of service areas are internalised wherever possible. • Where internalised service areas cannot be provided, they are to be secured and screened at the rear of buildings. • Where service areas are accessible from car parks, they should present a well designed and secure façade to public areas.

Design Issue	Planning and Design Guidelines

Sustainable Design	• An Urban Design Framework should be accompanied by a sustainability management plan which demonstrates how the following considerations have been incorporated into the design of the NAC:
	  • Use of energy efficient design and construction methods is encouraged for the development of all buildings.
	  • Water Sensitive Urban Design such as Integrated stormwater retention and reuse (e.g. toilet flushing and landscape irrigation) is encouraged.
	  • Access and mobility, safe pedestrian movement should be demonstrated within and to and from the centre.
	• Shade and shelter through a combination of landscape treatment and built form features.
	• Natural ventilation of all buildings to reduce the reliance on plant equipment for heating and cooling.
	• Passive solar orientation in the configuration and distribution of built form (e.g. north south orientation of the 'main street' to maximise natural daylight to shop fronts) is encouraged.
	• Waste collection points should be grouped to maximise opportunities for recycling and reuse.
	• Solar energy for water and space heating, electricity generation and internal and external lighting is encouraged.
	• How the design of built form reduces greenhouse gas emissions associated with the occupation and the ongoing use of buildings via alternative means.

growth areas AUTHORITY

MOUNT RIDLEY RD
MICKLEHAM RD
OLIVERS RD
WHITES LA
CRAIGIEBURN RD
Hard Courts/ Tennis Courts
NAC
Oval
Catholic Primary School P-6
State Primary School P-6
Community Facilities
Local Centre
Proposed Community Facilities
Proposed Primary School
Proposed Local Centre
Mixed Use / Employment
Potential Mixed Use / Employment
Local Centre 'Highlands'
State Secondary School 7-12
Aitken Hill Conference & Events Centre
Mount Ridley Conservation Reserve
HUME FWY
GRAND BVD
ATKEN BLVD
State Secondary School
Special School
State Primary School
Catholic School
Malcolm Creek Learning Centre
MALCOLM CREEK
CRAIGIEBURN TOWN CENTRE
MEDWAY RD
KINGSWOOD DR
CUMBERWOOD DR
HANSON DR
Craigieburn Public Golf Course
AITKEN CREEK
Craigieburn Plaza
Craigieburn Rail Station
BALDERSTON RD
MELVIN DR

- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- Arterial Road - 42m
  - VicRoads declared Arterial
  - See Section 12
- Arterial Road - 34m Local
  - Arterial
  - See Section 11
- Residential Connector Street - 26m
  - See Section 10
- NAC Connector Street - 22m
  - See Section 9
- Access Street - Level 2
  - See Sections 4, 5, 6, 7 & 8
- Access Street - Level 1
  - See Sections 1, 2 & 3
- Landscaped Access Street Reserve
- POS Driveway
- Signalised Intersection
  - With bus priority lane
- Roundabout
- Median Break

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SCALE 1:20 000
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Plan 14

road network plan
craigieburn R2 precinct structure plan

4.6 Transport and movement

4.6.1 Transport and movement objectives

The objectives for transport and movement are:

- To establish an integrated and sustainable transport network that reduces dependency on the use of private vehicles, maximises access to public transport and encourages walking and cycling within and between neighbourhoods;
- To establish a bus network that connects the future Craigieburn Town Centre, and the existing Craigieburn railway station with residential areas, and activity centres within the PSP, which provides for the safe and efficient operation of bus movements;
- To support the early provision of local bus services and walking and cycling links through the sequential staging of the development of the area;
- To establish an approximately 800 metre spaced grid of arterial roads and connector streets so that more than 95% of all households can be located within 400 metres of a potential public transport service;
- To support the early provision of safe and efficient pedestrian and bicycle paths and links which are connected to the key features of the precinct and which link to regional networks outside the precinct;
- To provide for the landscaping of roads, transport and movement corridors to help create safe and attractive urban environments;
- To provide the basis for an integrated, permeable road network to be developed at local street level in subdivision plans; and
- To ensure that all road reserves in the precinct are provided with infrastructure which is designed to cater for the safe movement of people by all modes of transport.

4.6.2 Implementation

The objectives for transport and movement are met by implementation of all the following:

- Plan 5: Future Urban Structure Plan
- Plan 14: Road Network Plan
- Plan 15: Public Transport Plan
- Plan 16: Walking and Trails Plan
- Table 11: Road Hierarchy
- Planning and design guidelines set out in 4.6.3 including:
  - Cross Sections 1 to 12

4.6.3 Planning and Design Guidelines

Flexibility in Road Design

- Road design needs to be responsive to the specific traffic needs and the interfacing development form.
- While typical road cross section types, responding to the road network plan, are included within this Precinct Structure Plan, some flexibility in application is required. The arterial road cross sections are supported by Hume City Council and VicRoads and the connector road network has been agreed upon by Hume City Council and the Department of Transport. The internal road network and cross sections represented in Cross Sections 1 to 12 should:
- Provide the basis for planning future development and preparation of subdivision plan.
- Apply to the subdivision plan unless otherwise agreed with the responsible authority;
- Recognise that specific development proposals may generate the need for alternative road cross sections, in addition to those identified, especially for the local street network including;
  - oInterface with open space or visually sensitive areas;
  - Bus prioritisation measures;
  - Alternative residential housing product such as 'mews courts', rear access, medium density etc; and,
  - Specific road design responses to the Mixed Use Precinct, including access to Craigieburn Road.
  - The proposed north-south 'residential connector street' from the precinct's southernmost boundary to the northernmost boundary at Mt Ridley Road will not form part of the arterial road network and will be the responsibility of Hume City Council.

Connector street construction

The following planning and design guidelines should be met:

- Connector streets (including any culverts) be constructed by development proponents as part of the subdivision works (prior to the issue of a statement of compliance for the relevant stage).

Construction of Intersections with Arterial Roads

All intersections with existing or proposed arterial roads must be designed, constructed and controlled to the satisfaction of the responsible authority and VicRoads. The main design objective is to allow for a minimum 10 year design life having regard to the anticipated traffic growth on the affected roads from the ultimate development of the Precinct Structure Plan Area and the external traffic.

Note: subject to the approval of the collecting agency, part or all of the cost of works on intersections included in a Development Contributions Plan may be able to be provided as in-kind works in lieu of cash payment.

Staging of subdivisions is to provide for the timely connection of road links between properties and to the arterial road network to support timely transport connections (i.e. bus, cycle and walking), to the satisfaction of the responsible authority.

Land is to be provided for right of way flaring at all arterial road connections for the ultimate design of the intersection in accordance with VicRoads standards.

Note: Subject to the approval of the collecting agency, a part or all of the cost of the works on the intersections included in a Development Contributions Plan may be able to be provided as in-kind works in lieu of cash payment.

Additional Arterial Road Connections – General Requirements

The following planning and design guidelines should be met:

- Active frontages for residential abuttal should be achieved by internal loop roads rather than by service road access wherever possible;
- Access to streets connecting to an arterial road should be considered within the context of the requirements of traffic management, safety, urban design and its urban environment. The intersection design should provide for the safe and efficient operation of the arterial road and the side road to the satisfaction of VicRoads, with consideration to vehicle speeds, vehicle queues and conflicting movements on approach to and departure from the intersection; and,
- Any additional access to the existing or proposed arterial road network will be considered on a case by case basis in accordance with VicRoads access management polices.

Bus Network

Where a bus route or bus stop has been nominated by the Director of Public Transport bus stop facilities must be:

- Constructed by development proponents as part of the subdivision works (prior to the issue of a statement of compliance for the relevant stage) to a design standard approved by the Director of Public Transport
- Provided with DDA compliant direct and safe pedestrian access connected to an existing pedestrian/shared path
- Designed to reflect the needs of adjacent land uses such as activity centres schools, sports fields and employment areas
- Designed to ensure safe and efficient pedestrian movements to and from bus stops and key pedestrian destinations.

growth areas AUTHORITY

Precinct Structure Plan Area
Urban Growth Boundary 2010
Existing Arterial Road Potential Bus Route
Connector Street Potential Bus Route
Existing Bus Route

MOUNT RIDLEY RD
MICKLEHAM RD
OLIVERS RD
WHITTES LA
CRAIGIEBURN RD
HUME FWY
HUME HWY
GRAND BVD
BLVD
ATHEN
WINDROW AVE
MALCOLM CREEK
AITKEN CREEK
EMBERWOOD DR
MEDWAY RD
KINGSWOOD DR
HANSON RD
BRADFIELD RD
NEWMAN DR
Mount Ridley Conservation Reserve
Proposed Community Facilities
Hard Courts/ Tennis Courts
Proposed Primary School
NAC
Oval
Catholic Primary School P-6
State Primary School P-6
Community Facilities
Local Centre
Proposed Local Centre
Mixed Use / Employment
Potential Mixed Use / Employment
Local Centre 'Highlands'
CRAIGIEBURN TOWN CENTRE
State Primary School
Catholic School
State Secondary School
Special School
Malcolm Creek Learning Centre
Craigieburn Public Golf Course
Craigieburn Plaza
Craigieburn Rail Station
State Secondary School 7-12
Aitken Hill Conference & Events Centre

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Plan 15

public transport plan
craigieburn R2 precinct structure plan

Table 11: Road Hierarchy

Road street	Existing Reserve	Ultimate Reserve	Access Management Policy	Indicative vehicles per day (VPD)	Traffic Lanes	Median	Speed Limit	Bus Compatible	Property Access and Parking	Tree Reserve	On Road Cycle Lane	Shared path	Responsibility
Craigieburn Road	20m	42m	Limited Access Urban	17,400	4	YES	80km	YES	NO	NO	YES	NO	VicRoads
Mt Ridley Road	20m	34	Limited Access Urban	17,800	4	YES	80km	YES	NO	NO	YES	NO	Council
Central Connector	0	26	N/A	14,600	2	NO	60km	YES	YES	NO	YES	NO	Council
Residential Connector Streets (East/West)	0	26	N/A	8,000-10,000	2	NO	50km	YES	YES	NO	YES	NO	Council
Access Street Level Two	0	23	N/A	Up to 3,000	2	NO	50km	NO	YES	NO	NO	NO	Council
Access Street Level One	0	16	N/A	Up to 1,000	2	NO	50km	NO	YES	NO	NO	NO	Council

growth areas AUTHORITY

MOUNT RIDLEY RD
MICKLEHAM RD
OLIVERS RD
WHITES LA
CRAIGIEBURN RD
HUME FWY
BLVD
AITKEN
GRAND BVD
MALCOLM CREEK
AITKEN CREEK
MEDWAY RD
KINGSWOOD DR
EMBERWOOD DR
HANSON RD
BALDERSTONE RD
NEWMAN DR
FOXHUNTER DR

Mount Ridley Conservation Reserve
Proposed Community Facilities
Proposed Primary School
NAC
Hard Courts/ Tennis Courts
Oval
Catholic Primary School P-6
State Primary School P-6
Community Facilities
Local Centre
Proposed Local Centre
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State Secondary School
Special School
State Primary School
Catholic School
Malcolm Creek Learning Centre
CRAIGIEBURN TOWN CENTRE
Craigieburn Public Golf Course
Catholic Primary School
Craigieburn Plaza
Craigieburn Rail Station

- Precinct Structure Plan Area
- Urban Growth Boundary 2010
- Bike Path - Arterial Road
- On Road Bike Path - on both sides of road
- Shared Path - within open space
- Shared Path - within widened road reserve
- Existing Trail
- Public Open Space
- Significant Regional Open Space (Outside PSP)
- Signalised Intersections

TRACT REF NO. POST EXHIBITION 308153 P PSP 18.15

SCALE 1:20 000
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Plan 16

walking trails

craigieburn R2 precinct structure plan

A permit condition for subdivision can be included, generally as part of a Construction Plan condition, as follows:

Pavements, roads and verges on collector roads designed to accommodate bus stops generally in accordance with the location of bus stops shown in the Precinct Structure Plan applying to the land and to the satisfaction of the Director of Public Transport. Bus stops must comply with the Disability Discrimination Act 1992 (Commonwealth) and the Disability Standard for Accessible Public Transport 2002. The design of all bus stops should be in accordance with VicRoads Bus Stop Guidelines and DOI Requirements for Bus Stop Compliance and include:

a) Passenger hard stand areas

b) Tactile ground surface indicators

c) Bus stop kerbing.

d) All works specified on the approved construction plans must be constructed or carried out by the developer in accordance with those plans before the issue of a statement of compliance for the relevant stage under the Subdivision Act 1988 to the satisfaction of the responsible authority (and where relevant VicRoads and /or the Director of Public Transport).

Where bus stop facilities shown on a construction plan have not been constructed, a statement of compliance may still be issued provided that:

a) A bus service is not in operation, or will not be in operation within three months of the likely completion of works for that stage.

b) A developer has lodged a bond with the Director of Public Transport to the value of 150% of the proposed bus stop works.

A bond retained by the Director of Public Transport under this condition must be returned to the permit holder provided:

a) A statement of compliance has been issued for the last stage of the development allowed under this permit; and

b) No bus service is in operation to use the bonded bus stops.

Permeability Across Land Ownership

The following planning and design guidelines should be met:

- In subdivision plans identify regular road connections across existing land ownership boundaries to the satisfaction of the responsible authority.
- Separation between local street connections between separate land ownerships at the time of subdivision should not exceed 400m without the approval of the responsible authority.

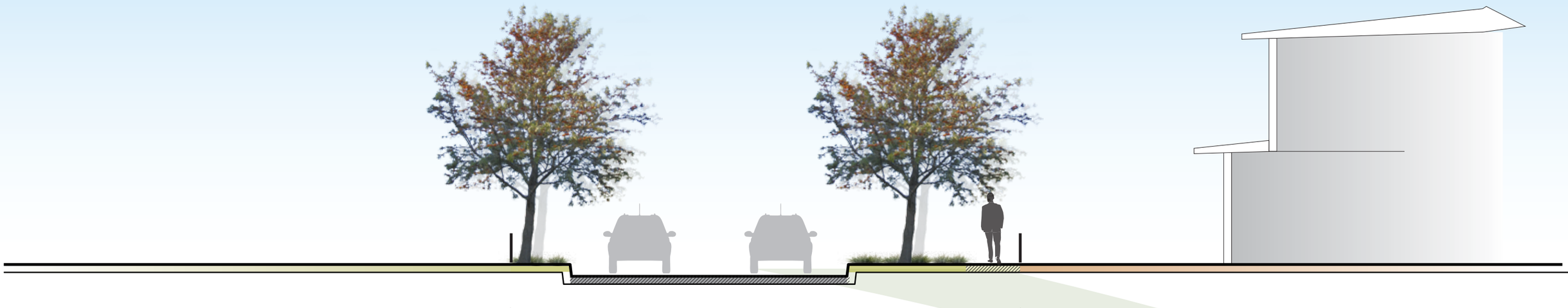
Cycle & Pedestrian Pathways

- The following planning and design guidelines should be met:
- Walking and cycling networks should be constructed by development proponents as part of subdivision works (prior to the issue of a statement of compliance for the relevant stage);
- Footpaths and cycle paths are to be provided with increased width in areas expecting high foot traffic such as near schools, community centres, activity centres, rail station and public transport interchanges and bus stops;
- Cycle parking facilities are provided by development proponents in convenient and prominent locations at key destinations such as schools, community centres, activity centres and public transport interchanges;
- Pedestrian and cycle crossings are provided at all relevant street intersections and along key desire lines, particularly along the interface between the residential and employment areas and in the vicinity of bus stops;
- Bicycle lane connections should be designed to allow for the smooth transition between on-road and off-road facilities;
- Pedestrian and cycle paths to be designed and located to maximise passive surveillance and provided in wide road verges with safe crossing points at key locations; and,
- The local street network should be designed to provide permeable and safe routes for walking and cycling to activity centres community facilities, parks and open space, major trail networks and public transport.
- A wide verge be created for shared paths where there is a clear strategic need to connect destinations (ie. Links from the creek reserve through to active open space reserves). These are only to be applied to targeted and strategic areas within the plan area.

Road and Street Cross Sections

The following planning and design guidelines should be met to the satisfaction of the responsible authority:

- Road and street cross sections should be generally consistent with the cross sections included in the Element 4.6; and,
- Housing is to front or otherwise address the Arterial Road network. Where this requirement is not physically achievable or desirable, a plantation reserve must be provided to the satisfaction of the responsible authority.



RESERVE	ROAD RESERVE - 13m			PRIVATE REALM
1.5m	7.3m	2.7m	1.5m	
Verge	Carriageway	Naturestrip - allows for medium scaled canopy trees	Standard path	

Note: The carriageway may be widened or narrowed between 7-7.5m on a case by case basis to address curve or safety issues within an overall 13m road reserve

TRACT REF NO. 308153 P PSP 34.00

SCALE 1:100

0 1m 2m 5m

Cross Section 1

access street, level 1 - 13m, reserve frontage

craigieburn R2 precinct structure plan

PRIVATE REALM | ROAD RESERVE - 16m | PRIVATE REALM

1.5m	2.85m	7.3	2.85m	1.5m
Pedestrian path	Nature strip suitable for medium to large canopy trees	Carriageway	Nature strip suitable for medium to large canopy trees	Pedestrian path

Note: The carriageway may be widened or narrowed between 7-7.5m on a case by case basis to address curve or safety issues within an overall 16m road reserve

TRACT REF NO. 308153 P PSP 35.15

SCALE 1:100

0 1m 2m 5m

Cross Section 2

access street, level 1 - 16m standard version

craigieburn R2 precinct structure plan

PRIVATE REALM | ROAD RESERVE - 21-23m | PRIVATE REALM

4-5m	2.5m	3-3.7m	7.3m	3m	1.5m
Nature strip	Shared path	Nature strip suitable for medium to large canopy trees	Carriageway	Nature strip suitable for medium to large canopy trees	Pedestrian path

Note: The carriageway may be widened or narrowed between 7-7.5m on a case by case basis to address curve or safety issues within an overall 21-22m road reserve

TRACT REF NO. 308153 P PSP CX3.15

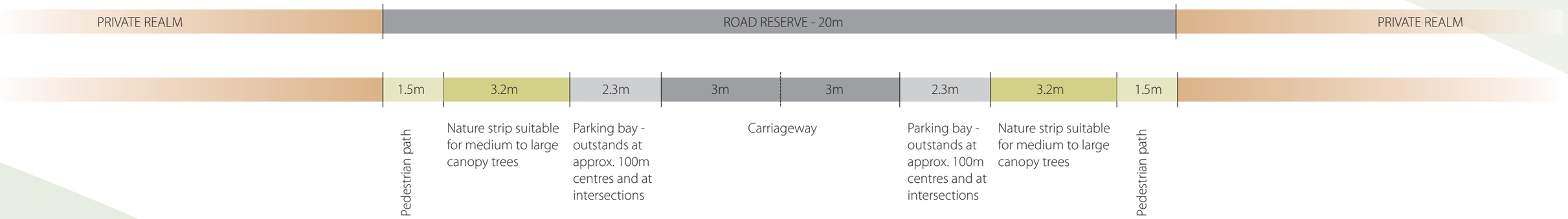
SCALE 1:100

0 1m 2m 5m

Cross Section 3

access street, level 1 - 21-23m with shared landscape trail

craigieburn R2 precinct structure plan



TRACT REF NO. 308153 P PSP CX4.15

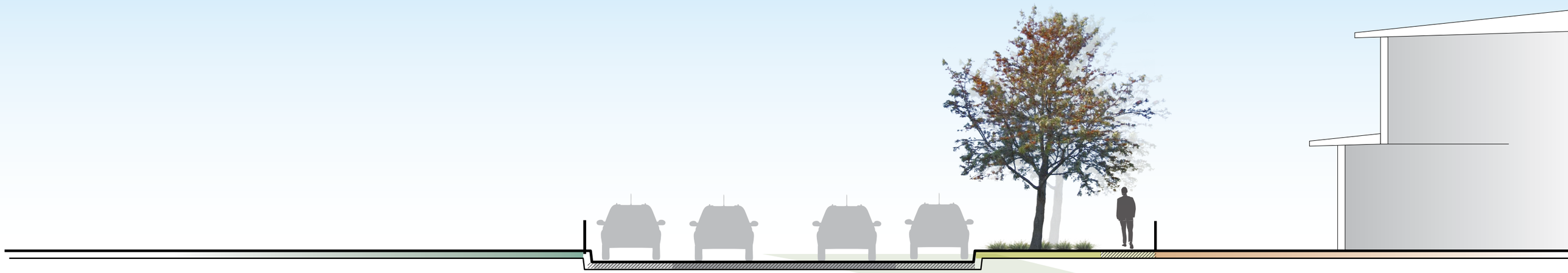
SCALE 1:100

0 1m 2m 5m

Cross Section 4

access street, level 2 - 20m standard version without bike lanes

craigieburn R2 precinct structure plan



RESERVE	ROAD RESERVE - 15.3m					PRIVATE REALM
	2.3m	3m	3m	2.3m	3.2m	1.5m
	Parking bay - outstands at approx. 100m centres and at intersections	Carriageway - bicycles share this space with vehicles		Parking bay - outstands at approx. 100m centres and at intersections	Nature strip suitable for medium to large canopy trees	Pedestrian path

TRACT REF NO. 308183 P PSP CX5.00

SCALE 1:100

0 1m 2m 5m

Cross Section 5

access street, level 2 - 15.3m adjoining open space

craigieburn R2 precinct structure plan

PRIVATE REALM | ROAD RESERVE - 23m | PRIVATE REALM

1.5m	3.2m	2.3m	1.5m	3m	3m	1.5m	2.3m	3.2m	1.5m
Pedestrian path	Nature strip suitable for medium to large canopy trees	Parking bay - outstands at approx. 100m centres and at intersections	Bike lane		Carriageway		Bike lane	Parking bay - outstands at approx. 100m centres and at intersections	Nature strip suitable for medium to large canopy trees	Pedestrian path

TRACT REF NO. 308153 P PSP CX6.15

SCALE 1:100

0 1m 2m 5m

Cross Section 6

access street, level 2 - 23m standard version with dedicated bike lane

craigieburn R2 precinct structure plan

PRIVATE REALM	ROAD RESERVE - 28.8m										PRIVATE REALM
	4m	2.5m	4m	2.3m	1.5m	3m	3m	1.5m	2.3m	3.2m	1.5m
	Nature trail	Shared Path	Nature strip suitable for medium to large canopy trees	Parking bay - outstands at approx. 100m centres and at intersections	Bike lane	Carriageway		Bike lane	Parking bay - outstands at approx. 100m centres and at intersections	Nature strip suitable for medium to large canopy trees	Pedestrian path

TRACT REF NO. 308158 P PSP CX13.15

SCALE 1:100

0 1m 2m 5m

Cross Section 7

access street, level 2 - 28.8m standard version with dedicated bike lane & nature trail

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SCHOOL | ROAD RESERVE - 22.3m | SCHOOL

2.5m	3m	5.15m	2m	5.15m	3m	1.5m
Shares path	Naturestrip suitable for medium to large canopy trees	Carriageway with drop off zone	Centre medium with small to medium canopy trees	Carriageway with drop off zone	Naturestrip suitable for medium to large canopy trees	Pedestrian path

TRACT REF NO. 308153 P PSP CX15

SCALE 1:100

0 1m 2m 5m

Cross Section 8

school access street, level 2 - 22.3m

craigieburn R2 precinct structure plan

PUBLIC REALM	ROAD RESERVE 22m							PUBLIC REALM
	4.5m	2.3m	.7m	3.5m	3.5m	.7m	2.3m	4.5m
	Wide pedestrian strip, allowing for cafe furniture etc.	Indended parking with trees in outstands	Bicycle lane (unmarked)	Carriageway	Carriageway	Bicycle lane (unmarked)	Indended parking with trees in outstands	Wide pedestrian strip, allowing for cafe furniture etc.

Note: Width of bicycle lane may be varied at the discretion of the Department of Transport

TRACT REF NO. 308153 P PSP CX7.15

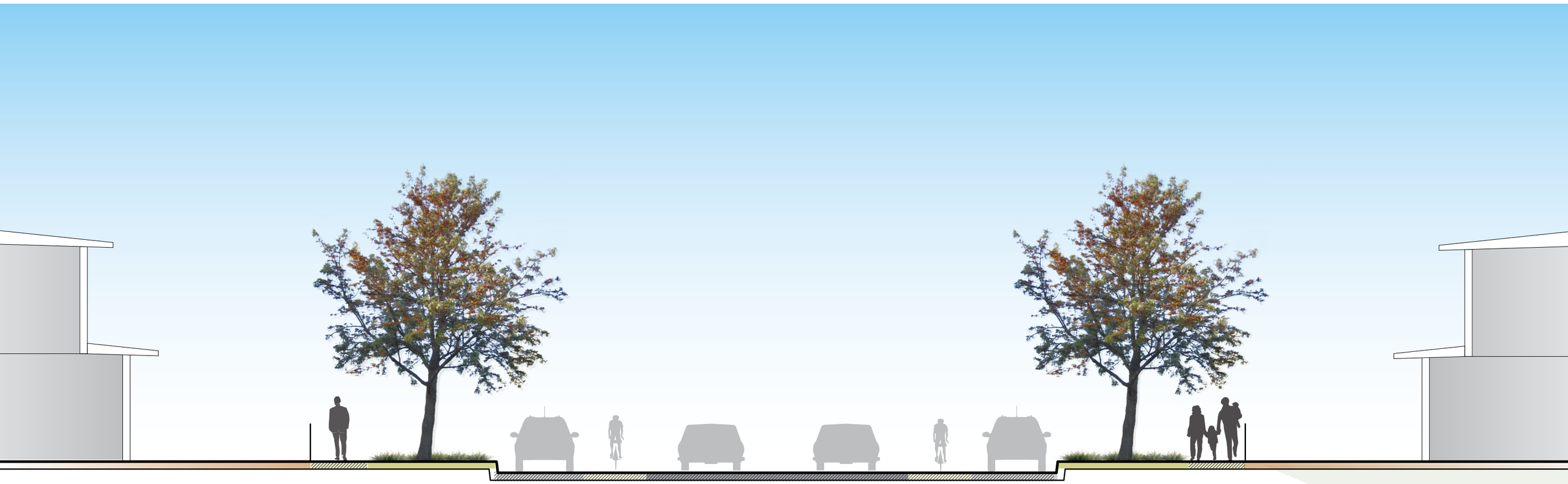
SCALE 1:100

0 1m 2m 5m

Cross Section 9

connector for NAC - 22m

craigieburn R2 precinct structure plan



PRIVATE REALM | ROAD RESERVE - 26m | PRIVATE REALM

1.5-2m	3.5-4m	2.3m	1.7m	3.5m	3.5m	1.7m	2.3m	3.5-4m	1.5-2m
Pedestrian path - up to 2m for key routes	Wider nature strip to enable larger canopy trees	Parking - with outstand at intersections	Bike	Carriageway and bike lanes accord with DOT requirements		Bike	Parking - with outstand at intersections	Wider nature strip to enable larger canopy trees	Pedestrian path - up to 2m for key routes

TRACT REF NO. 308153 P PSP CX8.15

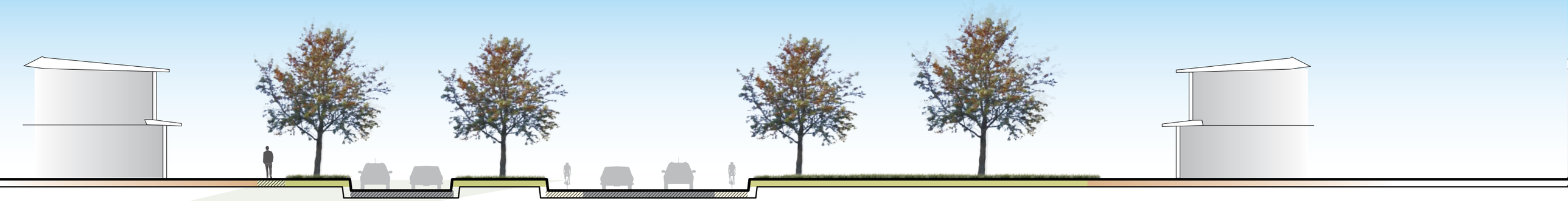
SCALE 1:100

0 1m 2m 5m

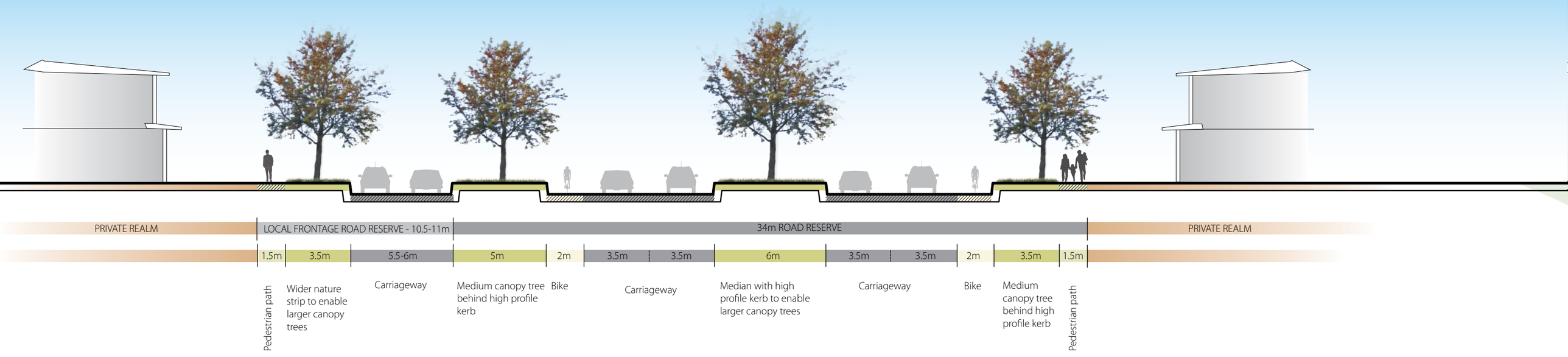
Cross Section 10

connector street, residential - 26m

R2 precinct structure plan



ULTIMATE DESIGN SOLUTION

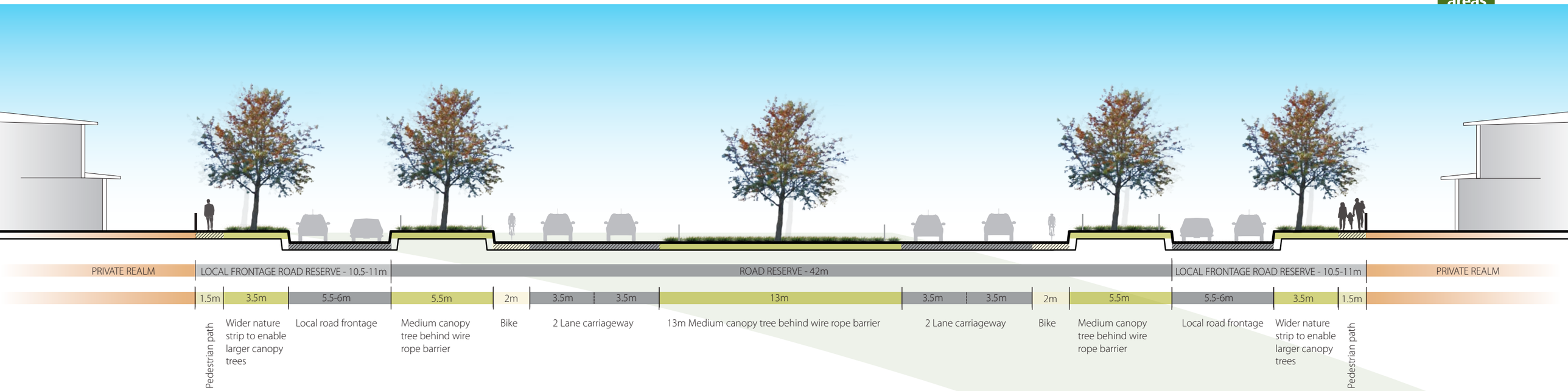


SCALE 1:200
0 2 4 10

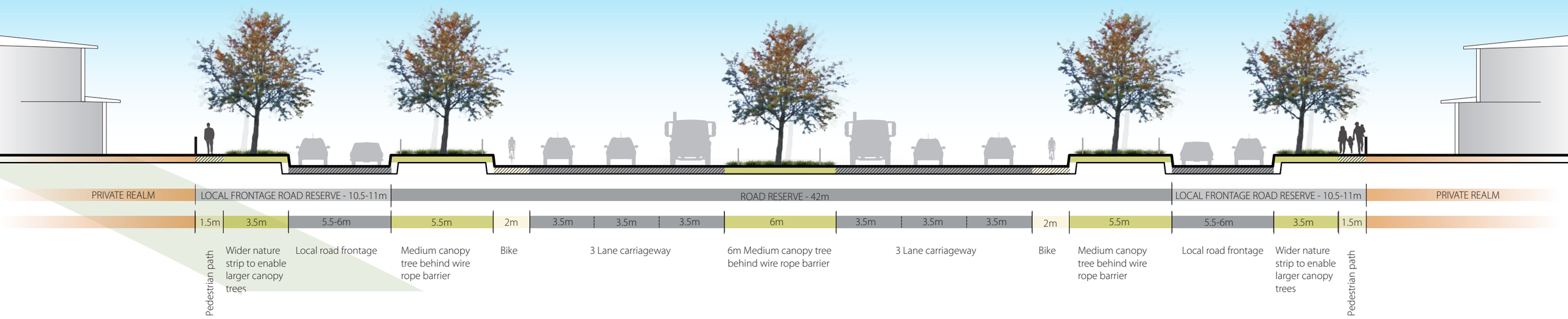
Cross Section 11

mt ridley road, 4 lane arterial - 34m

R2 precinct structure plan



ULTIMATE DESIGN SOLUTION



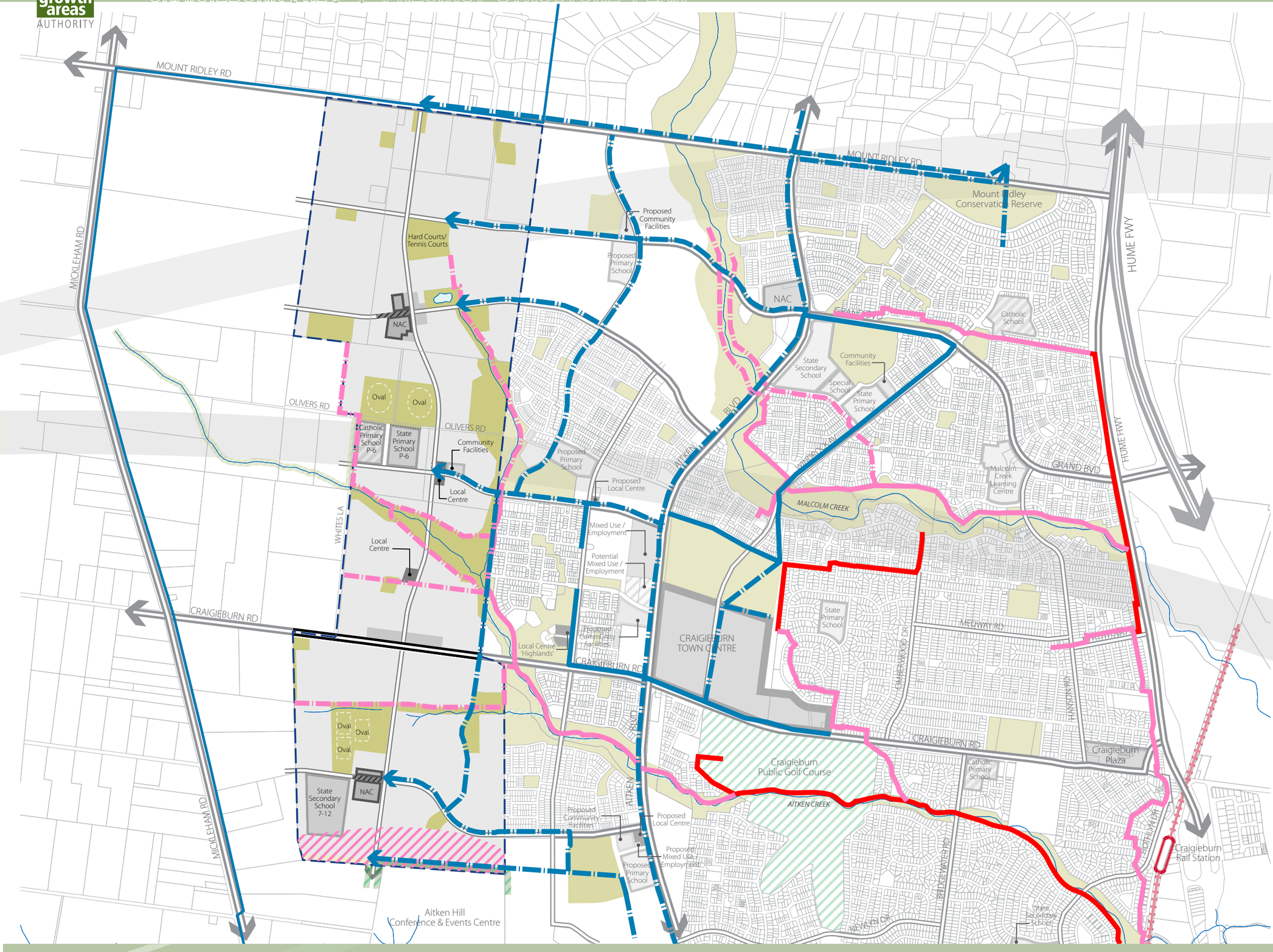
SCALE 1:200

0 2m 4m 10m

Cross Section 12

6 lane arterial - 42m

R2 precinct structure plan



TRACT REF NO. POST EXHIBITION 308153 P PSP 20.15

SCALE 1:20 000
0 200 400 1000

Plan 17

utilities

craigieburn R2 precinct structure plan

4.7 Utilities and development staging

4.7.1 Utilities objectives

Provide all developed lots in the R2 Precinct with:

- a potable reticulated water service;
- electricity;
- a reticulated sewerage service;
- drainage;
- gas; and,
- telecommunications.

4.7.2 Implementation

The objectives for utilities are met by implementation of all the following:

- The requirements of the relevant service provider
- Planning and design guidelines set out in 4.7.3
- Plan 17: Utilities Plan

4.7.3 Planning and design guidelines

Electricity

The following planning and design guidelines must be met:

- All new electricity supply infrastructure (excluding infrastructure to support cables with a voltage greater than 66kv) must be provided underground (excluding substations).
- New substations must be identified at the subdivision design response stage to ensure effective integration with the surrounding neighbourhood and to minimise amenity impacts.
- The design of subdivision electricity infrastructure must consider the practicality of removing existing above ground electricity lines in the local road network by re-routing lines underground through the subdivision.

Telecommunications

- All dwellings and businesses must have access to broadband internet; and,
- Developers must allow flexibility for future technology such as fibre optic cabling.

Drainage

- Drainage systems must be designed to ensure:
  - Water quality is enhanced to best practice standards;
  - Water flow rates are controlled to accommodate frequent events (ie. 1 in 5 years); and
  - Drainage must be provided generally in accordance with the Aitken Creek Drainage Scheme or other method agreed to by all parties to the satisfaction of Melbourne Water.

4.7.4 Development staging

Generally, staging will be determined by the development program of developers within the precinct and the availability of infrastructure services. Within this context, development staging should:

- Avoid creating circumstances where future residents will be isolated from commercial and community facilities or public transport for a prolonged period of time;
- Ensure new communities are reasonably integrated with adjoining development fronts with appropriate road connections;
- Development staging should avoid land locking Eastern Grey Kangaroos.
- Enable the early delivery of community facilities;
- Access to each new lot to be via a sealed road; and,
- consider out of sequence development where broader policy objectives will be met.

Table 12: Infrastructure and Services Required Within The Precinct To Support The Development Of The Precinct

Item Number	Project Group	Project Category	Title	Project Description	Lead Agency	Timing: S = 2010 – 14 M = 2015 – 19 L = 2020+
	Transport					
1	Transport	Road	Craigieburn Road	Duplication from Highlands to Whites Lane(850m)	VicRoads	S – M
2	Transport	Road	Craigieburn Road	Half cost of duplication for shared section of Craigieburn Road (400m)	VicRoads	S – M
3	Transport	Road Land	Craigieburn Road Land	Land for Craigieburn road 1200mx20m (2.4ha)	VicRoads	S – M
4	Transport	Intersection	Craigieburn Road	Signals at Central collector and Craigieburn Road	VicRoads	S – M
5	Transport	Road	Mt Ridley Road	Urbanisation of road between Highlands and western boundary of PSP 1250m	Hume City Council	S – M
6	Transport	Intersection	Mt Ridley Road	Roundabout central collector and Mt Ridley Road	Hume City Council	S
7	Transport	Intersection	Northern NAC	Signals at intersection of 2 collectors	Hume City Council	S
8	Transport	Intersection	Southern NAC	Signals at intersection of 2 collectors	Hume City Council	S
	Community					
11	Education	School	Primary School	Provision of new PS in north/central	DEECD	S – M
13	Education	School	Secondary School	Provision of new SS in south	DEECD	M - L
14	Community Services	Community Centre	Integrated Community Centre	0.7ha site for centre	Hume City council	M
15	Community Services	Community Centre	Integrated Community Centre Land North Building	1050m2 building, car parking and landscaping for centre	Hume City council	M
	Open Space					
16	Open Space	Active Open Space	Sports Fields	Active Playing Field 1 – Northern area. Construction of 16 tennis courts, 3 netball courts and parking	Hume City Council	S – L
17	Open Space	Active Open Space	Pavilion	Pavilion 1 – Northern area. Construction of pavilion to serve tennis courts etc	Hume City Council	S – M
18	Open Space	Active Open Space	Sports Fields	Active Playing Fields Central area. Construction of 2 football/cricket ovals, landscaping, carparking,irrigation	Hume City Council	S – L
19	Open Space	Active Open Space	Pavilion	Pavilion 2 – Central area. Construction of pavilion to serve active playing fields	Hume City Council	S – M
20	Open Space	Active Open Space	Sports Fields	Active Playing Fields Southern area. Construction of 3 soccer fields	Hume City Council	S – M
21	Open Space	Active Open Space	Pavilion	Pavilion 3 – Southern area. Construction of pavilion to serve active playing fields	Hume City Council	S – M
22	Open Space	Passive Parks	Passive Park Construction	Basic improvement to OS (earthworks, grading, seeding etc)	Relevant development proponent	S – L

5.0 PRECINCT INFRASTRUCTURE PLAN

5.1 Introduction

This Precinct Infrastructure Plan (PIP) sets out infrastructure and services required to meet the needs of development of the precinct. The infrastructure and services are to be provided through a number of mechanisms including:

- Subdivision construction works by developers;
- Development contributions (community infrastructure levy and development infrastructure levy);
- Utility service provider contributions; and,
- Capital works projects by Council, State government agencies and community groups.

5.1.1 Subdivision Construction Works by Developers

As part of subdivision construction works, new development is required to meet the total cost of delivering the following infrastructure:

- Connector and collector roads and local streets.
- Landscaping of all existing and future roads and local streets.
- Intersection works and traffic management measures along arterial roads, collector roads and local streets (with reimbursement for those that are included in the Development Contributions Plan to the satisfaction of the Collection Agency).
- Council approved fencing and landscaping (where required) along arterial roads.
- Local pedestrian and bicycle paths along local arterial roads, collector roads and local streets and within local parks (except those included in the Development Contributions Plan).
- Basic improvements to local parks / open space including levelling, grassing, tree planting and local paths consistent with the Council's required construction standards.
- Local drainage systems.
- Infrastructure as required by utility services providers including water, sewerage, drainage (except where the item is funded through a Drainage Scheme) , electricity, gas, and telecommunications.

5.1.2 Development Contributions Plan

A development contribution plan (DCP) has been prepared for the R2 Precinct in conjunction with this PSP. The Development Contribution Plan is an incorporated document of the Hume Planning Scheme. The key infrastructure and services items to be included in the Development Contributions Plan are outlined in this section. (These items are either fully funded or partly funded by the R2 Precinct DCP).

5.1.3 Infrastructure and services required to support development of the precinct.

Table 12 sets out the list of infrastructure and services required within the precinct to support its development, including details of:

- Infrastructure Group and Category;
- Project Title and Description;
- Lead Agency. (The agency responsible for the coordination and approval of the project. Other agencies and / or developers may have an involvement in the project) ; and,
- Indicative Timing

Table 13 lists Infrastructure And Services Located Outside the Precinct Structure Plan Required To Support The Development Of The Precinct

5.2 Project Co-ordination

A number of projects can be grouped, as delivered together or in a co-ordinated way, they will deliver significant benefits to the community beyond the benefits of each project being delivered individually.

Examples of the projects that could be grouped for co-ordinated delivery include: the primary schools, community hubs, playing fields, pavilion and car parking.

5.3 Delivery and monitoring

The Growth Areas Authority and Hume City Council will jointly monitor the implementation of the Precinct Infrastructure Plan.

The Growth Areas Authority has established a Hume Infrastructure Working Group to manage the monitoring, review, implementation and prioritisation of identified projects.

The delivery of infrastructure within the DCP will occur through cash contributions as outlined in the PSP or through works in lieu of contributions.

The preferred method of development contribution delivery by Hume City Council is to enter into an agreement with each development proponent at subdivision permit stage.

Table 13: Infrastructure And Services Located Outside the Precinct Structure Plan Required To Support The Development Of The Precinct

Project Group	Project Category	Title	Project Description	Lead Agency
Community & indoor recreation facilities				
C105	DEV	Regional Active Sports Reserve	Indoor Sports Facility	HCC
C106	COM	Library and Learning Centre	Library and Learning Centre	HCC

There are other key infrastructure items located outside the plan area, however these items are not imperative to support the development of the precinct. These items include:

1. Outer Metropolitan Ring Road; and
2. Aitken Boulevard/E14.

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6.0 PROTECTION OF THE GREENVALE RESERVOIR

6.1 Overview of Reservoir and Catchment

Where not within the Aitken Creek catchment, the precinct falls within the natural catchment of the Greenvale Reservoir. The Greenvale Reservoir is a key water distribution and storage facility for Melbourne's north-western suburbs. This natural catchment is referred to as the 'Greenvale Reservoir Protection Area'.

Maintaining high water quality is imperative to Melbourne Water. The Greenvale Reservoir ('the Reservoir') is currently protected from excessive runoff and the risk of contamination by a diversion channel close to the reservoir base.

Melbourne Water, as the water storage manager, has an obligation to protect Melbourne's water supply from a range of potential contaminants. This includes ensuring that land use intensity and increased urban development does not lead to a decline in water quality and contamination of the Reservoir through storm water run-off. The protection of the Reservoir is essential to the health of all communities that rely on the Reservoir for drinking water.

6.2 Environmental Objectives

The environment objectives to be achieved are as follows:

- To protect the Reservoir from the impacts of surrounding development, particularly where new development has the potential to increase surface storm water run-off or the potential to reduce the quality of storm water runoff;
- To ensure the cumulative effect of land use and development in the Greenvale Reservoir Protection Area maintains or reduces the level of risk to the quality of water supplied from the Reservoir;
- To ensure development and land use is consistent with the Greenvale Reservoir Catchment: Drinking Water Quality Risk Management Plan (March 2008);
- To protect the water quality of the Reservoir from storm events with an annual recurrence interval up to a 1 in1,000,000 AEP flood event;
- To ensure that development and land use is compatible with the protection of the Reservoir; and
- To ensure the provision of protection measures for the Reservoir are integrated with other measures being undertaken by Council and the Victorian Government to achieve coordinated urban development in the relevant locality.

6.3 Summary of Protection Requirements

Melbourne Water requires that all new developments must be designed to protect the Reservoir from stormwater contamination. The Greenvale Reservoir Catchment: Drinking Water Quality Risk Management Plan (March 2008) sets out objectives and requirements for the protection of the Greenvale Reservoir. Any application for subdivision or development within the Greenvale Reservoir Protection Area must demonstrate how the development responds to this document and must provide a waterway management easement over the areas of land affected by overland flows in favour of Melbourne Water and to Melbourne Water's satisfaction.

Melbourne Water's key Reservoir protection requirements include:

- The provision of a durable, reliable and impervious reservoir protection mechanism between any urban development area and the Reservoir to divert floodwaters away from the Reservoir. This measure may include a bund or floodwall within the development area or within Melbourne Water land to divert storm water flows out of the area of land which otherwise fall towards the Reservoir;
- Suitable land shaping within the development area or within Melbourne Water land to divert storm water flows out of the area of land which otherwise fall towards the Reservoir; and
- Compliance with a variety of sewer reticulation requirements, including the sealing of all joints and pits, a ban on sewerage pump stations or emergency relief structures and a number of additional construction control measures.

The developer must comply with above Reservoir protection requirements in a manner which does not increase the risk of flooding or spillage to surrounding communities and infrastructure.

6.4 Specific Protection Requirements

All urban development in the Greenvale Reservoir Protection Area must include protection measures to prevent stormwater or other overflows from flowing to the Reservoir. These measures must divert stormwater safely away from the Reservoir. Recreational and/ or community ponds, wetlands, or artificial lakes with connection to the stormwater system must not be built within the Greenvale Reservoir Protection Area without the written approval of Melbourne Water.

6.4.1 Performance Requirements

Reservoir protection measures to achieve this objective must comply with the following requirements to the satisfaction of Melbourne Water:

- The reservoir protection measures must be designed and constructed to withstand the flows associated with the 1 in 1,000,000 AEP flood event;
- The reservoir protection measures must be able to resist erosion from the flows associated with the 1 in 1,000,000 AEP flood event. The reservoir protection measures must be robust and tamper proof and minimise maintenance and inspection requirements;
- The extent of existing and future development in the Greenvale Reservoir Protection Area must be considered during the design of reservoir protection measures;
- The impact which a partial or complete failure of one or more parts of the reservoir protection measures could have must be evaluated. All reservoir protection measures must be investigated collectively as a whole system within the Greenvale Reservoir Protection Area.
- The reservoir protection measures must be designed to minimise adverse flood impacts;
- All reservoir protection measures and adjacent land must be configured, designed and constructed to minimise the need for ongoing maintenance and inspection and to facilitate these activities as required;
- The construction of the reservoir protection measures may be staged to the satisfaction of Melbourne Water and must cater for all stormwater runoff within the relevant part of the Greenvale Reservoir Protection Area for that stage, irrespective of land ownership and intended stages of development;
- The flows associated with the reservoir protection measures must not come into contact with any infrastructure associated with the Reservoir (including embankments, foundations, spillways and spillway drains) unless approved by Melbourne Water;
- The reservoir protection measures must be clearly visible and must be able to be easily identified and inspected by Melbourne Water.

6.4.2 Management Requirements

The reservoir protection measures must be located:

- On public land; or
- On private land with a suitable easement and covenant; or
- Within land owned by Melbourne Water; or
- A combination of the above;
- to prevent unauthorised works and ensure Melbourne Water has access to the reservoir protection measures at all times.

Melbourne Water will manage and maintain critical reservoir protection structures subject to suitable arrangements with the developers.

6.4.3 Documentation Requirements

- All information relevant to the design and construction of the reservoir protection measures must be presented in the form of a design report. The design report is to adequately address these requirements;
- A Work Method Statement must be prepared which details the placement and compaction of layers and testing methods to ensure that the Reservoir protection measures are constructed to a standard to the satisfaction of Melbourne Water;
- All aspects and details of the design and construction of reservoir protection measures must be certified by an appropriately qualified engineer.

6.4.4 Requirements for Structural Works

Where the reservoir protection measures consist of a bund, floodwall or land shaping, they must be to the satisfaction of the Responsible Authority and Melbourne Water:

- Be designed using appropriate durability and stability analyses and practices;
- Comply with best dam, waterway and levee engineering practices;
- Include foundation treatments (bonding of the embankment to the foundation);
- Incorporate a freeboard provision above the 1 in 1,000,000 AEP flood level to the satisfaction of Melbourne Water;
- In the case of an earthen embankment, be protected with appropriate treatments to the satisfaction of Melbourne Water;
- Include a chainmesh fence along the alignment of the bund unless otherwise approved by Melbourne Water;
- Be suitably landscaped to restrict access to the Reservoir fence;
- Include educational signage which highlights the purpose and function of the Bund;
- In the case of an earthen embankment, achieve suitable compaction levels and appropriately cater for cracking or dispersive soils (e.g. intercepting filters or outer zones comprising dimensionally stable, non-dispersive soils);
- Be durable and impervious and must take the form of a "core" rather than a "liner" to reduce the effects of drying which may lead to cracking;
- Exclude inappropriate vegetation particularly on earthen embankments (as this could negatively affect structural integrity, surveillance and maintenance);
- In the case of earthen embankments, have slopes with a minimum of 3H:1V; and
- Be designed and constructed so that any overtopping will not affect the short term or long term structural stability (e.g. due to sub-sequential undermining or breaching).

6.4.5 Requirements for Sewerage Works

All sewers must be constructed with gravity flow and no emergency relief structure can be located within the Greenvale Reservoir Protection Area.

All sewage systems must be:

- Constructed of plastic pipes with fully welded joints or a suitable alternative, to Melbourne Water's satisfaction having regard to the views of Yarra Valley Water Limited; and
- Otherwise designed, constructed and sited to the satisfaction of Melbourne Water having regard to the 1 in 1,000,000 AEP storm event.

All residential or other development within the Greenvale Reservoir Catchment Protection Area must be connected to a reticulated sewage system and no septic tanks or similar onsite wastewater treatment systems are to be used within the Greenvale Reservoir Catchment.

7.0 OTHER INFORMATION

7.1 Glossary

Active Open Space

Land set aside for the specific purpose of formal outdoor sports by the community.

Activity Centre

Focus for business, shopping, working and leisure, and usually community facilities. Well served by public transport and containing higher density development. Growth areas include Principal Activity Centres, Major Activity Centres, Specialised Activity Centres, Neighbourhood Activity Centres and Local Centres.

Affordable Housing

Housing provided by the private sector for households on low to moderate incomes.

Arterial Road

A higher order road providing for moderate to high volumes at relatively high speed typically used for inter-suburban journeys and linking to freeways, and identified under the Road Management Act 2004. All arterials are managed by the State Government. (cf Local Arterial Road)

Capital Expenditure

A payment made, or to be made for one-off long term infrastructure in terms of the Precinct Infrastructure Plan or Development Contributions Plan

Connector Street

A lower order street providing for low to moderate volumes and moderate speeds linking local streets to the arterial network. Managed by the relevant local council.

Co-location

Adjoining land uses to enable complementary programs, activities and services and shared use of resources. For example, the co-location of schools and active open space.

Community Facilities see Community Infrastructure

Community Infrastructure

Public and private, State, Council and non-council facilities which accommodate community support services, programs and activities (e.g. preschool, child care, youth services, aged services, community meetings, sporting competition, arts, performing arts, informal recreation, cultural activities, health programs, education activities, emergency services, civic, community support)

Conventional Density Housing

Housing with an average density of approximately 13 dwellings per net developable hectare

Corridors of open space

Mainly along river and creek valleys, the coast, disused railways lines and aqueducts, that link together to form a network and provide active transport connections in the community to key destinations and facilities

DCP see Development Contributions Plan

Development Contributions Plan

Sets out the contributions expected from each individual landowner to fund infrastructure and services. Refer to Part 3B of the Planning and Environment Act 1987

Freeway

A high speed and high volume road with the highest level of access control and typically used for longer distance journeys across the metropolitan area and country Victoria. All freeways are managed by VicRoads.

Frontage

The road alignment at the front of a lot. If a lot abuts two or more roads, the one to which the building, or proposed building, faces.

GAA see Growth Areas Authority

GAFP see Growth Area Framework Plan

Gross Developable Area

Total area bounded by the precinct boundary.

Gross Housing Density see Housing Density (gross)

Growth Area

Areas on the fringe of metropolitan Melbourne designated for large-scale growth. The following municipal councils: Cardinia Shire; Hume City; Hume City; Melton Shire; Whittlesea City; Wyndham City

Growth Area Framework Plan

Government document that set long-term strategic planning direction to guide the creation of a more sustainable community in the growth areas.

Growth Areas Authority

A statutory authority established by the Victorian Government to work in partnership with councils and government agencies, and provide advice to government on the coordination of land development, infrastructure and service provision in the growth areas.

Higher Density Housing

Housing with an average density of more than 30 dwellings per net developable hectare

Housing Density (Gross)

Housing yield divided by gross developable area.

Housing Density (Net)

Housing yield divided by net developable area.

Housing yield

Number of dwellings

Integration

Either shared use or co-location

Joint Use see Shared Use

Local Arterial Road

Similar to an arterial road, but generally more modest in terms of speed and volume. Supplements the declared arterial network and managed by the relevant local council.

Local Centre

An activity centre smaller than a neighbourhood activity centre with a catchment of about 400m2, and may include a small supermarket or convenience store of 500m2 to 1,500m2.

Lot

A part (consisting of one or more pieces) of any land (except a road, a reserve, or common property) shown on a plan, which can be disposed of separately and includes a unit or accessory unit on a registered plan of strata subdivision and a lot or accessory lot on a registered cluster plan

Lower Density Housing

Housing with an average density of lower than 10 dwellings per hectare.

MAC see Major Activity Centre

Major Activity Centre

Defined in Melbourne 2030, page 48

Medium Density Housing

Housing with an average density of 15 to 30 dwellings per net developable hectare

NAC see Neighbourhood Activity Centre

Native Vegetation

Plants that are indigenous to Victoria, including trees, shrubs, herbs, and grasses.

Native Vegetation Precinct Plan

Sets out requirements for the protection and removal of native vegetation for a defined area or precinct

Neighbourhood Activity Centre

Defined in Melbourne 2030, page 49. In growth areas, retail element to be anchored by a 2,500m2 supermarket, with a broad range of supporting retail goods and services.

Net Developable Area

Area of precinct available for development for housing or employment. Includes lots, local and connector streets. Excludes schools, open space, conservation areas, drainage, and arterial roads.

Net Housing Density see Housing Density (net)

Net Residential Area

Area of precinct available for development of housing. Excludes connector roads.

NVPP see Native Vegetation Precinct Plan

Operational Expenditure

An ongoing cost for infrastructure in terms of the Precinct Structure Plan or Development Contributions Plan (PSP Guidelines, 2008, Section 8)

PAC see Principal Activity Centre

Passive Open Space

Parks, gardens, linear corridors, conservation bushlands and reserves that are made available for passive recreation, play and relatively low levels of physical activity including walking, cycling, hiking, revitalisation, contemplation and enjoying nature.

PIP see Precinct Infrastructure Plan

PPTN see Principal Public Transport Network

Precinct Infrastructure Plan

Summarises how infrastructure and services necessary for the precinct will be delivered.

Precinct Structure Plan

A statutory document that describes how a precinct or series of sites within a growth area will be developed over time. A PSP sets out the broad environmental, social and economic parameters for the use and development of land within the precinct.

Principal Activity Centre

Defined in Melbourne 2030, page 47

Principal Public Transport Network

A high-quality public transport network that connects Principal and Major Activity Centres, and comprises the existing radial fixed-rail network, extensions to this radial network and new cross-town bus routes.

PSP see Precinct Structure Plan

Public Housing

Housing provided by Government for households on low to moderate incomes.

Public Open Space

Land set aside in a plan or land in a plan zoned or reserved under a planning scheme for public recreation or public resort; or as parklands; or for similar purposes. Incorporates active and passive open space.

Public Transport Interchange

Places where people can access or change between multiple public transport routes, for example, between train and bus or a multi-route bus station at a major activity centre.

Road

Includes highway, street, lane, footway, square, court, alley or right of way, whether a thoroughfare or not and whether accessible to the public generally or not.

Shared Use

When schools, councils and community organisations come together to plan, build and in some cases jointly manage a single facility to be used by multiple service providers, e.g. the concept of using a school as a community facility is about enabling the school to provide for wider community utilisation.

Social Housing

Housing provided by Housing Associations for households on low to moderate incomes.

Social Infrastructure

Community Infrastructure plus public open space.

Specialised Activity Centre

Defined in Melbourne 2030, page 49

Sporting Open Space see Active Open Space

UGB see Urban Growth Boundary

UGZ see Urban Growth Zone

Urban Growth Boundary

A management tool to contain urban areas and limit their expansion. It divides land that is urban – to be used for housing, shops, factories – from land that is non-urban and to be used for purposes such as conservation, agriculture, mineral extraction, airports and the like.

Urban Growth Zone

Applies to land identified for future urban development to manage transition of non-urban land into urban land; to encourage development of well-planned and well-serviced new urban communities in accordance with an overall plan; to reduce the number of development approvals needed in areas where an agreed plan is in place; and to safeguard non-urban land from use and development that could prejudice its future urban development.

Water Sensitive Urban Design

Aims to provide water-quality treatment as well as flood management and to reduce the pollution carried to our waterways. Key principles include minimising water resistant areas; recharging natural groundwater aquifers (where appropriate) by increasing the amount of rain absorbed into the ground; encouraging onsite reuse of rain; encouraging onsite treatment to improve water quality and remove pollution; using temporary rainfall storage (retarding basins/wetlands) to reduce the load on drains

WSUD see Water Sensitive Urban Design

AHD	Australian Height Datum
AFL	Australian Football League
CAD	Central Activities District
CBD	Central Business District
CHMP	Cultural Heritage Management Plan
CIL	Community Infrastructure Levy
CPTED	Crime Prevention Through Environmental Design
DEECD	Department of Education & Early Childhood Development
DIL	Development Infrastructure Levy
DPCD	Department of Planning & Community Development
DoT	Department of Transport
DSE	Department of Sustainability & Environment
ECV	Environmental Conservation Value
GAA	Growth Areas Authority
GDA	Gross Developable Area
Ha	Hectare
HO	Heritage Overlay
MCH	Maternal & Child Health
MSS	Municipal Strategic Statement
NAC	Neighbourhood Activity Centre
NDA	Net Developable Area
NDHa	Net Developable Hectare
NRHa	Net Residential Hectare
NGO	Non Government Organisation
NVPP	Native Vegetation Precinct Plan
PAC	Principle Activity Centre
PIP	Precinct Infrastructure Plan
PPTN	Principle Public Transport Network
PSP	Precinct Structure Plan
P-6	State School Prep to Year 6
P-12	State School Prep to Year 12
Sq m	Square Metres
UGB	Urban Growth Boundary
UGZ	Urban Growth Zone
VIF	Victoria in Future
VPD	Vehicles Per Day
WSUD	Water Sensitive Urban Design

7.2 Supporting information

The following documents may assist in understanding the background to the vision, objectives and other requirements of this PSP.

A Fairer Victoria 2008: Strong People, Strong Communities, Department of Planning and Community Development, May 2008

A Plan for Melbourne's Growth Areas, Department of Sustainability and Environment, 2005

Traffic Model for the Hume-Cardinia Growth Corridor, Ashton Traffic Services Pty Ltd, September 2008, prepared for the Growth Areas Authority.

A Strategic Framework for Creating Liveable New Communities, Growth Areas Authority, March 2008

Activity Centre Design Guidelines, Department of Sustainability and Environment, January 2005

Central Region Sustainable Water Strategy, Department of Sustainability and Environment, 2004

Design for Trucks, Buses and Emergency Vehicles on Local Roads, VicRoads, 1998

Development Contributions Guidelines, Department of Planning and Community Development, March 2007

Flora and Fauna Guarantee Strategy: Victoria's Biodiversity, Department of Natural Resources and Environment, 1997

Growing Victoria Together II, State of Victoria, March 2005

Growing Victoria Together, Department of Premier and Cabinet, 2001

Guidelines for Conducting Historical Archaeological Surveys, 2008, Heritage Council of Victoria and Heritage Victoria

Guidelines for Higher Density Residential Development, Department of Sustainability and Environment, October 2004

Healthy by Design: A planners' guide to environments for active living, National Heart Foundation of Australia, 2004

Linking Melbourne: Metropolitan Transport Plan, State of Victoria, November 2004

Linking People and Spaces: A Strategy for Melbourne's Open Space Network, Parks Victoria, 2002

Meeting Our Transport Challenges, State of Victoria, May 2006

Melbourne 2030: Planning for Sustainable Growth, State of Victoria, 0ctober 2002

Our Environment, Our Future, Department of Sustainability and Environment, 2006

Port Phillip and Westernport Regional Catchment Strategy, Port Phillip Regional Catchment and Land Protection Board, 1997

Planning for all of Melbourne: The Victorian Government Response to the Melbourne 2030 Audit, State of Victoria, 2008

Planning for Community Infrastructure in Growth Areas, Australian Social and Recreation Research Pty Ltd for Growth Area Councils, April 2008

Public Transport Guidelines for Land Use Development, Department of Transport, 2008

Safer Design Guidelines for Victoria, Department of Sustainability and Environment, June 2005

Schools as Community Facilities, Department of Education and Training, November 2005

Shared Facility Partnership: A Guide to Good Governance for Schools and the Community, Department of Education and Early Childhood Development, December 2007

The Victorian Greenhouse Strategy, Department of Natural Resources and Environment, 2002

Urban Development Program, Department of Planning and Community Development, annual

Urban Stormwater Best Practice Environmental Management Guidelines, CSIRO, 1999

VicRoads Access Management Policies Version 1.02, VicRoads, May 2006

Victorian Heritage Strategy, Heritage Victoria, 2000

Technical Reports Specific to this PSP Area

R2 Precinct Structure Plan, Craigieburn Urban Development Cultural Heritage Management Plan No. 10575 (Draft), Tardis Enterprises Pty Ltd 19 June 2009

Traffic Modelling for Hume Corridor, Rev. 3, Ashton Traffic Services, September 2009

Craigieburn R2 Precinct Structure Plan Assessment of Community Infrastructure Requirements and Opportunities (Draft), ASR Research, August 2008

Hume Corridor Growth Area Economic Development and Employment Analysis (Final Draft Report), Essential Economics Pty Ltd, 18 August 2009

Growth Areas Authority Report for Craigieburn R2 Precinct Infrastructure and Servicing Report, GHD, October 2008

Craigieburn R2 Precinct Structure Plan: Flora and Fauna – Existing Conditions Report – Version 6, Practical Ecology – 6 July 2009

R1 Greenvale North and R2 Craigieburn Urban Growth Zones – Golden Sun Moth Survey – Version 3, Practical Ecology – 13 July 2009

Hume City Council Infrastructure Design Manual.

Hume City Council Guidelines for the Planning Design and Construction of Open Space.