ARMSTRONG CREEK
WEST

Precinct Structure Plan

NOVEMBER 2011 (Exhibition version)

Victoria
The Place To Be

Department of Planning
and Community Development

CITY OF GREATER
GEELONG

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City of Greater Geelong

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1 INTRODUCTION

1.1 ROLE OF THE PRECINCT STRUCTURE PLAN

A precinct structure plan (PSP) is the planning mechanism used to plan for major new urban development together with the infrastructure and services required by its future community. It is the link between the State and local planning policies and the planning permit for development and use of land.

The PSP therefore, is at a higher or broader level than the plans that form the required documents to accompany a planning permit application. It is a long-term plan to guide future urban development. It describes how the land is expected to be developed and how and where services are planned to support development.

Specifically, the PSP:

- is a strategic plan setting out the vision and structure for the creation of a new urban area that implements Victorian Government guidelines;
- provides the basis for planning controls that apply in the Schedule to the Urban Growth Zone in the relevant planning scheme;
- provides the framework for the consideration of planning permits that provide for urban development under the provisions of the relevant planning scheme;
- details requirements or conditions that must be met by future development and use;
- outlines projects required to ensure that the future community within the area is provided as early as possible with access to infrastructure and services to support a quality, affordable lifestyle;
- provides developers, investors and local communities with certainty regarding the nature of future development within the PSP area.

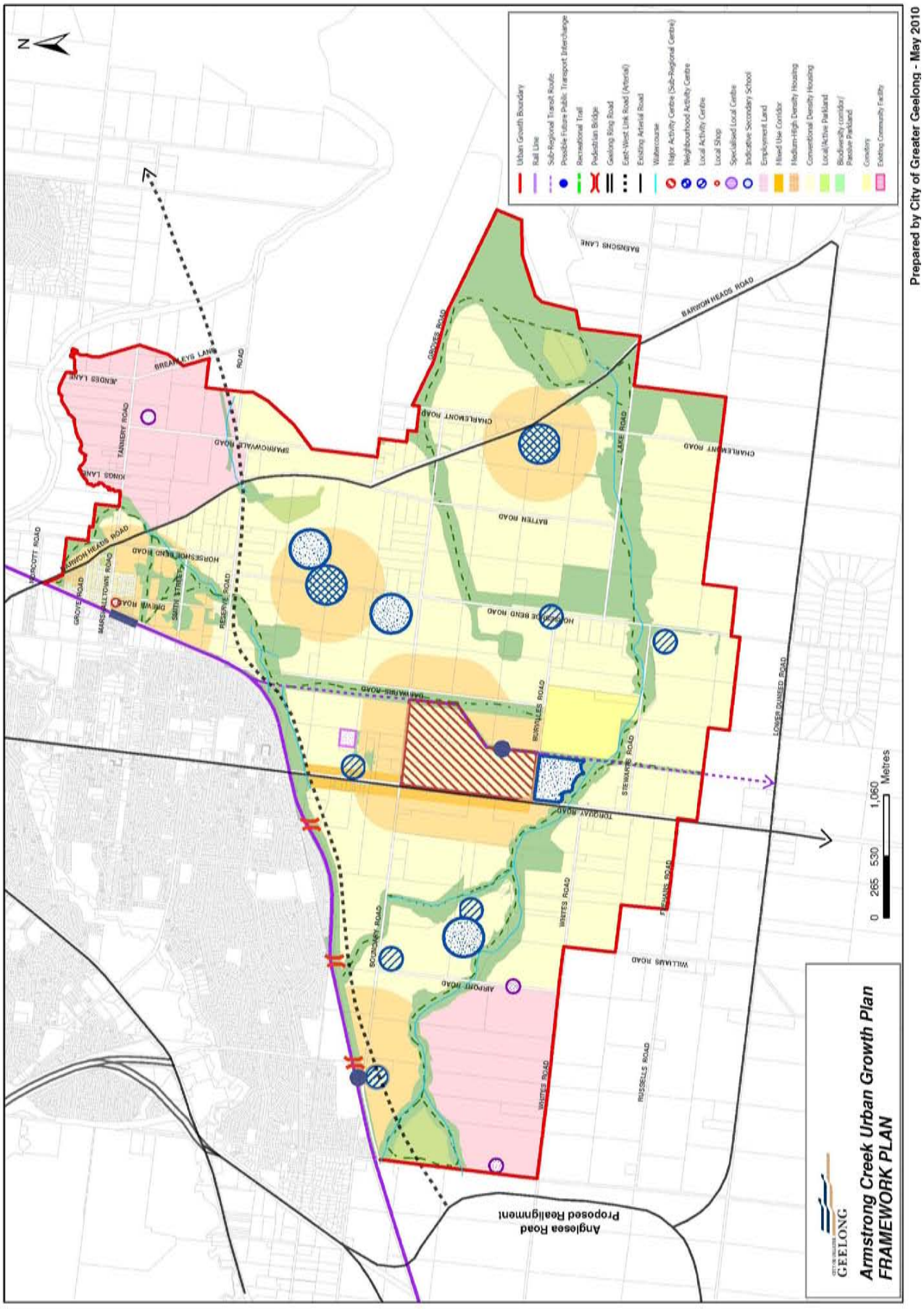
A PSP in the Armstrong Creek Urban Growth Area (ACUGA) must be generally in accordance with the incorporated (in the Greater Geelong Planning Scheme (the Scheme)) Armstrong Creek Urban Growth Plan - Framework Plan May 2010 (the Framework Plan) (refer to Plan 1).

The ACUGA establishes the strategic context and vision for urban development within Armstrong Creek.

The Armstrong Creek West Precinct Structure Plan (ACWPSP) sets objectives and provides for their implementation in relation to eight key elements:

- image and character;
- subdivision and housing;
- community facilities;
- public open space, natural systems and biodiversity;
- employment and activity centres;
- transport and movement;
- utilities and energy;
- drainage and floodplain management.

These are set out in detail in section 4.



PLAN 1
FRAMEWORK PLAN

1.2 LAND TO WHICH THE PRECINCT STRUCTURE PLAN APPLIES AND ITS CONTEXT

The Armstrong Creek West Precinct (ACWP) forms part of Geelong's largest growth area, the ACUGA, which is the largest urban growth area in Victoria, located approximately 8 kilometres south of the Geelong central activities area.

The ACWPSP covers ACWP, which is about 553 hectares in gross area and can be generally defined by the Surf Coast Highway creating its eastern boundary and the Warrnambool-Melbourne Rail line forming its northern boundary. Ghazeepore Road presents the western-most limit of the ACWP site and the southern boundary is varied; defined by the Armstrong Creek between Ghazeepore Road and Airport Road, and generally staggered thereafter following private property boundaries along Whites and Feehans Roads to the Surf Coast Highway.

In terms of the topography of the site, ACWP is gently undulating, influenced primarily by the Armstrong Creek, which traverses the site, generally in an west to east direction on a meandering alignment. A number of more minor drainage lines connect with the creek, with key low points on site located along the Armstrong Creek, near the Surf Coast Highway, and north of the existing airport runway. Highpoints and ridgelines are located in the north-east and north-west parts of the precinct. Outside the ACWP, Mt Duneed to the south is an elongated hill with no defined peak, which acts as a green backdrop to the precinct.

The ACWP is one of seven precincts within the ACUGA which include: Major Activity Centre; Horseshoe Bend; North East Industrial; Marshall; Armstrong Creek East; and Western Industrial.

1.2.1 Key Existing Roads

The existing road network through the ACWP is generally based on a mile grid network (albeit with offset and discontinued roads in some locations) with the Surf Coast Highway providing the higher order north-south connection anchored at either end by Geelong to the north and Torquay to the south. Other north-south roads include Ghazeepore Road, which creates ACWP's western boundary and is constructed to a sealed rural standard. Currently, only the Surf Coast Highway and Ghazeepore Road provide an unbroken north-south connection between the existing areas of Geelong to the north, and the ACWP. Airport Road is an unsealed north–south connection centrally located within the ACWP.

Boundary and Whites Roads provide east-west connectivity through the ACWP and both are sealed to a rural standard. Feehans Road forms part of the southern-most boundary of the ACWP and is a sealed road terminating at Williams Road located outside of the ACWP area.

These roads set the framework for development of a modified grid based connector road system in the ACWPSP.

1.2.2 Existing Public Transport

The public transport network for Geelong is accessed via the Melbourne-Geelong-Warrnambool Rail Line, which abuts the northern boundary of the ACUGA. The nearest existing station is Marshall Station, approximately 4 kilometres north-east of ACWP, however, a new train station is proposed to be constructed within the western part of the ACWPSP area, which will be supported by extensive 'park and ride' car parking facilities. This new train station is a positive contribution to the new urban growth area of Armstrong Creek, providing context for higher density residential development and some local scale retail, in the early stages of development of the PSP.

In addition, the ACUGP also proposes a spur line to the railway, that is proposed to extend along the eastern boundary of the future Major Activity Centre (MAC) on the east side of Surf Coast Highway.

Regional public transport is provided by bus services (on Surf Coast Highway and Barwon Heads Road). Local bus services will expand or be supplemented by new services as development and occupation of dwellings and activity nodes occurs in the ACUGA to ensure that all home have access within a reasonable distance to public transport.

It is recognised that the Warrnambool to Melbourne rail-line is a barrier to the north of the precinct.

1.2.3 Key Existing Public Open Sapce

The existing major public open space areas serving the region include:

- key recreation nodes and passive open space associated with the Barwon River and its floodplain;
- regional open space facilities in greater Geelong such as the Geelong Botanic Gardens and Eastern Park;
- the beach and foreshore areas of Geelong, the Surf Coast and Bellarine Peninsula;
- Kardinia Park;
- Waurn Ponds Creek with comprises major recreational facilities.

Existing local public open spaces in ACWP or its vicinity include Stewarts Conservation Reserve in Stewarts Road in the Armstrong Creek East Precinct (ACEP) and Mount Duneed Recreation Reserve in Feehans/Russell Roads to the south of the ACWP (refer Plan 2 Context).

The existing open spaces will be complemented by establishment of planned passive and active local and regional public open space in the ACUGA and more specifically ACWP (refer Plan 1 Armstrong Creek Framework Plan).

1.2.4 Key Existing and Planned Activity Centres

The Armstrong Creek Framework Plan identifies a hierarchy of activity centres throughout the growth area, including:

- a major activity centre on Surf Coast Highway and planned for 137,000 square metres of retail, non-retail commercial and community services floorspace together with a public transport interchange, 3,500 jobs and higher density housing;
- two neighbourhood activity centres, both located on the east side of the Surf Coast Highway, within the Armstrong Creek East and Horseshoe bend Precincts,
- a network of local and specialised activity centres distributed throughout the growth area.

Each local activity centre is planned to contain a mixture of shops and services to meet the convenience needs for the immediate local area, creating associated jobs and possible medium density housing to support each centre.

It is noted that while three Local Activity Centres have been identified within the ACWP, no Neighbourhood Activity Centre was nominated.

Neighbourhood level activity centres are an important component of the hierarchy serving a different role to local and major activity centres. Neighbourhood activity centres also play an important role in the composition of a neighbourhood, offering the ability for a central community focus or "heart" within a precinct, particularly where the MAC is separated by a major road. In this way, the retail component of a neighbourhood level centre also provides leveraging opportunities for community land uses and interaction that would not be possible at a local activity centre scale (see Figure A).

Retail advice from Essential Economics confirms that a neighbourhood level activity centre, with a retial floorspace of up to 5,000m2 could be supported in the Armstrong Creek West precinct, without impacting on the viability of the major activity centre. Given the proximity to the MAC this NAC has been limited to a floor space of 3,000m2 in the short to medium term.

Existing employment areas which are reasonably accessible to the ACWP include the industrial areas of Geelong including North Geelong, North Shore, Moolap, Breakwater and Newtown/South Geelong. In addition, employment areas are planned within the ACUGP, immediately to the west of the ACWP (Western Employment Precinct (WEP)) and in the east of the ACUGP area (known as the North East Industrial Precinct (NEIP)). The WEP is proposed to be 140ha in size, accommodating approximately 7,350 jobs. The NEIP, approximately 180ha in size, is estimated to accommodated approximately 8,000 jobs.

1.2.5 Key Existing Community Facilities

Existing and higher order social and community infrastructure that will serve the ACWP is based largely in Geelong and the established greater Geelong region. ACWP contains no existing community facilities, however the Geelong Lutheran College and Geelong Memorial Park Crematorium and Cemetery are located to the east in Burvilles Road in the ACEP. South of the ACWP on Williams Road is the Mt Duneed Regional Primary School and the Mt Duneed Recreation Reserve.

COGG has adopted a community 'hubbing' approach to community facilities, which sees schools, community complexes, health and well-being centres, activity centres and active open space co-located together in hubs. This approach is reflected in the ACWP, however, should further community facilities be required, including privately owned and operated centres, such as medical centres, child care centres etc, it is noted that these facilities can be distributed throughout the plan area to ensure that the value generated by these facilities in terms of community capital is extended to all parts of the ACWP.

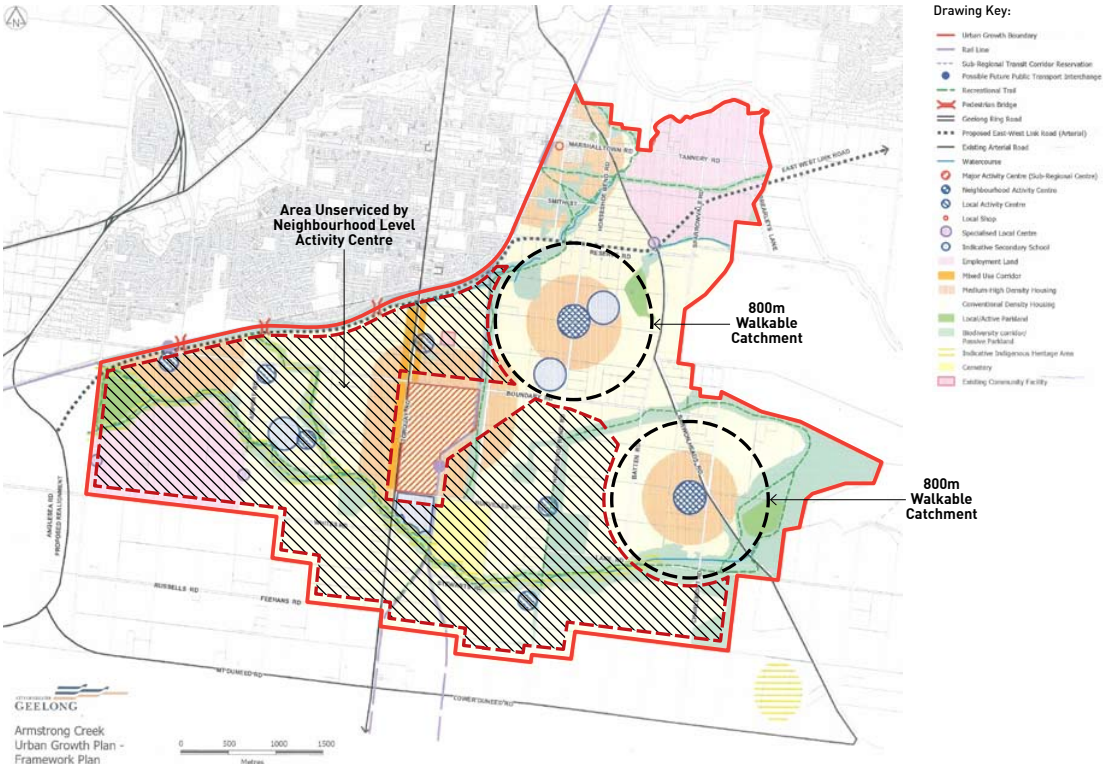
1.2.6 Other existing features

The Geelong Airport is situated near the corner of Boundary Road and the Surf Coast Highway. The site contains east-west and north-south runway with associated outbuildings proximate to the main road frontages. Upon development of the land, these runways and buildings will be removed.

1.3 MONITORING AND REVIEW

The CoGG will monitor the implementation of this ACWPSP. Its relevance and effectiveness will be evaluated regularly, at least every four years and it is expected that it will be revised and updated as required.

FIGURE A: DISTRIBUTION OF NEIGHBOURHOOD ACTIVITY CENTRES ACROSS ACUGP



2 PRECINCT FEATURES

Plan 2 Context shows the key features of ACWP as described in the sections following.

2.1 HERITAGE

Nine registered Aboriginal places comprising six stone artefact scatters and three scarred trees have been identified within ACWP by the Heritage Report prepared by Ochre Imprints (2010), most located within proximity to the Armstrong Creek and its tributaries.

The creek corridor is identified as an area of potential Aboriginal sensitivity, and the heritage report notes that a Cultural Heritage Management Plan (CHMP) will be required prior to issue of any planning permits near the creek (as well as other areas identified as areas of cultural heritage sensitivity, such as around registered Aboriginal places).

European settlement heritage sites include three unregistered historical places, comprising two structures (50 and 140 Whites Road) and a Bluestone Quarry (25 Williams Road). There are no registered historical (non-aboriginal) places within the precinct. Otherwise, the precinct consists of agricultural land, which has very low historical archaeological sensitivity.

2.2 BIODIVERSITY

2.2.1 Biodiversity Significance

The ACWP is located within the Barwon River Catchment and lies across the Otway Plain and Victorian Volcanic Plain Bioregions, with the interface approximately following the route of the Armstrong Creek. The area would have originally supported Plains Grassland (EVC 132) and Grassy Woodland (EVC 175) as well as a mix of riparian EVCs. Armstrong Creek flows across the precinct in an easterly direction and eventually discharges into the Hospital Swamp before eventually entering the Ramsar listed Reedy Lake.

While the ACWP is primarily characterized as highly modified, cleared agricultural land, fragmented remnant patches of endangered Grassy Woodland remain in both bioregions, particularly along and adjacent to the Armstrong Creek. Linear patches of Grassy Woodland also extend along Airport and Boundary Roads, providing a series of vegetation corridors across the precinct, and scattered trees are also located across the precinct

Specifically, 51 habitat zones (HZ) totaling 46.4ha (, which is less than 10% of the ACWP) have been identified within the ACWP. Seven of these (totaling 3.22ha) are considered to be of very high conservation significance representatives of the Endangered EVC 175 Grassy Woodland.

Scattered trees (not within a HZ) across the ACWP are dominated by River Red Gums and Drooping Sheoaks, which may perform an important ecological role for birds and microbats. In total, there are 26 Very Large Old Trees (VLOTs), 36 Large Old Trees (LOTs) 24 Medium Old Trees (MOTs) and 229 Small trees across the 559ha precicnt area. Many LOTs and VLOTs are dead old trees, some of which form hollows and are habitat trees.

Armstrong Creek is ephemeral in nature but contains a number of degraded permanent pools created by existing culverts and other structures associated with road crossings. These pools are generally associated with areas of high quality vegetation between Airport Road and Surf Coast Highway and play an important refuge role for aquatic fauna.

2.2.2 Biodiversity Assets

General Values

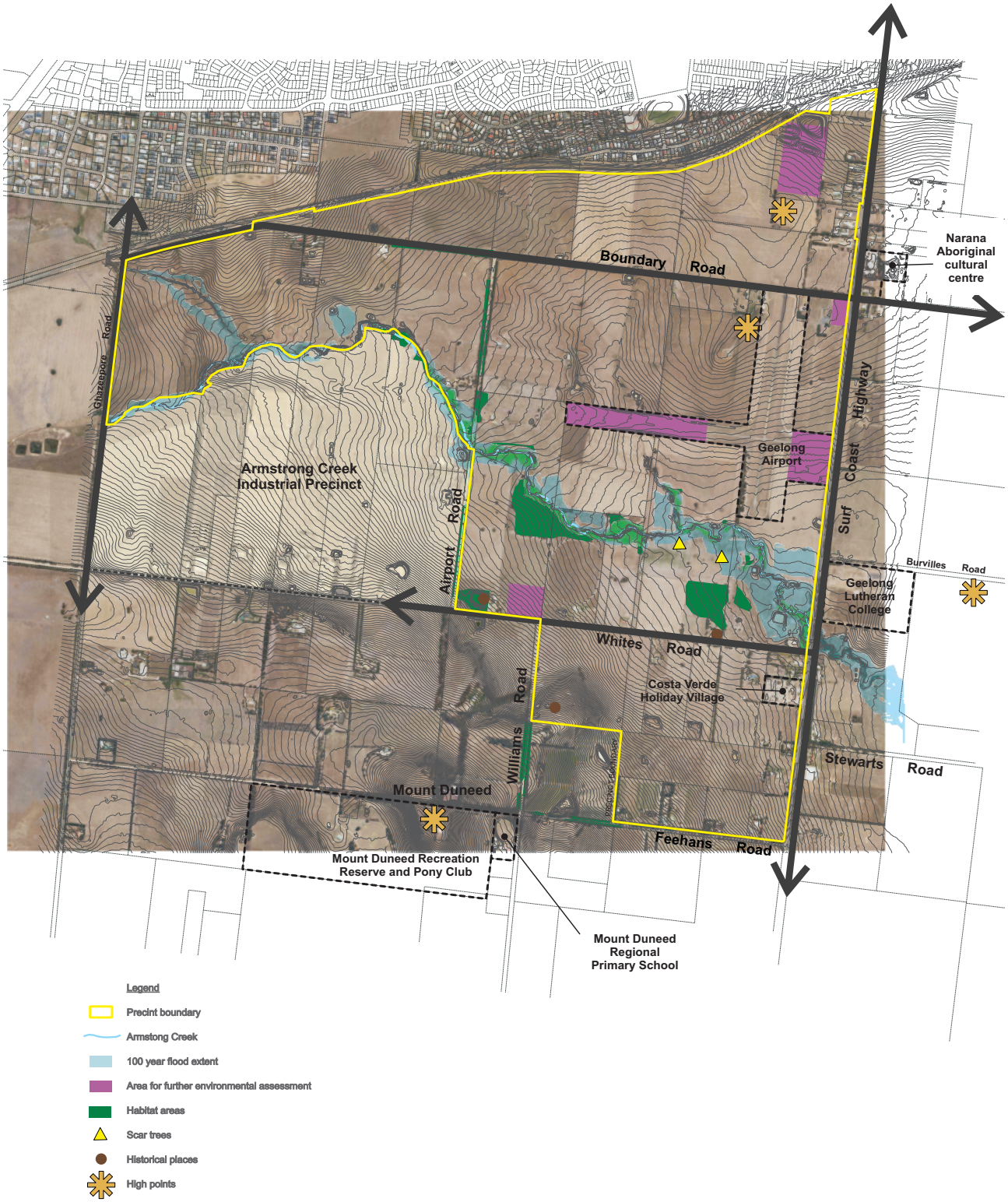
The key biodiversity assets within the precinct are:

- The Armstrong Creek;
- Airport Road; and
- Boundary Road (generally west of Airport Road);
- Various groups of remnant trees;

A number of scattered trees provide for some additional biodiversity value to flying animals. An area adjacent to Mount Duneed retains a number of rocky outcrops that would provide habitat for reptiles and mammals.

Flora Values

Numerous patches of Grassy Woodland EVC exist along Armstrong Creek, particularly in the eastern part of the precinct. Linear stretches of vegetation containing large red gums and Drooping Sheoaks along Airport Road and Boundary Road will form the basis of a series of greenways. The development of the ACWP provides the opportunity to enhance the flora and fauna values within the creek with planting of indigenous species, management to maximize potential habitat and eradication of weeds and exotic species.



PLAN 2
CONTEXT PLAN

Fauna values

Armstrong Creek, when upgraded with quality vegetation and stormwater improvement works, has the potential to provide habitat for Growling Grass frogs, Yarra Pygmy perch and Dwarf Galaxias, however, targeted surveys undertaken have not identified the presence of any of these species at present. These Nationally threatened species have been recorded in nearby Waurn Ponds Creek and adjoining Barwon River, and with vegetation and water quality improvements as part of urban development, may come to Armstrong Creek in the future.

The remnant patches and scattered trees are likely to be used for food and roosting by a number of species of microbats and birds. A colony of nationally threatened Grey Headed Flying Foxes roost in the Geelong Botanic Gardens approximately 10km north east of the precinct and regularly fly over the precinct in search of food resources. Urban development, resulting in landscaping of streets and gardens, is likely to increase the supply of food sources for this species.

2.3 TOPOGRAPHY AND LANDFORM

ACWP is gently undulating, influenced primarily by the presence of Mt Duneed in the south and the Armstrong Creek, which extends across the precinct from west to east. The creek takes on a generally natural form in this precinct, and is incised in some parts. A number of minor drainage lines connect with the creek, in various forms.

The existing east-west airport runway on site has been built up, and forms an artificial topographical feature that acts as a significant interruption to the natural topography and drainage of the site. However, the built up runway will be removed as part of construction, and as such, is not considered a constraint to development.

Key low points on site are located along the Armstrong Creek, near Surf Coast Highway, and north of the runway. High points and ridgelines are located in the north-east and north-west of the precinct. To the south of the precinct is Mt Duneed which acts as green backdrop to the precinct.

The topography and landform offers no major constraints to development other than some areas of land will remain flood prone. To this end, the extent of the 1 in 100 flood line, has been modelled by WaterTechnology, having regard for the intended stormwater drainage treatment and management outcome,

2.4 CATCHMENTS AND DRAINAGE

The Corangamite Catchment Management Authority (CCMA) (2009) and Water Technology (2010) have undertaken flood modeling of the existing (pre-development) flood levels in the ACWP. These studies found that deeper flood levels are generally confined to the immediate Armstrong Creek corridor, with some shallow flooding (less than 0.2m in depth) occurring across Surf Coast Highway in the 100 year event. The existing airport runway (with a small culvert) obstructs overland flows from Boundary Road, resulting in ponding north of the runway. The CCMA requires that, upon development, flood management treatments maintain pre-development peak flows at Airport Road and Surf Coast Highway.

2.5 GEOTECHNICAL AND CONTAMINATION ASSESSMENT

No significant geotechnical hazards were identified however; some isolated geotechnical matters will need to be addressed during the normal course of construction, primarily associated with fill use in the airport runway.

Majority of the land within the precinct is considered to be of low contamination hazard. However, four properties (refer Plan 2 Context) within the precinct were identified as requiring further investigation due to the nature of their former/existing use. Further investigation of these sites including soil sampling, will be required to confirm their contamination status at the planning permit stage. However, it is considered likely that any contamination found would be able to be managed/remediated during the course of any subdivision construction works.

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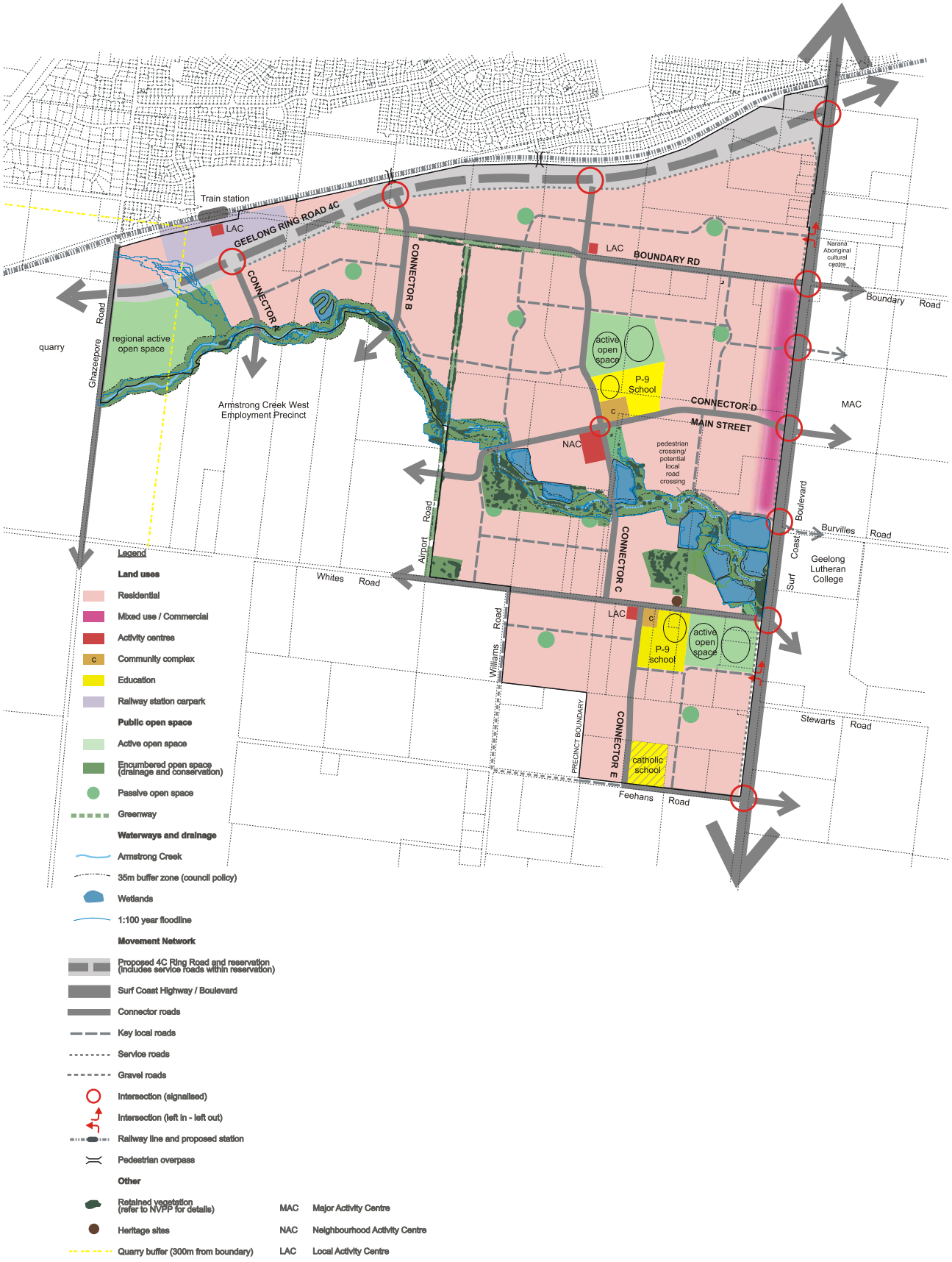
3 VISION

The Armstrong Creek Framework Plan sets a clear vision for the growth area as a whole; however it is necessary to further define a specific vision for the Armstrong Creek West precinct, to ensure it is developed as a distinct area with its own character.

The vision for Armstrong Creek was first identified by the CoGG, which envisaged the following:

- Armstrong Creek will be developed into a sustainable community that sets new benchmarks in best practice urban development. Natural and cultural features will be protected and enhanced to create a distinct urban character. Armstrong Creek will become a highly sought-after location for living, working and recreation, forming an attractive addition to Geelong;
- Armstrong Creek will provide a range of housing types and densities in an urban structure based on walkable neighbourhoods with access to public transport and mixed use activity centres;
- All residents will be within proximity to public open space that will provide adequate opportunities for recreation and passive use;
- Armstrong Creek is the key urban extension to Greater Geelong and will accommodate major population expansion for the next 20 plus years.
- The vision for the ACWP incorporates the overall ACUGA vision above, but more specifically, seeks to develop ACWP as an attractive, liveable and adaptable new community centred on its key green asset of Armstrong Creek. The vision for this community is derived from a contribution of the existing and natural site features coupled with the desire to produce a distinct urban environment for future residents (refer Plan 3 Armstrong Creek West Precinct Urban Structure Plan).
- The vision for Armstrong Creek West is to create:
- A series of well defined, diverse and walkable neighbourhoods that are connected internally and externally and which promote establishment of a positive sense of place.
- An interlinked system of public open space and pathways that focus on the Armstrong Creek and retained areas of remnant native vegetation.
- A modified grid based transport system that distributes traffic flows and promotes use of a range of transport options including walking, cycling and public transport.
- A high quality public realm that focuses on the important role of streets and street tree planting as highly important character elements.
- A physical form including high quality streets that supports delivery of diverse housing types and other land uses over time.
- A series of diverse, liveable and interesting activity centres that promote containment and are the focus for the community.
- A high quality and high ratio of built form and landscape presentation to the Surf Coast Highway and the planned Major Activity Centre.
- A supportive and integrated relationship to the Western Employment Precinct and future rail station.



PLAN 3
URBAN STRUCTURE PLAN

3.1 INTEGRATED NEIGHBOURHOOD DESIGN

The Framework Plan prepared for the ACUGA identifies the significant plan based features that form the basis upon which the ACWPSP has been designed and refined.

During the process of preparation of the ACWPSP, a number of the ACUGA's features have been refined following an extensive process of review with key stakeholders, including various Council departments and State Government bodies, servicing authorities, landholders and members of the surrounding community.

As a result, a number of key principles, which extend and develop the principles contained within the ACUGP, have been agreed. These key principles are summarised below, and form the basis upon which the ACWPSP vision has been developed, and upon which an integrated neighbourhood design is to be delivered:

- Focus on diverse lot sizes and housing forms distributed throughout the entire plan area, whilst also acknowledging 'preferred locations', such as around key activity areas, as appropriate for higher densities.
- Acknowledge the role of a central neighbourhood level activity centre, supported by three local level activity centres, as an important community focus or 'heart' for the precinct.
- Recognise the planned urban context of the land when approaching native vegetation management.
- Focus on the Armstrong Creek as a high quality open space spine that links with greenways in Airport Road and Boundary Road (west of Airport Road) and recognise the multiple uses of these spaces, including for drainage, for passive open space, as part of a linear walking/cycle network, for its conservation values, and as a high amenity setting for diverse housing.
- Adoption of a modified-grid based transport network that distributes rather than focuses traffic.
- Recognition of the importance of providing streets that establish an attractive and pleasant setting for land uses as a priority, as opposed to simply designing streets to cater for their traffic function.
- Recognition of the importance of enabling provision of small green spaces throughout the plan area as a context for land uses and to protect individual trees for landscape purposes, and acknowledgement that these green space provide character and relief in the streetscape, and will not necessarily perform a further utilitarian function, such as a passive open space area.
- Provision of a mixed-use area that responds to the MAC spatially, and provides a mix of land uses that support the MAC and provide a positive land use interface with the Surf Coast Highway.
- Provision of an education delivery model, comprising two P-9 schools within ACW feeding into a Senior Secondary School to be located within the MAC.
- Recognition that schools should be distributed to service catchments both north and south of the creek, be co-located with active open space and community centres, and be located so as to minimise intrusion into the walkable catchment to activity centres (which would be better utilised for residential development).

This integrated neighbourhood design is summarised under the headings below.

3.1.1 Sense of Place and Community

A sense of place and community comes from people of all ages having opportunities to meet and interact in appropriate spaces in suitable ways and times.

While this requires investment in community facilities and structures, such as schools, community complexes etc, careful attention to the design of the public realm, including the streetscapes, open spaces and activity centres is of equal, if not higher, importance in creating a sense of place and community. This attention to design involves:

- deliberately incorporating specific urban design measures that encourage progressive creation of diverse and interesting places; and
- avoiding inflexible, prescriptive design requirements that 'plan out' diversity and interest.
- From this perspective, the ACWPSP sets out the structure and principles to prioritise creation of diversity as a key means of delivering a sense of place. In order to achieve this, the ACWPSP deliberately adopts principles that:
- will encourage diversity and interest in streetscapes in terms of cross-sections, lot sizes, housing, landscaping, and approach to open space. This diversity will be distributed throughout the plan area and requires flexible approaches to application of density requirements, minimum open space design requirements, and cross-section design to achieve the desired outcome.

- creates a positive and beneficial interface between land uses and the movement network, and

- provides key focal points for the community to gather in andidentify with, including the Armstrong Creek and the NAC.

In terms of community infrastructure, the location and content of community infrastructure in ACWP has been determined to give grounding to the start of community development. The vision of CoGG is to do whatever is reasonably possible to encourage/ provide community infrastructure as early as possible in the life of ACWP to maximise the availability of community buildings and services to new residents and other visitors to ACWP. Community groups will be encouraged to establish to assist in building a sense of community via participation and input into future decisions about ACWP community infrastructure development.

3.1.2 Housing Choice Diversity and Affordability

The intention for ACWP is that a variety of housing types and densities will be developed at a variety of prices, in order to provide suitable choices for a range of different needs, lifestyle preferences and income levels thus attracting a diverse mix of people and a dynamic community.

The ACWPSP adopts a distributed street based approach to diverse housing options and density.

While some areas will lend themselves to accommodating higher densities than others (such as around activity centres and the train station, and within areas that have higher amenity values, such as in proximity to open space and within key character streets (i.e. streets that have increased landscaping, central medians, small urban parks etc).

3.1.3 Accessible and Vibrant Activity Centres

The ACWP is made up of a network of activity centres, varying in size, role and functions distributed around key road junctions. The neighbourhood activity centre in ACWP, centrally located at the junction of the east-west and north-south connector roads is the largest of the precinct's activity centres, and is intended to serve as an 'amenity based' centre. The centre is proposed to have a 'green' content, located adjacent to the wetlands and an open space spine, which will engender a positive sense of place, and a focus for community facilities. To this end, the NAC is not intended to be solely retail drive, but rather, is intended to bring together neighbourhood uses in a safe, pleasant and distinctive setting. This centre will be focused on a 'main street' with larger shops (such as the supermarket) and car parking generally sleeved by smaller shop fronts, which will face onto a 'main street'. Pedestrian access in and around the centre will be a primary design objective including along 'main street' and from car parking areas and bus stops.

A permeable network of streets, walkways and public spaces will provide high quality linkages, particularly for pedestrians, to the activity centres and will inter-link with other parts of ACWP and beyond.

A sense of vitality will be encouraged within the neighbourhood activity centre with buildings designed to address the street, resulting in continuous and contained streetscapes, which create interest and interaction at street level. Footpaths will be broad, enabling alfresco dining to further activate the streetscape. All activity centres will be tree lined, provided with seating and verandahs for shelter and shade and all contributing to enhance the centre as a pedestrian oriented environment.

Three local activity centres, much smaller than the neighbourhood activity centre, will be located in the north (on Boundary Road), the south (on Whites Road) and integrated with the future train station.

3.1.4 Local Employment and Business Activity

The ACUGA contains three proposed employment areas: in the north east, in the west and associated with the major activity centre, all within easy access of ACWP, particularly the western employment precinct, which directly abuts ACWP in the south-west. Local employment opportunities will grow also within ACWP, primarily within the activity centMicheres and mixed use areas.

3.1.5 Better Transport Options

The ACWP land use structure has been planned with the underlying goal that new urban development should be more sustainable ecologically, socially and economically.
Essential to this goal is to reduce distances for required travel and to increase use of public transport and non-motorised transportation options, such as walking and cycling.
The ACWPSP then provides the structural elements and urban form to support this framework, and to deliver genuinely compact and walkable neighbourhoods that will make walking and cycling a natural option for the community. The key to this objective is ensuring that the streets and neighbourhoods are pleasant, interesting and safe places for pedestrians and cyclists.

Specifically, the ACWPSP incudes:

- a modified grid based connector road network that provides a high degree of connectivity and permeability to enable all users (vehicles, pedestrians, cycles) to filter through the precinct, rather than being concentrated onto a small number of routes, to minimise the need for access control, and to enable a genuine relationship between land uses and the movement network..
- a planned hierarchy of walking and cycling paths that responds to the needs of various user groups (commuters, school children, leisure and recreation pedestrians/ cyclists etc) to provide safe, attractive and convenient access from residential sub-precincts to other such sub-precincts and to all activity areas within the ACWP;
- as part of the path network, Airport Road and Boundary Road west of Airport Road as dedicated non-vehicular walking/cycling 'greenways',
- dedicated off-road bicycle path in Boundary Road, east of Airport Road to connect with the Airport Road and Boundary Road 'greenways' and providing connections to the train station, the MAC and the Horseshoe Bend precinct.
- an internal road design hierarchy that provides for a local bus service within 400 metres of the majority of households and with links to key activity centres and other nodes;
- Ready access to V-Line bus services on Surf Coast Highway.
- activity centres sited and designed to encourage and make them attractive for walking and cycling access and to provide a scale that is 'people friendly' rather than car-dominated;
- a land use interface and a boulevard landscape treatment along Surf Coast Highway that will maximise accessibility between the ACWP and the MAC on the east side of the highway.
- based on all of the above, convenient access to local employment opportunities within ACWP, in dedicated employment areas outside ACWP but within the ACUGA in close proximity and in the greater Geelong area and beyond.

3.1.6 Climate Change and Environmental Sustainability

The aim for the ACUGA and thus also ACWP, is to deliver a sustainable community that is designed to:

- maximise passive solar design through lot orientation and building design;
- reduce car dependence through a convenient network of walking/cycling links to local employment opportunities and community infrastructure;
- retain native vegetation where possible in an urban context;
- provide for the availability of recycled water.
- The early delivery of public transport will contribute significantly to the overall sustainability of the ACUGA.
- The drainage study has sought to maximise environmental sustainability through integrated systems analysis techniques to develop a stormwater management strategy tailored specifically to the unique topography and stream corridor within ACWP. The strategy has considered stormwater runoff volumes, flood mitigation, likely if any impacts from sea level rise due to climate change and stormwater quality objectives for public safety and environmental protection of Armstrong Creek and the downstream Ramsar wetland.

- The stormwater strategy aims to meet the objectives of the stormwater management policy for the ACUGA of CoGG (the relevant drainage authority). The stormwater management strategy is based on the treatment and management of stormwater runoff to pre-development levels, utilising a centralised flood management approach, incorporating wetlands and retarding basins located adjacent to the Armstrong Creek, in locations with limited vegetation, and where the topography of the land is most suitable for wetlands. Ultimately, it is intended that these wetlands will provide more benefits than simply flood management, and will become high value habitat for wetland flora and fauna species.
- By virtue of its inland location, the ACUGA and thus ACWP, is unlikely to be subject to the expected future increase in storm surges and sea levels along the Victorian coastline generated by climate change.
- Low water use gardens will be encouraged. Alternative water supplies via a reticulated recycled water system will be provided. Water sensitive urban design principles will be incorporated throughout ACWP through adopting the following measures (where appropriate):
  - retardation basins;
  - utilisation of storm water to conserve potable water;
  - use of vegetation for filtering purposes;
  - water efficient landscaping;
  - gross pollutant traps;
  - environmental buffers;
  - Swales;
  - Porus Pavements;
  - Biroretention systems;
  - localised water harvesting.

3.1.7 Accessible, Integrated and Adaptable Community Facilities

In ACWP there are two community hubs planned to incorporate local social and community infrastructure. A comprehensive network of active and passive public open spaces and recreation facilities are planned within easy reach of all homes and workplaces. This will range from active sports facilities to informal parks and passive areas including creek-side walks. Playing fields are planned within active open space adjacent to each school and in the larger, regional-scale facility in the western part of the precinct. An indoor recreation facility is to be located within the northern P-9 school site adjacent to the neighbourhood activity centre.

Local parks and playgrounds designed specifically for children will be distributed within easy walking distance of every home, including a regional scale playground located immediately east of the NAC, within the linear open space corridor of the Armstrong Creek and in proximity to the school. This regional playground will serve an important role in activating the community heart of the NAC/school/community complex. Linking all of these public open space and recreation facilities will be a network of greenways, leisure trails and more direct walking/cycling paths, contributing to the formation of a healthy community.

The ACWPSP also seeks to encourage provision of community facilities by other providers, including non-government schools, child care and medical facilities and aged care facilities and new models of community facilities such as club facilities managed by owners' corporations. While these facilities are not all identified on the ACWPSP, the PSP anticipates them, and encourages discussions between providers and COGG to identify suitable locations and design outcomes for these valuable community assets.

3.2 LAND USE BUDGET

ACWP covers a gross development area (GDA) (all inclusive land within its boundaries irrespective of its use or condition) of 553 hectares and of this gross area, about 374 hectares are the net developable area (NDA) (the proportion of the gross land that is able to be developed; it excludes for example Armstrong Creek and its floodway). That is, about 68% of ACWP is available for development. The NDA excludes a range of proposed developments and land uses that do not include dwellings (such as government schools, public open space, arterial roads and community facilities).

The summary land use budget (refer Table 1 Summary Land Use Budget) and summary yield analysis (refer Table 2) provides land budget and indicative lot yield details on the future urban structure as a whole. The detailed budget (refer Appendix 1 Detailed land use budget by property) provides a specific breakdown of land areas for each property.

Table 2 should be read in conjunction with the approach to housing density and diversity set out in Section 4.2.

TABLE 1: SUMMARY LAND USE BUDGET

DESCRIPTION	HECTARES	% TOTAL PRECINCT	% NDA
1.1 Total Precinct Area	553.21	100%	
1.2 Transport			
Geelong Ring Road 4C	37.94	6.86%	10.14%
DOT Station Precinct	7.58	1.37%	2.03%
Sub Arterial Roads	17.49	3.16%	4.68%
Sub Total	**63.01**	**11.39%**	**16.85%**
1.3 Community Facilities			
NAC Community Complex	1.25	0.23%	0.33%
LAC Community Complex	0.60	0.11%	0.16%
Sub Total	**1.85**	**0.33%**	**0.49%**
1.4 Education			
Northern Government School (P-9)	5.52	1.00%	1.48%
Southern Government School (P-9)	5.50	0.99%	1.47%
Catholic School	3.47	0.63%	0.93%
Sub Total	**14.49**	**2.62%**	**3.87%**
1.5 Proposed Public Open Space			
Encumbered Land Availiable for Recreation			
Waterway/Drainage/Wetlands/Sewer	31.49	5.69%	8.42%
Conservation Areas	11.80	2.13%	3.16%
Regional Active Open Space	2.20	0.40%	0.59%
Active Open Space	5.17	0.93%	1.38%
Sub Total	**50.66**	**9.16%**	**13.55%**
Unencumbered Land Availiable for Recreation			
Northern (NAC) Active Open Space	8.75	1.58%	2.34%
Southern (LAC) Active Open Space	8.00	1.45%	2.14%
Regional Active Open Space	15.68	2.83%	4.19%
Passive Open Space	7.75	1.40%	2.07%
Wetlands	9.00	1.63%	2.41%
Sub Total	**49.17**	**8.89%**	**13.15%**
NET DEVELOPABLE AREA	**374.03**		

TABLE 2: SUMMARY RESIDENTIAL LOT YIELD ANALYSIS

DESCRIPTION	NDA HECTARES (HA)	DWELLINGS /hA	DWELLINGS
2.1 Retail and Employment			
Neighbourhood Activity Centre (NAC)	1.25	NA	NA
Whites Road Local Activity Centre (LAC)	0.5	NA	NA
Boundary Road Local Acitivty Centre (LAC)	0.25	NA	NA
Surf Coast Highway Mixed Use Area	9.39	NA	NA
Sub Total	**11.40**		
2.2 Residential			
Sub-Precinct A	148.37	16	2374
Sub-Precinct B	102.10	15	1531
Sub-Precinct C	72.51	15	1088
Sub-Precinct D	20.23	20	405
Sub-Precinct E	11.03	30	331
Sub-Precinct F	8.39	12	101
Sub Total	**362.62**		**5829**
Total	**374.03**		**5829**

3.3 DEMOGRAPHIC PROJECTIONS

The ACUGA is anticipated to provide housing for 54,000 people in 22,000 households, which translates to an average of 2.45 persons per household. At an average of 16.1 dwellings per net developable hectare and 2.45 persons per household, ACWP will house in the order of 14,280 people assuming one dwelling per lot.

4 ELEMENTS

There are eight main elements that summarise the key ingredients of the ACWPSP:

- image and character;
- subdivision and housing;
- community facilities;
- public open space, natural systems and biodiversity;
- employment, activity centres and mixed use areas;
- transport and movement;
- utilities and energy;
- drainage and floodplain management.

These elements are detailed in this section with an overview, objectives, implementation requirements and any specific planning and design guidelines, set out for each, where:

- objectives describe the desired outcome to be achieved in the completed development;
- plans/figures are a spatial expression of objectives;
- implementation summaries describe how the objectives are met;
- planning and design guidelines including figures and tables, depending on the specific guideline, are indicated as must or should be met.

If the responsible authority is satisfied that an application for an alternative to a planning and design guideline that should be met, meets the objective, the alternative may be approved to the satisfaction of the responsible authority.

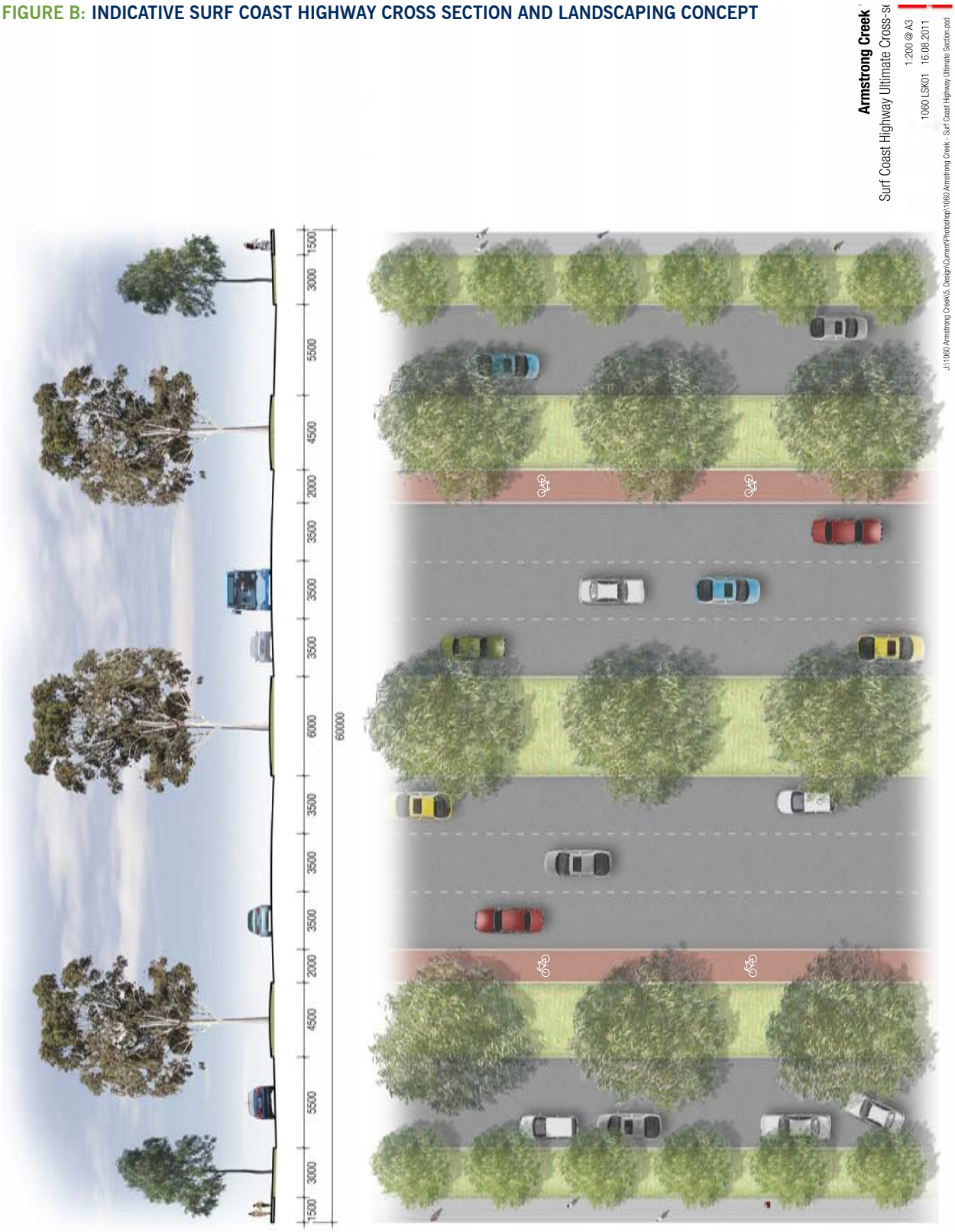
4.1 IMAGE AND CHARACTER

4.1.1 Objectives: Image and Character

The objectives for enhancing or developing the image and character as essential parts of the development of ACWP are:

- to capitalise on the existing natural and cultural features of the site, and to deliberately incorporate specific urban design, landscaping and built form initiatives to create interesting, attractive and diverse neighbourhoods.
- to enhance Armstrong Creek as a major high amenity open space corridor (incorporating a 35m vegetated 'buffer' either side of the creek) through the centre of ACWP that accommodates and supports multiple users and functions, including as a biodiversity link, recreation area, walking/cycling link and landscape asset;
- to provide the above link from the Surf Coast Highway in the east, through ACWP and linking to a proposed regional active open space area in the western part of the precinct;
- to facilitate a series of 'greenways' (Airport Road and the western portion of Boundary Road) that protect and enhance high quality roadside vegetation, and will be used as recreation links for cycling and walking and other recreation activities;.
- to protect and enhance the value of areas and sites of environmental significance and to promote their appropriate use and enjoyment as open space assets in ACWP;
- to retain and conserve the remnant indigenous tree communities (including high quality and intact stands of roadside vegetation) in ACWP where appropriate;
- to promote new landscape and street tree planting that is consistent with the existing predominantly native/indigenous landscape character but also includes exotic species where appropriate to promote a particular theme, to provide alternative feature trees or to enhance passive solar access;
- to enhance the Surf Coast Highway as a major boulevard through the ACUGA, through:
  - landscaping and road design that enables planting of large canopy trees (refer to Figure B) and
  - design of adjacent land uses to provide a positive land use interface with the Highway;
  - oprogressive reduction in the speed limit from 00km/hr to 60/70km/hr as intersections are constructed, and adjacent land uses are developed.
- to provide a balanced cross-section for the Geelong Ring Road 4C to meet the needs of both the road users and the development and which provides opportunities for landscaping that responds to the amenity needs of the adjacent land use in both the interim and ultimate condition of the road;
- to provide for appropriate landscaping along the Geelong Ring Road 4C that responds to the adjoining land use context (i.e. landscape character to change as the land use interface changes) and provides appropriate noise attenuation and a visual buffer for adjoining properties to the north;
- to plan and provide for human-scale facilities including a 'main street' neighbourhood activity centre on the east-west connector and a range of other planned and co-located community facilities;
- to plan and provide a subdivision design and pedestrian/cycle path network that emphasises walkability and safe access for bicycles.
- to encourage distribution of densities throughout the plan area to achieve a diverse selection of lots and housing forms in all streets and neighbourhoods
- to encourage street based urban design treatments that create points of internal amenity, such as small green spaces, urban parks and character streets/ diverse cross-sections that provide a context for diverse housing and land uses throughout the ACWPSP;
- to discourage intersections that aren't functional for pedestrians and cyclists, and road design speeds that prevent planting of canopy trees;
- to appropriately protect and/or treat places of recognised heritage value;
- to appropriately treat the rural/urban interface in the south in order to minimise adverse visual impacts beyond the growth area.

FIGURE B: INDICATIVE SURF COAST HIGHWAY CROSS SECTION AND LANDSCAPING CONCEPT



4.1.2 Implementation: Image and Character

- The objectives for enhancing or developing the image and character are met by implementation of all of the following.
- Plan 3 Armstrong Creek West Precinct Urban Structure Plan
- Appendix 5 Public Open Space Guidelines
- Appendix 8 Road Cross Sections
- Plan 13 Walking and cycling
- Planning and Design Guidelines at Section 4.1.3
- Figure B Indicative Surf Coast Highway Cross-section and Landscaping Concept

4.1.3 Planning and Design Guidelines: Image and Character

The following planning and design guidelines must be met:

- New development with an interface with Armstrong Creek and fronting open space must be designed to promote public use and surveillance of the open space areas.
- New development must construct and landscape the footpaths and shared paths included in Appendix 7 Road Design and Delivery Characteristics and road cross-sections in Appendix 8 Road Cross Sections.
- where large canopy street trees are proposed along declared arterial roads (Surf Coast highway and Geelong Ring Road 4C), appropriate clearance must be provided to trafficable lanes in accordance with the clear zone guidelines to the satisfaction of the relevant road authority, having regard to the interim/ultimate cross-section design and interim and ultimate speed limits of the road.
- The neighbourhood activity centre must be designed on 'main street' principles of street front activity rather than 'big box' shops/internal malls surrounded on all sides by large highly visible car parking areas.
- New development adjacent to the Geelong Ring Road 4C must provide an active frontage to the arterial road, with access controlled via an appropriate treatment, such as a service road/frontage roads (service and frontage roads may be provided within the land to be acquired by VicRoads, refer Section 4.6 subject to VicRoads approval.).
- Development of the Geelong Ring Road 4C must provide appropriate landscaping that softens the interface between the arterial road and the adjoining land use.

The following planning and design guidelines should be met.

- New development along the creek and fronting open space should provide for a diverse range of lot types and sizes, including a range of (small and large) lot products and a diverse range of streetscapes;
- Protection, where possible, of existing vegetation, and in particular, scattered native trees as high amenity landscaped features in streetscapes and open space (refer to Section 4.4 for details).
- New development adjacent to greenways should include an edge road condition or an alternative access arrangement that ensures the development fronts the greenway.
- New development should maximise potential for safe road crossings by pedestrians and cyclists on key shared use paths that serve ACWP and link to abutting precincts/ neighbourhoods (refer Plan 13 Cycling and Walking).
- New development should incorporate measures for protection of environmentally significant areas in accordance with the Native Vegetation Precinct Plan (NVPP) and any approved Offset Strategy and Vegetation Offset Management Plan.
- Street trees should:
  - be selected for streets to ensure the scale of the tree is in keeping with the scale of the street, ensuring the tree fits its planting area and provides an appropriate future form and character;
  - be selected wherever possible to provide appropriate canopy and shade character and advantages;
  - be selected on the basis that they are appropriate in local growing conditions;
  - be selected and placed to identify different sub-precincts (such as marking arrival at the neighbourhood activity centre or a key public open space area) and categories of road function as defined by the cross-sections in Appendix 8 Road Cross Sections;
  - be selected to enhance and be compatible with existing trees at key interface locations (such as along Armstrong Creek, adjacent to habitat conservation areas and adjacent to the proposed greenways that contain significant existing roadside vegetation);
  - be selected to match tree species planted in roads and streets that enter a new development area from an adjacent completed or approved (in terms of landscape plans for streetscapes) development area;
  - be guided by Appendix 3 Indicative Street Tree Planting which provides suggestions (the list is advisory only and is not intended to prohibit other appropriate species) on tree species options suitable for ACWP.
- New development should avoid loss of roadside vegetation of recognised significance where possible, and where achievable through application of the cross-sections provided in Appendix 8 Road Cross Sections and through appropriate application of the Native Vegetation Framework's three-step approach for trees identified as 'practical retention trees in Appendix 4 of the NVPP. Refer to Section 4.4 for details).
- The rural urban interface should minimise adverse impacts at the growth area boundary between urban land uses and rural activity by:
  - achieving a well designed transition, including a physical separation of the urban land use from the rural boundary by locating a combination of roads / access lanes, vegetated linear reserves and pathways, drainage reserves, basins and systems or infrastructure and easements;
  - ensuring the adjacent street network is arranged to provide good visual integration and physical access for emergency services.
- The heritage place at 50 Whites Road should be retained in an appropriate setting that ensures on-going use and maintenance of the house.

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4.2 SUBDIVISION AND HOUSING

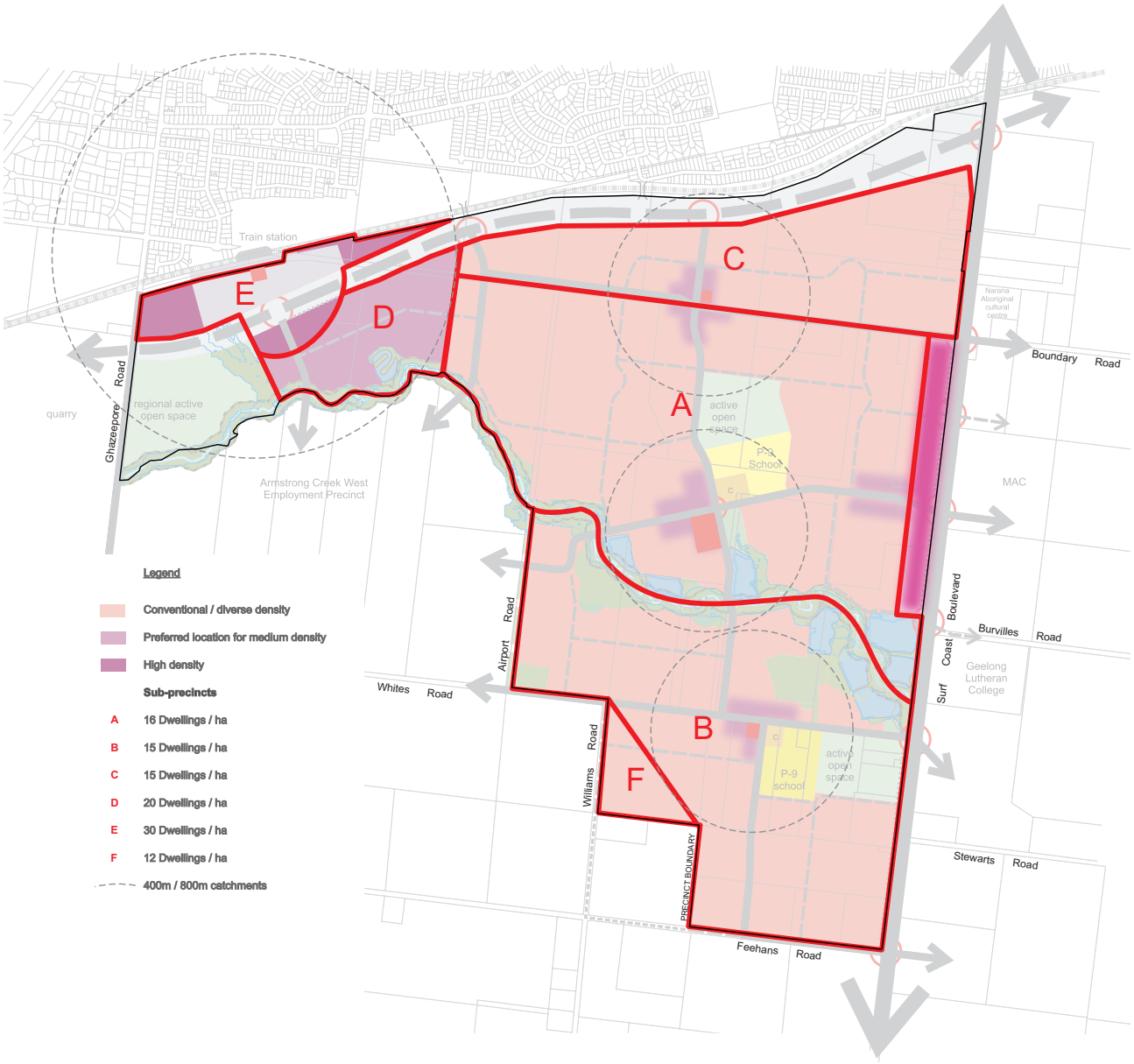
4.2.1 Objectives: Subdivision and Housing

- To provide a diversity of lots sizes across the ACWP that can facilitate delivery of different housing types and will deliver an attractive, interesting and diverse streetscape condition;
- to reach a target density for each sub-precinct in accordance with Plan 5 housing density and diversity and Table 3 Lot Yield and distribution of densities, or by demonstrating an alternative means of balancing densities across the sub-precinct;
- to design a streetscape condition that provides an appropriate context for housing at a range of densities;
- to encourage opportunities for affordable housing.
- to provide residential neighbourhoods that promote liveability through high urban design standards, creating attractive streetscapes and a distinctive neighbourhood character;
- to provide lot sizes and housing types which are responsive to the character of the natural and built environment in the area and respond to principles of environmental sustainability;
- to encourage large integrated housing sites (including for example medium density housing, retirement villages or other specialised housing forms) within or at the interface of activity centres and overlooking open space;
- to avoid gated communities in order to maximise residential permeability and neighbourhood integration;
- to facilitate delivery of smaller lot housing through implementation of the Small Lot Housing Code in suitable locations, generally:
    - within the walkable catchment to activity centres, including the MAC, NAC, and LACs,
    - within 800m of the train station,
    - within 120m of open space,
    - where a contiguous row of lots smaller than 300m^2 is proposed.

4.2.2 Implementation: Subdivision and Housing

The objectives for housing are met by the implementation of all of the following.

- Plan 4 Housing Density and Diversity
- Table 3 Lot Yields and Distribution
- Appendix 2 Small Lot Housing Code
- Plan 3 Armstrong Creek West Precinct Urban Structure Plan
- Plan 6 Public Open Space.
- Plan 9 Scattered Indigenous Trees within the Armstrong Creek West Precinct.
- Plan 13 Walking and Cycling Tracks
- Planning and design guidelines as set out in section 4.2.3.



PLAN 4
HOUSING DENSITY AND DIVERSITY PLAN

4.2.3 Planning and Design Guidelines: Subdivision and Housing

The following planning and design guidelines must be met.

- Residential development must include a range of dwelling densities, including conventional and medium density.
- Residential densities in Plan 4 Housing Density and Diversity and Error! Reference source not found. must be met within the boundaries of the planning permit application for subdivision, unless it can be demonstrated that densities will be achieved across a larger, contiguous area within the applicant's control. If densities are proposed to be 'balanced' across a broader area, the applicant must provide an overall density strategy for their entire landholding or area of control, which:
  - Shows how densities will be distributed across current and future planning permit application areas.
  - Demonstrates how the distribution of densities responds to the 'preferred density' areas identified in Plan 4, or how an alternative approach that promotes greater housing diversity will result in achievement of yield targets contained in Table 3
  - Includes a table that tracks density and yields achieved in previous, current and future planning permit applications within the ACWP and within the applicant's control.
  - This density strategy must be updated as part of each application for planning permit submitted by or on behalf of the applicant for land within the ACWP.
- Each dwelling must be connected to a reticulated recycled water supply system (where connected to the lot) for toilet flushing and garden watering.
- New development adjacent to the Geelong Ring Road 4C must provide an active frontage to the arterial road, with access controlled via an appropriate treatment, such as a service road/ frontage roads (service and frontage roads may be provided within the land to be acquired by VicRoads, refer Section 4.6, subject to VicRoads approval).
- The subdivision of land for housing that creates a lot less than 300m2, and where the responsible authority has approved application of the Small Lot Housing Code, must contain a building envelope that is in accordance with the Small Lot Housing Code.

The following planning and design guidelines should be met.

- Back and side fences along access controlled roads (eg Surf Coast Highway and Geelong Ring Road 4C) should be avoided. Lots must be designed and sited to address, access controlled roads but be separated from these roads by service roads, frontage roads or inter-connected T-head courts except where approved by the responsible authority.

TABLE 3: LOT YIELD AND DISTRIBUTION OF DENSITIES

Density Target	Area (Ha)	Total Dwellings	% NDA	% of Total Lots	Average Lot Size (Sqaure metres) ^
Net Developable Area	374.03	100%			
Net Residential Area	**362.63**	**5829**			
Sub- Precinct A	148.37	2374	40%	40%	468
Sub- Precinct B	102.10	1531	27%	26%	500
Sub- Precinct C	72.51	1088	19%	19%	500
Sub- Precinct D	20.23	405	5%	7%	375
Sub- Precinct E	11.03	331	3%	6%	250
Sub- Precinct F	8.39	101	2%	2%	625

^ Average lot size calculated assuming 25% road

4.3 COMMUNITY FACILITIES

4.3.1 Objectives: Community Facilities

The objectives for community facilities as an essential part of the development of ACWP are:

- to include co-located services and facilities in the two community hubs provided in ACWP to support integration of community services, schools, pre-schools etc;
- to plan and design high quality local social and community infrastructure that will facilitate the provision of a range of services to reflect changing community needs over time;
- to support the provision of local social and community infrastructure such as schools, health and wellbeing facilities and active open space early in the development of ACWP to maximise the opportunities for new residents and visitors;
- to plan for social and community infrastructure to be safe and accessible and connected by walking and cycling paths, as well as public and private transport.

4.3.2 Implementation: Community Facilities

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

- Plan 3 Armstrong Creek West Precinct Urban Structure Plan
- Plan 5 Community FacilitiesLocal activity centre community hubs should be planned to meet the objectives for community facilities to the satisfaction of the responsible authority.
- Table 4 Community Facilities
- Plan 6 Public Open Space
- Figure F NAC Community Hub – indicative concept
- Plan 13 Walking and Cycling links
- Plan 14 Public Transport Network
- Planning and design guidelines as set out in section 4.3.3.

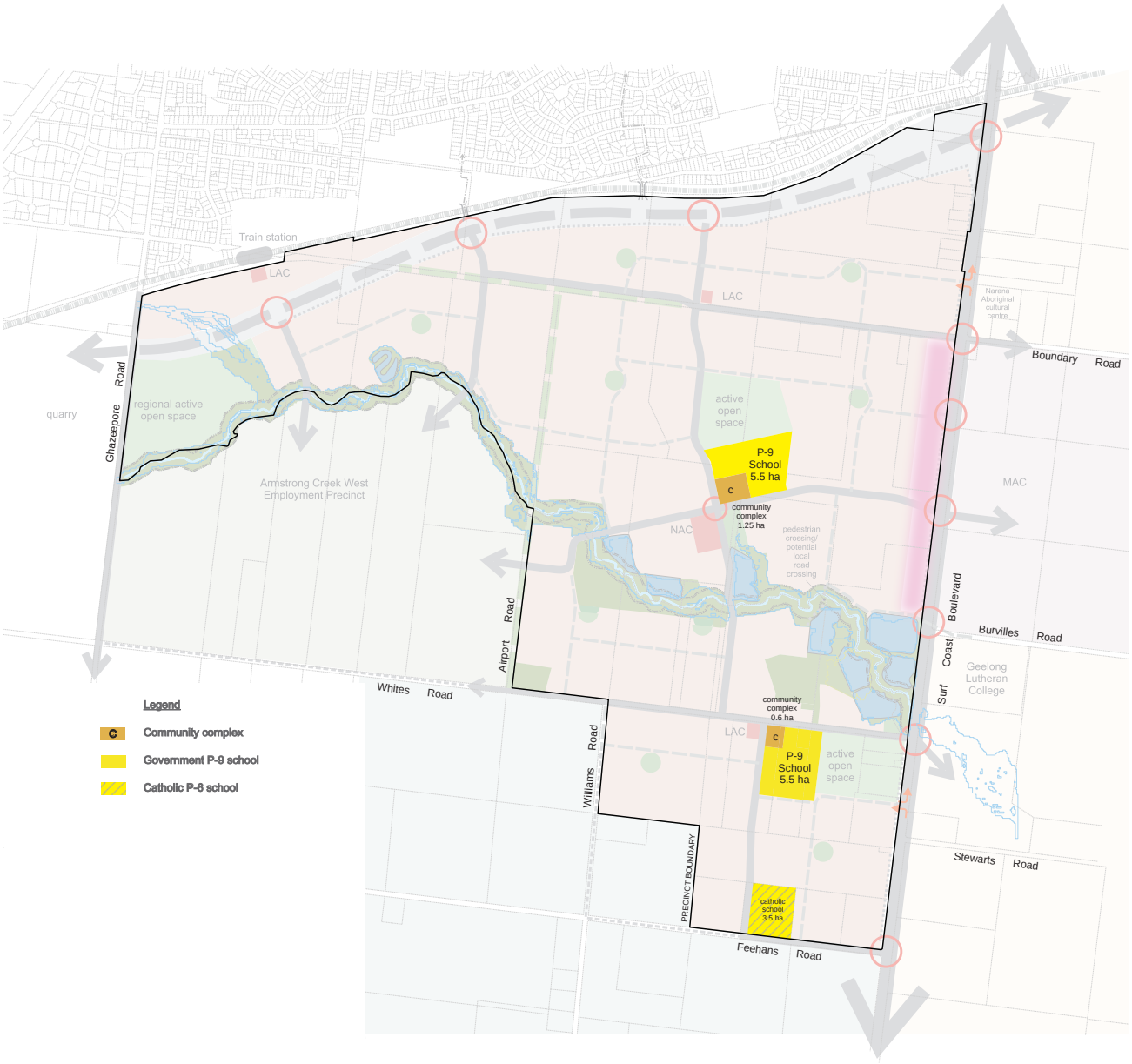
4.3.3 Planning and Design Guidelines: Community Facilities

The following planning and design guidelines must be met.

- A building which is to be connected to a potable water supply must be connected also to a reticulated recycled water supply (where connected to the lot) for toilet flushing and garden watering.

The following planning and design guidelines should be met.

- Community facilities should be co-located and where possible integrated with other CoGG and government facilities, appropriate commercial facilities and/or proposed public open spaces;
- Education and community services (public and private) and other activities (such as childcare centres and nursing homes) should be:
  - within or adjoining community hubs;
  - within or on the edge of activity centres; or
  - on either connector streets or arterial roads where access can be provided safely;
- The Neighbourhood activity centre community hub should be planned to reflect the principles in Figure F although alternative approaches will be considered that meet the objectives for community facilities to the satisfaction of the responsible authority.
- Local activity centre community hubs should be planned to meet the objectives for community facilities to the satisfaction of the responsible authority.



PLAN 5
COMMUNITY FACILITIES PLAN

4.3.4 Community Facilities Delivery Statement

Appendix 4 Community Facilities Delivery Statement identifies the intentions CoGG has for such delivery and provides insights on how all facility and service providers might be expected to assist.

TABLE 4: COMMUNITY FACILITIES

Facilities and Services	Location	Lead Agency
State P-9 Schools	Two schools locted in community hub adjacent to: • Neighbourhood Activity Centre; and • Whites Road Local Acitvity Centre	DEECD
Communtiy Complex Kindergarten; Child care; Community meeting soace.	Two community complexes located in community hub adjacent to: • Neighbourhood Activity Centre; and • Whites Road Local Acitvity Centre	COGG
Northern acitve public open space : • 2 x full size football/cricket ovals; • 2 x netball courts; • 2 x bowling green; • 1 x pavillion; • 1 x multi-purpose stadium	Adjacent to State P-9 school, within the neighbourhod activity centre community hub.	COGG
Active public open space- local: • 2 x full size football/cricket ovals; • 2 x netball courts; • 1 x pavillion	Community hub adjacent to Whites Road local activity centre and State P-9 school.	COGG
Catholic School	Feehans Road	Catholic Education Office
Regional active open space: • 4 x soccer/hovkey pitches • 5 x soccer pitches • 10 x tennis couts • 2 x pavillion	Ajacent to Ghazeepore Road .	COGG
Health and wellbeing centre	Neighbourhood Activity Centre Whites Road Local Activity Centre	Commercial

4.4 PUBLIC OPEN SPACE, NATURAL SYSTEMS AND BIODIVERSITY

4.4.1 Objectives: Public Open Space and Natural Systems

The objectives for public open space and natural systems as an essential part of the development of ACWP are:

- to establish an equitable distribution of open spaces that are accessible to the community;
- to inter-connect public open spaces, residential areas, activity centres and the public transport network through safe and attractive on- and off-road pavement walking/cycling links;
- to provide a central open space for each neighbourhood.
- To provide opportunities for small urban spaces in neighbourhoods as a place making initiative, to provide streetscape character, and as a context for diverse housing and land use outcomes (acknowledging that these spaces will be in addition to, and not in lieu of, any open space contribution requirements set out in Plan 6 Public Open Space).
- to balance the primary function of encumbered open space (conservation/drainage) with secondary, passive functions in a sensitive manner that does not compromise the primary function.
- to ensure the appropriate landscape treatment of public open spaces in keeping with their intended character and functions and the objective of life-cycle sustainability (care, growth and maintenance);
- to promote the early provision of public open space in its intended functional form.

4.4.2 Implementation: Public Open Space and Natural Systems

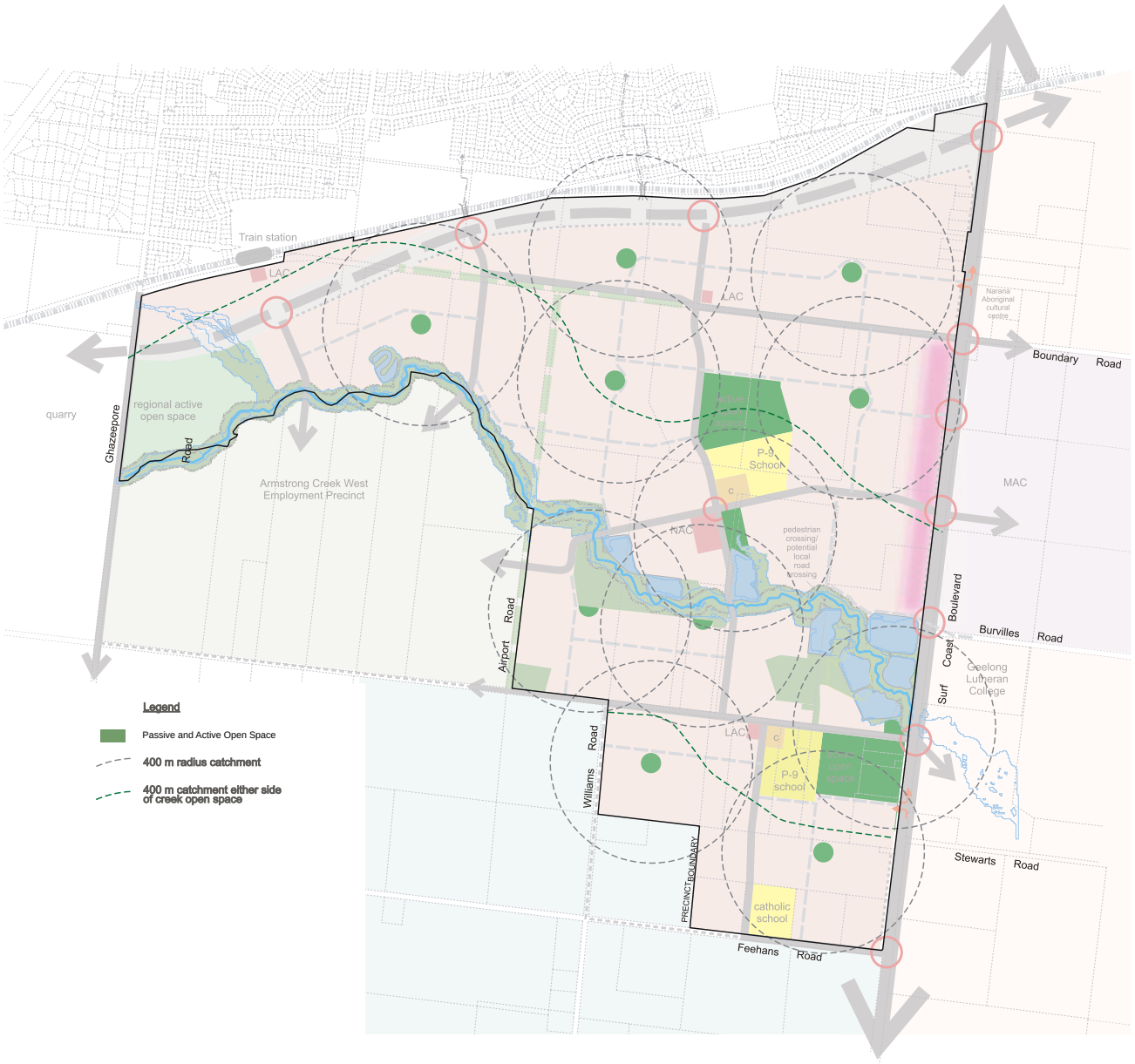
The objectives for public open space and natural systems are met by the implementation of all of the following:

- Plan 6 Public Open Space.
- Plan 8 Biodiversity plan
- Local activity centre community hubs should be planned to meet the objectives for community facilities to the satisfaction of the responsible authority.
- Table 4 Community Facilities.
- Appendix 7 Road Design and Delivery Characteristics (and in particular shared paths and footpaths).
- Appendix 8 Road Cross Sections
- Plan 10 Road Heirarchy
- Plan 11 Walking/Cycling Links.
- Plan 12 Public Transport Network.
- Planning and design guidelines as set out in section 4.4.3.
- Armstrong Creek West Native Vegetation Precinct Plan.

4.4.3 Planning and Design Guidelines: Public Open Space and Natural Systems

The following planning and design guidelines must be met.

- Unencumbered land for public open space must be provided generally in the locations specified on Plan 6 Public Open Space.
- Unencumbered public open space is subject to equalisation. Each property owner in ACWP must provide land or cash-in-lieu equal to 10 per cent of the net developable area of ACWP, at a pro-rata rate equivalent to the net developable area of that property. Plan 6 and the land use budget in Appendix 1 of this ACWPSP provide jointly the relevant details for each property. A property with greater than 10 per cent unencumbered public open space will receive compensation for the value of the land above 10 per cent. A property with less than 10 per cent unencumbered public open space will be required to pay cash-in-lieu equal to the value of the land less than 10 per cent.
- A developer may elect to provide unencumbered public open space in addition to that shown on Plan 6 Public Open Space and the land budget but it will neither be included in nor affect the equalisation scheme. It must be provided and embellished entirely at the cost of the developer.



PLAN 6
PUBLIC OPEN SPACE

- A building which is to be connected to a potable water supply must be connected also to a reticulated recycled water supply (where connected to the lot) for toilet flushing and garden watering.
- All public open space (excluding areas of native vegetation that is to be retained) must be provided to the satisfaction of the responsible authority before the transfer of land:
- with completed bulk earthworks where required fit for intended purpose;
- cleared of all rubbish and noxious and environmental weeds, top soiled and grassed with warm climate grass;
- with a water tapping for recycled and potable water;
- with landscaping including drought-resistant tree and other planting;
- with shared paths and footpaths, as appropriate;
- with vehicle exclusion devices and maintenance access points;
    - for active recreation spaces, connected to all utilities;
    - with the installation of basic play equipment, as appropriate.

Funding for these works will include development contributions collected under the development infrastructure levy in the ACWPDCP.

The following planning and design guidelines should be met.

- All public open space (active and passive) should be provided to address the guidelines in Appendix 5 Public Open Space Guidelines.
- The northern and southern active public open space should consider the indicative Figure D and Figure E.
- The regional active public open space should address the indicative Figure C.
- Figure C Regional Active POS
- Figure D North Active Open Space
- Figure E Southern Active Open Space
- Plan 7 Biodiversity

FIGURE C: REGIONAL ACTIVE PUBLIC OPEN SPACE

FIGURE D: NORTHERN (NAC) ACTIVE OPEN SPACE

FIGURE E: SOUTHERN (LAC) ACTIVE OPEN SPACE

4.4.4 Objectives: Biodiversity

The objectives for biodiversity as an essential part of the development of ACWP are:

- to ensure ACWP is developed in ways sympathetic to the continuing conservation management of areas of significant native vegetation and fauna habitat in key locations (such as along the creek and in consolidated patches) in accordance with the Armstrong Creek West Native Vegetation Precinct Plan (ACWNVPP);
- to plan for the long term conservation management of areas of significant native vegetation and fauna habitat in accordance with the ACWNVPP.
- To balance the assessment and management of native vegetation; as either a conservation outcome or a landscape/aesthetic outcome recognising the planned urban context of the land.
- to maximise retention of biodiversity and/or landscape values within ACWP and to facilitate their function as corridors linking habitats across ACWP and beyond;
- to enhance the biodiversity of the area, including the designation of areas in ACWP in which to concentrate on revegetation activities to provide habitat;
- to protect and enhance the biodiversity values along Armstrong Creek and to maintain the habitat corridor link it provides.
- To maximise retention of trees identified for Practical Retention in the NVPP (scattered Very Large Old Trees, significant Large Old Trees, and roadside vegetation) as part of detailed design through application of the three-step approach (avoid, minimise, offset).

4.4.5 Implementation: Biodiversity

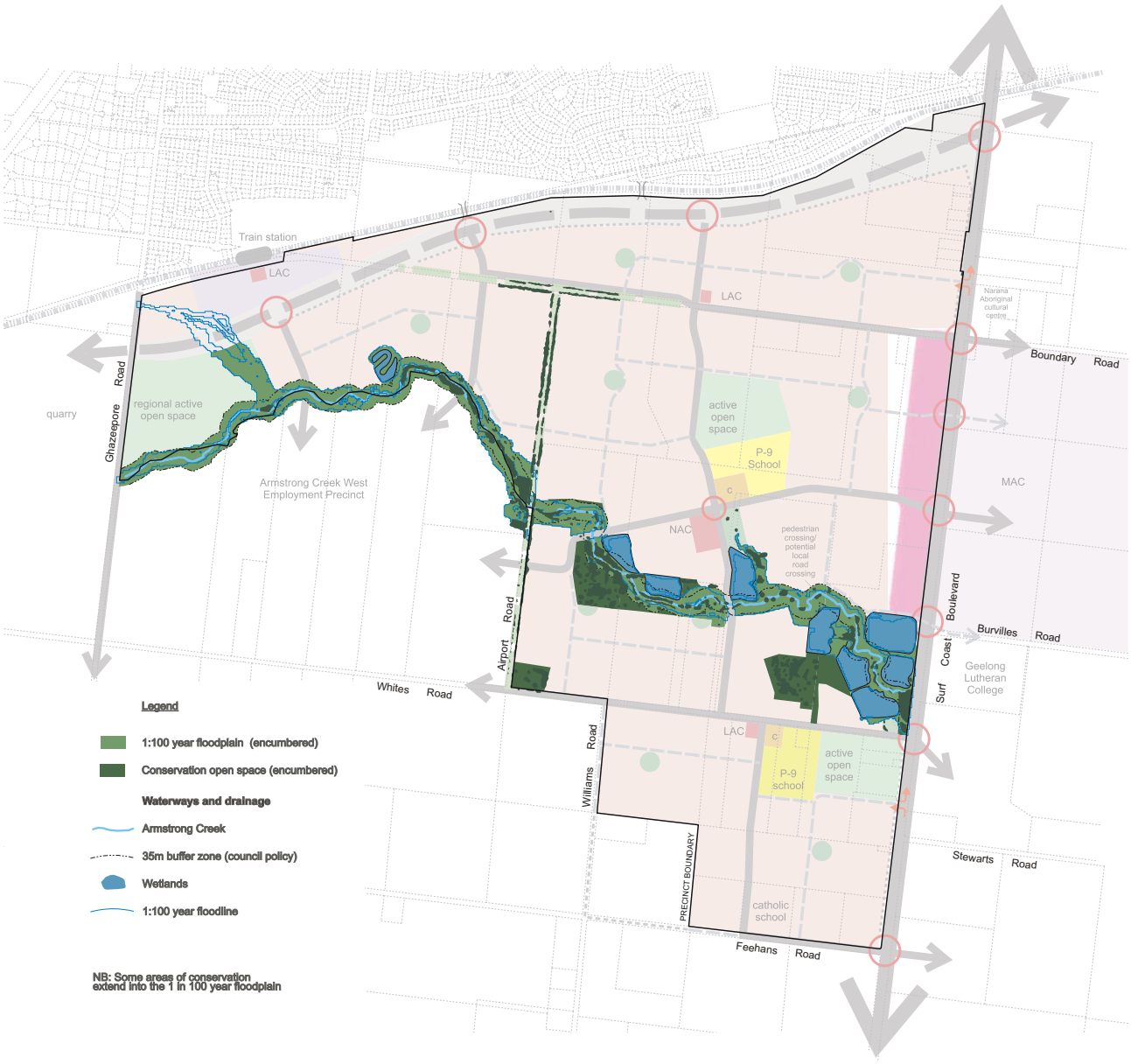
The objectives for biodiversity are met by implementation of all the following:

- Plan 6 Public Open Space.
- Plan 7 Biodiversity
- Section 4.4.6 Planning and Design Guidelines: Biodiversity
- Armstrong Creek West Native Vegetation Precinct Plan.

4.4.6 Planning and Design Guidelines: Biodiversity

The following planning and design guidelines must be met to the satisfaction of the responsible authority.

- Applications must provide an assessment in accordance with the three-step approach for trees identified as Practical Retention Trees in the NVPP, having regard to details such as:
  - Fill/excavation
  - Drainage/services
  - Road construction techniques.
- Loss of Practical Retention Trees must be offset in accordance with the NVPP. Where trees are proposed to be retained, but die within 12 months of completion of works, the tree must be offset in accordance with the NVPP.
- Development in proximity to trees identified for protection in the Armstrong Creek West Native Vegetation Precinct Plan or Practical Retention Trees identified for retention at the detail design stage must be completed in accordance with any Tree Protection and Construction Management Plan.
- Any Tree Protection and Construction Management Plan developed in consultation with DSE must address the following:
  - the protection of trees identified as retained and protected in the NVPP to Australian Standards (as defined in the NVPP except along the development side of a habitat zone, where works may occur up to the drip line of the tree) and the planting of indigenous ground storey;
  - the retention of trees identified as Practical Retention Trees in the NVPP, and identified as being retained at detailed design stage, to Australian Standards (as defined in the NVPP);
  - the need for measures to be used that will limit and manage earthworks in proximity to the tree identified for retention;
  - management of subdivisional and public open space drainage to support the health of vegetation to be retained;
  - conditions and requirements for permits in the Armstrong Creek West Native Vegetation Precinct Plan.



PLAN 7
BIODIVERSITY PLAN

- Crossings of Armstrong Creek must be designed to ensure that the movement of aquatic fauna is not inhibited by physical structures, or by permanent alteration to the creek.
- Structures permitting stormwater discharge into the Armstrong Creek must be designed to ensure they do not interfere with the integrity of the waterway, through scouring, changes in velocity or other detrimental activity.

The following planning and design guidelines should be met.

- Development of public open space and drainage works should include design requirements for fauna habitat where appropriate.
- Street trees and public open space landscaping should contribute to habitat for indigenous fauna species in particular arboreal animals and avifauna (birds). Where appropriate the use of indigenous trees is encouraged along streets and in parks. Lower level indigenous planting may be appropriate where it can be demonstrated it is compatible with the planning and design guidelines for street tree planting and delivery of public open space.
- Design and landscaping of drainage areas should promote the establishment of habitat suitable for local species such as the Growling Grass Frog (Litoria raniformis).
- Linear parks, water ways, greenways and widened road reserves should support the connection of areas capable of supporting the flora and fauna habitat through appropriate design and planting.
- Construction of utilities within greenways and within Armstrong Creek 70m buffer zone should be avoided. But where unavoiable must be undertaken in a manner that avoids or minimises incursion into the defined tree protection zone.

4.4.7 Armstrong Creek West Native Vegetation Precinct Plan

The incorporated Armstrong Creek West Native Vegetation Precinct Plan (ACWNVPP) applies to the majority of ACWP and related requirements must be met.

The ACWNVPP identifies 51 habitat zones ranging in size from 0.03 to 6.15 ha in ACWP, of which 29 are to be retained (or partially retained), 12 are to be fully or partially retained for offset and 22 are to be completely removed. The vegetation removals will generate an offset requirement of 7.72 Habitat Hectares. The offsets will be achieved through a combination of on-site and off-site offsets utilising 'prior management', 'security', 'maintenance', 'improvement' and' revegetation' gains. Potential offset sites are identified in the ACWNVPP, and will be confirmed as part of preparation of an Offset Management Strategy for the entire precinct.

The remainder of the required offsets will need to be secured in an appropriate offsite location, as agreed with DSE and COGG through the development of the offset management strategy, and associated Vegetation Offset Management Plans (VOMP) for each stage of development.

The ACWNVPP identifies 94 scattered Medium Old Trees (MOT), Large Old Trees (LOT), and Very Large Old Trees (VLOT) in the ACWP of which 18 are to be retained and 76 are to be removed (of the trees identified as being able to be removed, 41 are identified as Practical Retention Trees, and as such, it is likely that many more scattered trees will be retained than identified in the ACWNVPP).

The following plans summarise the information above.

- Plan 8 Status of Habitat Zones within the Armstrong Creek West Precinct within the Armstrong Creek West Precinct.
- Plan 9 Scattered Indigenous Trees within the Armstrong Creek West Precinct within the Armstrong Creek West Precinct.
- Plan 8 Status of Habitat Zones within the Armstrong Creek West Precinct
- Plan 9 Scattered Indigenous Trees within the Armstrong Creek West Precinct.

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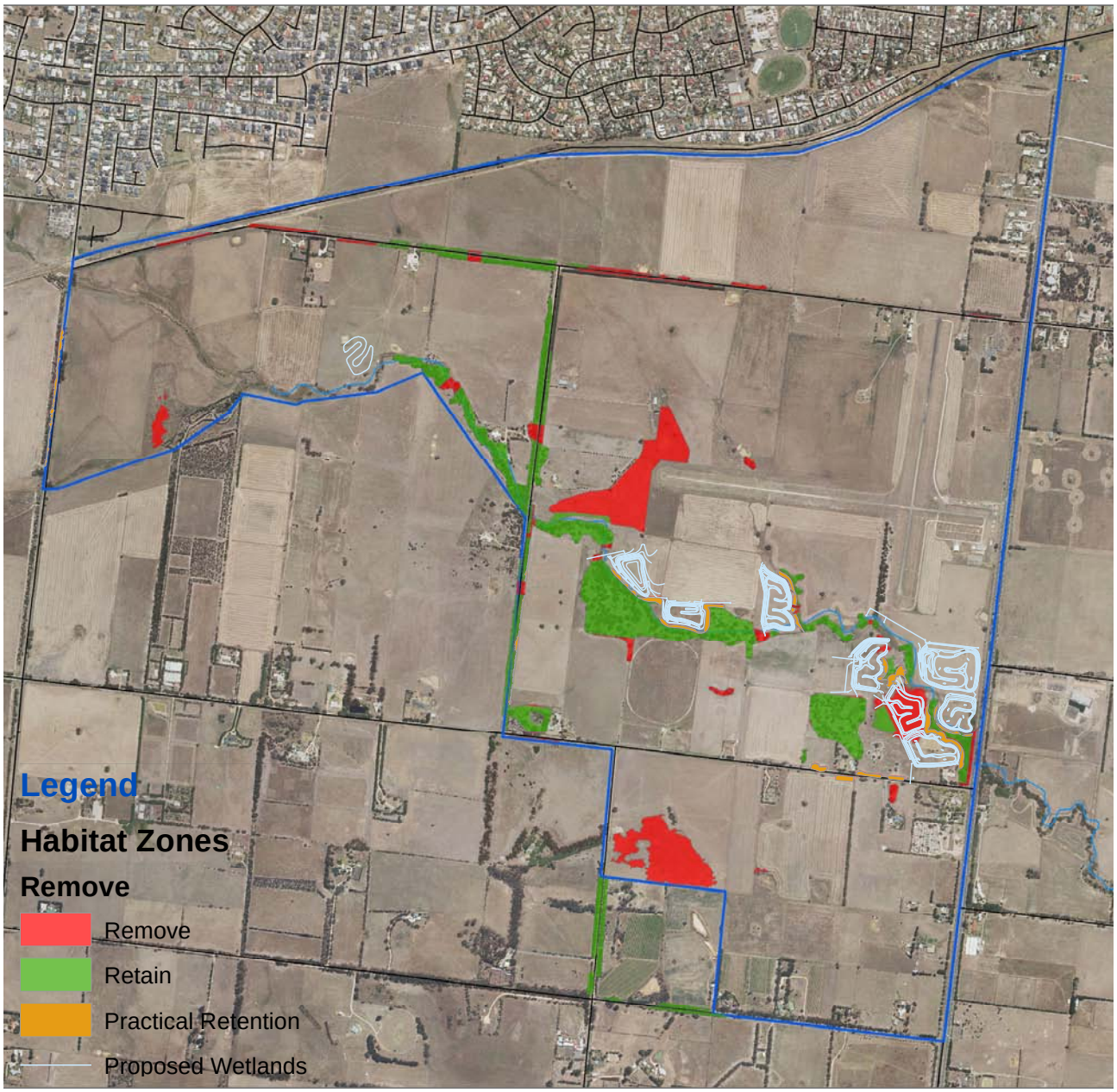
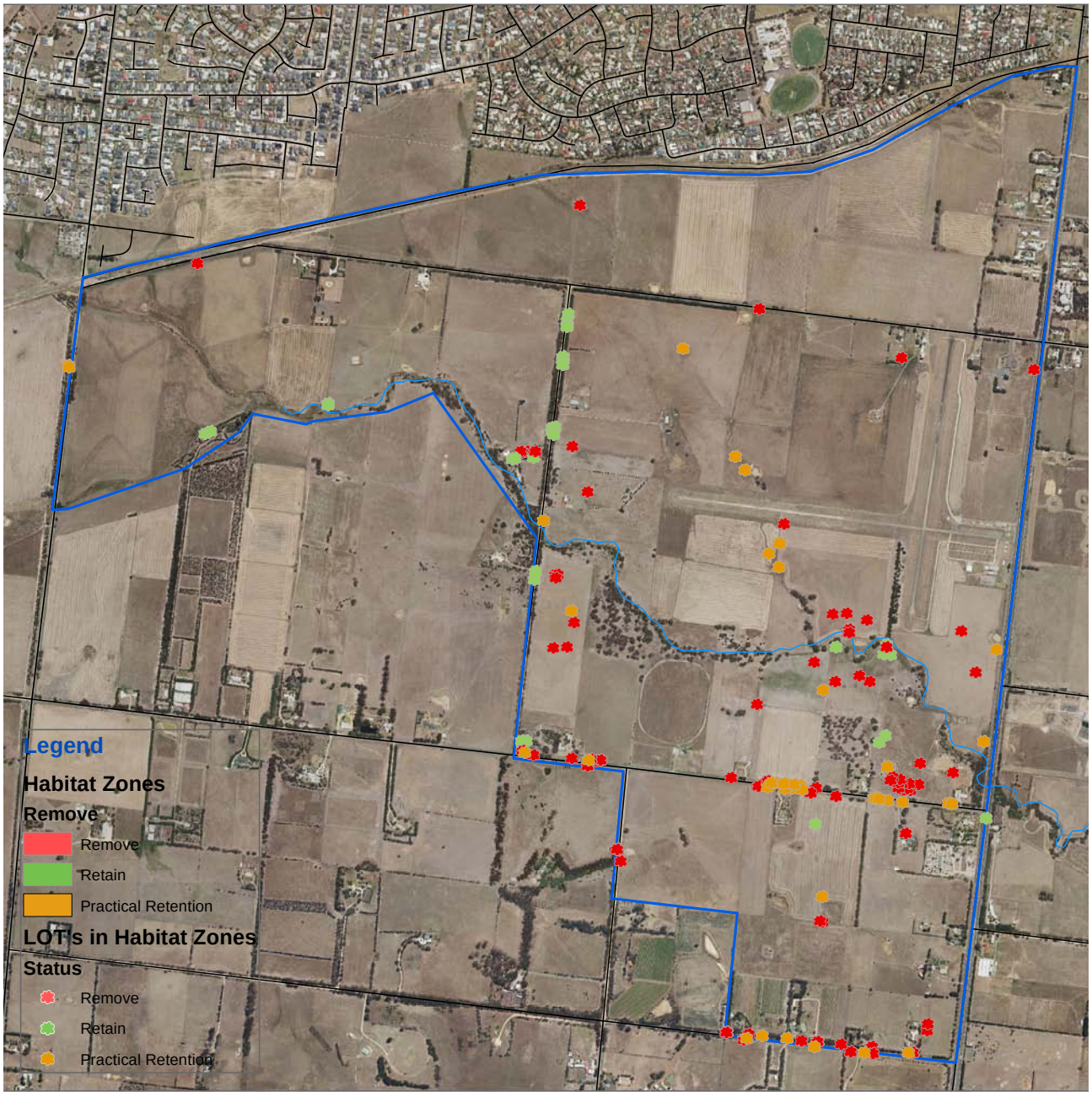


PLAN 8
STATUS OF HABITAT ZONES WITHIN THE ARMSTRONG CREEK WEST PRECINCT



PLAN 9
SCATTERED INDIGENOUS TREES WITHIN THE ARMSTRONG CREEK WEST PRECINCT

4.5 ACTIVITY CENTRES AND MIXED USE AREAS

4.5.1 Objectives: Activity Centres and Mixed Use Areas

The objectives for activity centres and mixed use areas as essential parts of the development of ACWP are:

- to maximise neighbourhood and local activity centres as people places and thus community meeting or gathering places;
- to promote the neighbourhood activity centre with a 'main street' open character with a variety of retail frontages to the street;
- to promote the train station precinct as a key activity centre for both commuters and nearby residents, with a range of retail, officespace and services.
- to identify areas as mixed use where, in addition to residential use, there may be opportunities for other development and use that is complementary to nearby activity centres and community hubs.
- To promote a visual and physical relationship between the NAC and adjacent recreation facilities such as picnic areas and playgrounds (including the regional playground).
- To promote finer grain mixed use along Surf Coast Highway, including residential and home office uses, generally to the south of Main Street, with larger format mixed uses generally to the north of Main Street.
- To promote high quality built form at key 'gateway' corners, such as the corners of Main Street and Surf Coast Highway.
- To support a change in land use character at the interface with activity centres and mixed use areas in the form of changes to the cross-section and landscaping of adjacent roads.

4.5.2 Implementation: Activity Centres and Mixed Use Areas

The following planning and design guidelines for activity centres and mixed use areas must be met.

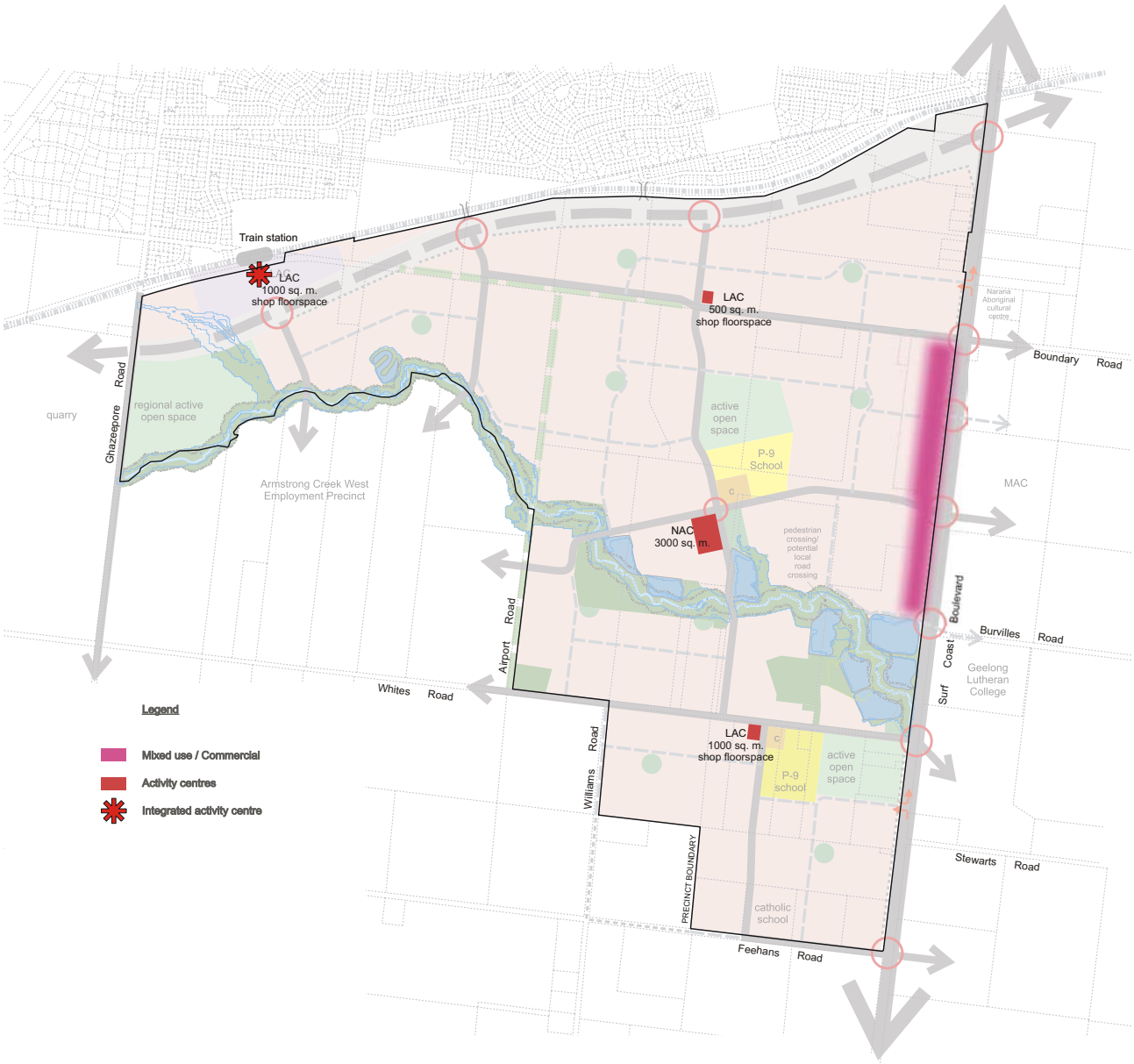
- A building which is to be connected to a potable water supply must also be connected also to a reticulated recycled water supply (where connected to the lot) for toilet flushing and garden watering.
- Before development starts an urban design framework must be completed for the neighbourhood activity centre to the satisfaction of the responsible authority.
- Prior to the development or use of the mixed use area an urban design framework must be prepared and other land uses. Land may only be developed and used in accordance with the framework.
- The subdivision, development or use of the Neighbourhood Activity Centre or Mixed Use Area must be generally in accordance with any Urban Design Framework approved by the Responsible Authority.

4.5.3 Objectives: Activity Centres and Mixed Use Areas

The following planning and design guidelines should be met when preparing an urban design framework.

GENERAL

- An urban design framework should:
- be consistent generally with the Table 5: Activity Centres Hierarchy;
- address the whole neighbourhood activity centre area, the mixed use area or Railway Station sub precinct;
- address any relevant design guidelines prepared by the Victorian Government or CoGG;
- propose an overall landscape concept for the neighbourhood activity centre/mixed use area;
- set out guidelines to address positively 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/mixed use area/station precinct;
- provide guidance on land uses and floor space areas.



PLAN 10
ACTIVITY CENTRES PLAN

NEIGHBOURHOOD ACTIVITY CENTRE (NAC)

An urban design framework should:

- include an appropriate design response to the neighbourhood activity centre urban design framework guidelines outlined in APPENDIX 6 Neighbourhood Activity Centre Urban Design Framework Guidelines and the indicative concept illustrated in Figure F NAC Indicative Layout;
- establish a 'main street' structure that provides for:
  - activated street frontage
  - pedestrian movement along and across streets
  - diverse architecture
  - parking on street and in key discrete (but convenient) locations
  - containment of activities within a walkable core
  - an adaptable/flexible design that supports change in land uses over time
  - multiple access points and movement options
  - safe places for children to cross the street.
  - include specific cross-section for 'main street' and any other internal streets that provide an appropriate balance (for movement and parking) between pedestrians and vehicles;
  - demonstrate the relationship and connectivity of the neighbourhood activity centre to proposed development (including the community complex and the p-9 school) and open space areas beyond its boundaries (including the Armstrong Creek corridor and the regional playground);
  - set out design guidelines 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 medium density housing and future commercial expansion can be incorporated into the neighbourhood activity centre;
  - demonstrate how the roads and community spaces visually and physically connect with the surrounding residential neighbourhoods;
  - Avoid the creation of privately owned 'public space'

MIXED USE AREA

An urban design framework should:

- demonstrate how the design appropriately interfaces with abutting residential development.
- maximise architectural feature buildings on prominent or 'gateway' sites, such as the intersection of Main Street and Surf Coast Highway to provide a sense of arrival on main roads.
- provide view lines where possible from roads to abutting public open space.
- demonstrate how public access can be sited to encourage permeability through the mixed use areas to enable access to and from adjoining land uses and activities.
- demonstrate how the development can be designed and sited to provide appropriate interfaces and address to abutting public open space and road frontages.
- Provide opportunities for mixed use development to interface directly with the wetland area south of the Burvilles Road extension.
- Demonstrate how the use of the land within the mixed use area for a shop can provide for local convenience services without competing with other activity centres within the Armstrong Creek Growth area.

RAILWAY STATION LOCAL ACTIVITY CENTRE (LAC)

An urban design framework should:

- Demonstrate how the LAC can be integrated with the station precinct and the DOT carpark;
- Include measures to maximise access through and within the station precinct LAC by pedestrians and cyclists;
- Show how the LAC will connect to section 4C of the Geelong Ring Road, providing appropriate access and landscaping design responses
- Show how opportunities for High density housing and future commercial expansion can be incorporated into the Armstrong Creek West Railway Station Sub-precinct area;
- Provide a flexible and adaptable structure that will enable development over time, including potential long term development of the DOT carpark to the train station.
- Provide opportunities for additional private sector owned and operated community infrastructure.

FIGURE F: NAC INDICATIVE LAYOUT

Drawing key

- Connector Street (with on street parking)
- Potential local road connection
- Signal controlled intersection
- Key localised connections
- Shared Pathway (Indicative)
- Main Street Cross Section *
- School
- Community Complex
- Retail
- Residential
- Open Space
- Creek and Future Wetlands
- Active Street Frontage
- Key Building Anchor
- High Amenity Landscape
- Key View Lines
- Off Street Parking (located behind building)
- Opportunity For Diverse Built Form Outcome
- Indicative Regional Playground Location
- Trees
- Key Habitat Area

*Details of cross section to be determined through UDF process

TABLE 5: ACTIVITY CENTRES HIERACHY

Activity centre	Role and function
Neighbourhood Activity Centre	Amenity-based centre as a focus for retail and community based uses. Public gathering place, including as an informal place to meet or for structured/organised events (these spaces should not be privately owned). Indicative shop floorspace of 3,000 square metres, or more subject to justification and permit. A permit may be granted to exceed this amount where a net community benefit is established in terms of the planned regional retail hierarchy. Indicative office floorspace of 500 square metres. A 'main street' centre anchored by a limited line supermarket (or full line where approved by the responsible authority), and supported by specialty shops. Co-location with community facilities including a P-9 school and community complex. Relationship with adjacent open space and recreation facilities including picnic areas, parks and the regional playground. Provision for public health and other community facilities, private medical and allied medical services. Provision for the development of non-retail commercial uses, which include office, and small office/home office development. Provision for development of privately owned and operated community facilities. Economic development/business support services. Planned walking/cycling links to community facilities throughout ACWP and beyond.
Whites Road local activity centre	Indicative retail floorspace of up to 1000 square metres. Indicative office floorspace of up to 200 square metres. Co-location with community facilities including a P-9 school and community complex.
Boundary Road local activity centre	Indicative retail floorspace of up to 500 square metres. Indicative office floorspace of up to 100 square metres. Located at intersection of Boundary Road and north-south connector
Train station local activity centres	Indicative retail floorspace of up to 1000 square metres. Indicative office floorspace is unrestricted. Co-located with train station. Potential location for additional private sector owned and operated community infrastructure, such as pre-schools and child care.

The following planning and design guidelines for mixed use areas should be met.

- Development should be designed interfacing appropriately with abutting development in the mixed use area.
- Development should be planned to maximise architectural feature buildings on prominent or 'gateway' sites to provide a sense of arrival on main roads.
- Development should be designed to provide view lines where possible from roads to abutting public open space.
- Development that incorporates public access should be sited to encourage permeability through the mixed use areas to enable access to and from adjoining land uses and activities.
- Development should be designed and sited to provide appropriate interfaces and address to abutting public open space and road frontages.

The use of the land within the mixed use area for a shop should provide for local convenience services and not compete with the primary function of other activity centres within the Armstrong Creek Growth area.

4.6 TRANSPORT AND MOVEMENT

4.6.1 Objectives: Transport and Movement

The objectives for transport and movement as an essential part of the development of ACWP are:

- to ensure the detailed planning of ACWP facilitates a broad range of transport modes, and prioritises provision of attractive, accessible and convenient walking and cycling trips;
- to develop shared paths or safe on-road links that provide a network of inter-connected walking and cycling routes throughout ACWP and inter-linking activity centres and other people places (including to link with similar routes outside ACWP);
- to develop a safe and appropriate road network that services ACWP and beyond, that recognizes the wider regional function of key existing highways and major roads but also encourages trips by walking and cycling through the planning of movement links and mode options;
- to provide appropriate connectivity between the north and south sides of the Armstrong Creek via four vehicle crossings of the creek; with provision for a potential fifth local level crossing.
- to appropriately plan for and to facilitate the provision of public transport with good accessibility to all households and other people places.
- To encourage diversity in street design to support diverse land uses and to protect scattered native vegetation where possible.
- To ensure the design of cross-section and road elements creates a positive relationship between the street and adjacent land uses.

4.6.2 Implementation: Transport and Movement

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

- Plan 10 Road Heirarchy
- Plan 11 Walking/Cycling Links
- Plan 12 Public Transport Network
- Appendix 7 Road Design and Delivery Characteristics
- Appendix 8 Road Cross Sections

4.6.3 Planning and Design Guidelines: Transport and Movement

The following planning and design guidelines for transport and movement must be met.

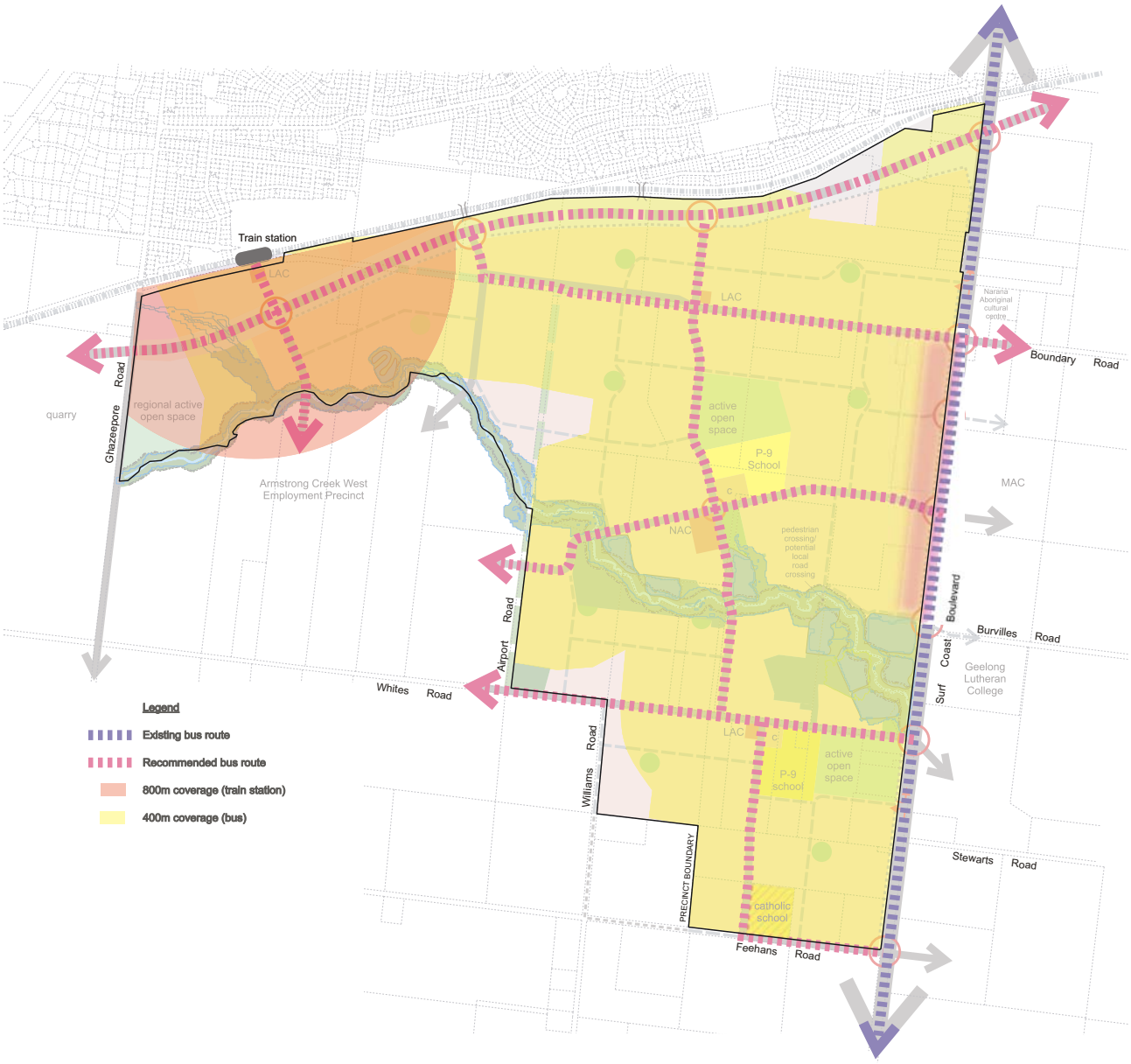
- Connector streets (including any culverts and all related infrastructure) must be constructed progressively by development proponents as part of the subdivision works (before the issue of a statement of compliance for the relevant stages).
- All intersections with Surf Coast Highway and the Geelong Ring Road Section 4C must be designed, constructed and controlled in accordance with the Precinct Investment Plan (Section 5) to the satisfaction of the responsible authority and the Roads Corporation.
- Subdivisions must be staged to provide for the timely connection of road links between properties and to the arterial road network to support transport and movement links (that is, walking, cycling and vehicular links).
- The provision must be made for any bus route and bus stop (which must have direct and safe pedestrian access connected to an existing walking/cycling path) where nominated by the Director of Public Transport.
- Walking and cycling path crossings must be provided at all relevant intersections and at the intersection of key ACWP-wide shared paths and higher order roads.
- Cycle parking facilities must be provided in convenient and prominent locations at key destinations such as schools, community centres, activity centres and public transport interchanges.
- Back and side fences along access controlled roads (eg Surf Coast Highway and Geelong Ring Road 4C) must be avoided. Lots must be designed and sited to address, access controlled roads but be separated from these roads by service roads, frontage roads or inter-connected T-head courts except where approved by the responsible authority.
- Development of the train station must provide adequate carparking to cater for anticipated commuter use of the station.

PLAN 11
ROAD HEIRARCHY PLAN

The following planning and design guidelines for transport and movement should be met.

- Bus stop facilities constructed by development proponents as part of the subdivision works (before the issue of a statement of compliance for the relevant stage or bonded) should be to a design standard approved by the Director of Public Transport.
- Bus stops should be designed as an integral part of activity centres and activity generating land uses, such as schools, community hubs and regional active public open space.
- Walking/cycling paths should be constructed by development proponents as part of subdivision works (before the issue of a statement of compliance for the relevant stage except if the works are bonded).
- Bicycle lanes should be designed to allow for the smooth transition between on-road and off-road facilities.
- Walking/cycling paths and footpaths should be designed and located to maximize passive surveillance.
- The local street network should be designed to provide permeable and safe routes for walking/cycling to activity centres, community facilities, public open spaces and public transport.
- Road and street cross sections should be consistent with those in APPENDIX 8 Road Cross Sections but with consideration of the need for adjustments within the overall specified road reserve widths if required to cater for existing utilities and existing street trees.
- Courts that are not inter-connected for walking/cycling permeability should be avoided.
- Courts where included must have a T-head, court bowl or equivalent except where providing vehicle access to four or less dwellings and garbage collection is to occur at the mouth of the court.

PLAN 12
PATH NETWORK PLAN



PLAN 13
PUBLIC TRANSPORT PLAN

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4.7 UTILITIES AND ENERGY

4.7.1 Objectives: Utilities and Energy

The objectives for the provision of utilities as an essential part of the development of ACWP are:

- to ensure all land is serviced appropriately including the supply to all developed lots to the satisfaction of the relevant authority of:
  - a potable water supply;
  - a recycled non potable water supply;
  - reticulated sewerage;
  - gas;
  - underground electricity (except for infrastructure to support cables with a voltage greater than 66kv and sub-stations. telecommunications (including fibre to the lot);
- to encourage relevant authorities to work toward undergrounding of existing electricity services.
- to facilitate innovative, sustainable and energy efficient approaches to the provision of such servicing.

4.7.2 Implementation: Utilities and Energy

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

- Plan 13 Sewerage
- Plan 14 Water
- Plan 15 Recycled Water
- Plan 16 Electricity
- Plan 17 Gas

The exact location of physical infrastructure and staging of development will be determined by proponents of development at the planning permit stage and will be implemented through appropriate permit conditions.

4.7.3 Planning and Design Guidelines: Utilities and Energy

The following planning and design guidelines for utilities and energy must be met.

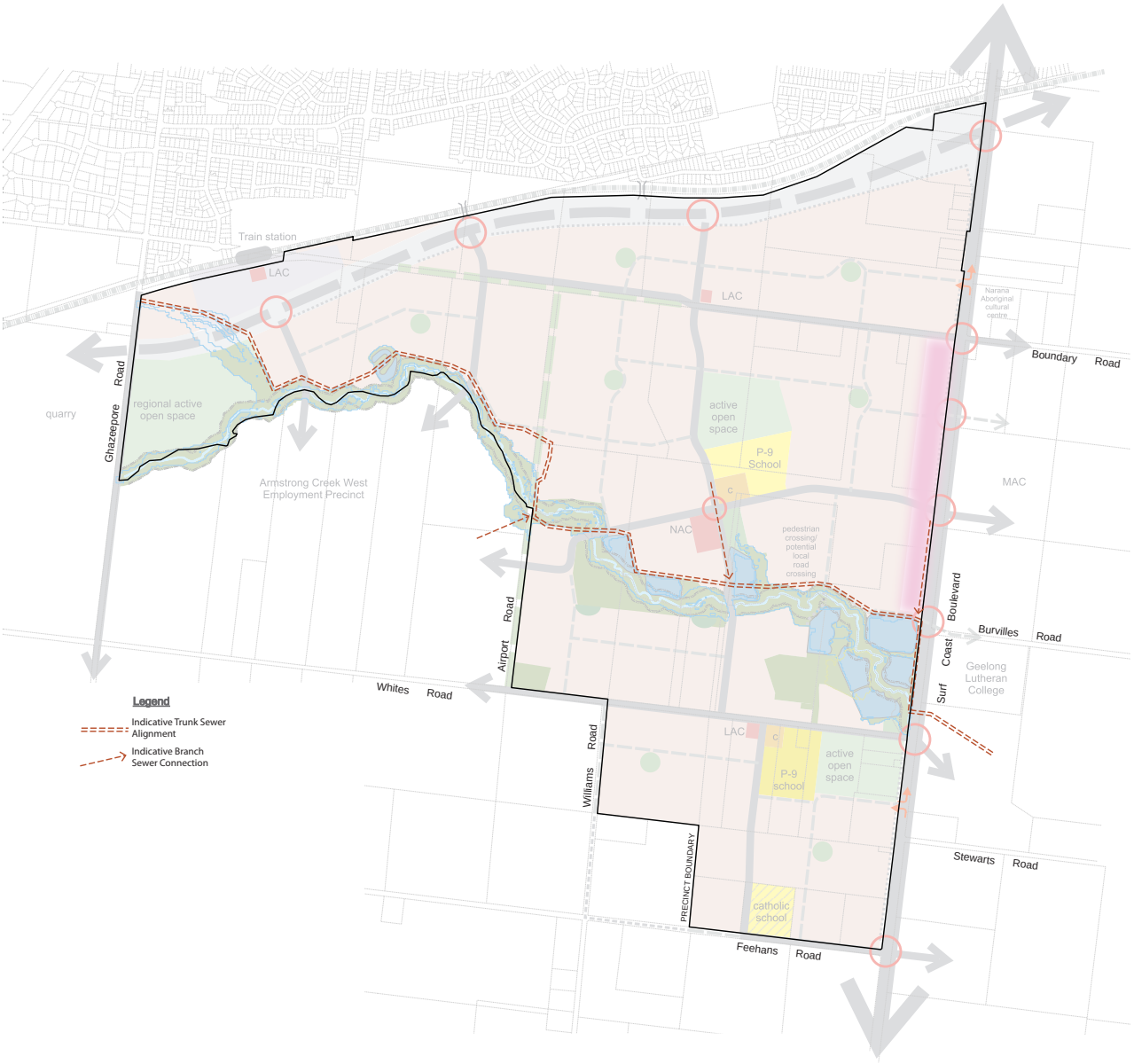
- Permits for the subdivision of land into lots must include a condition requiring the installation of infrastructure to the satisfaction of the responsible authority and the relevant water authority for the delivery of recycled water to each lot.
- Each dwelling must be connected to a reticulated recycled water supply system (where connected to the lot) for toilet flushing and garden watering.

The following planning and design guidelines should be met:

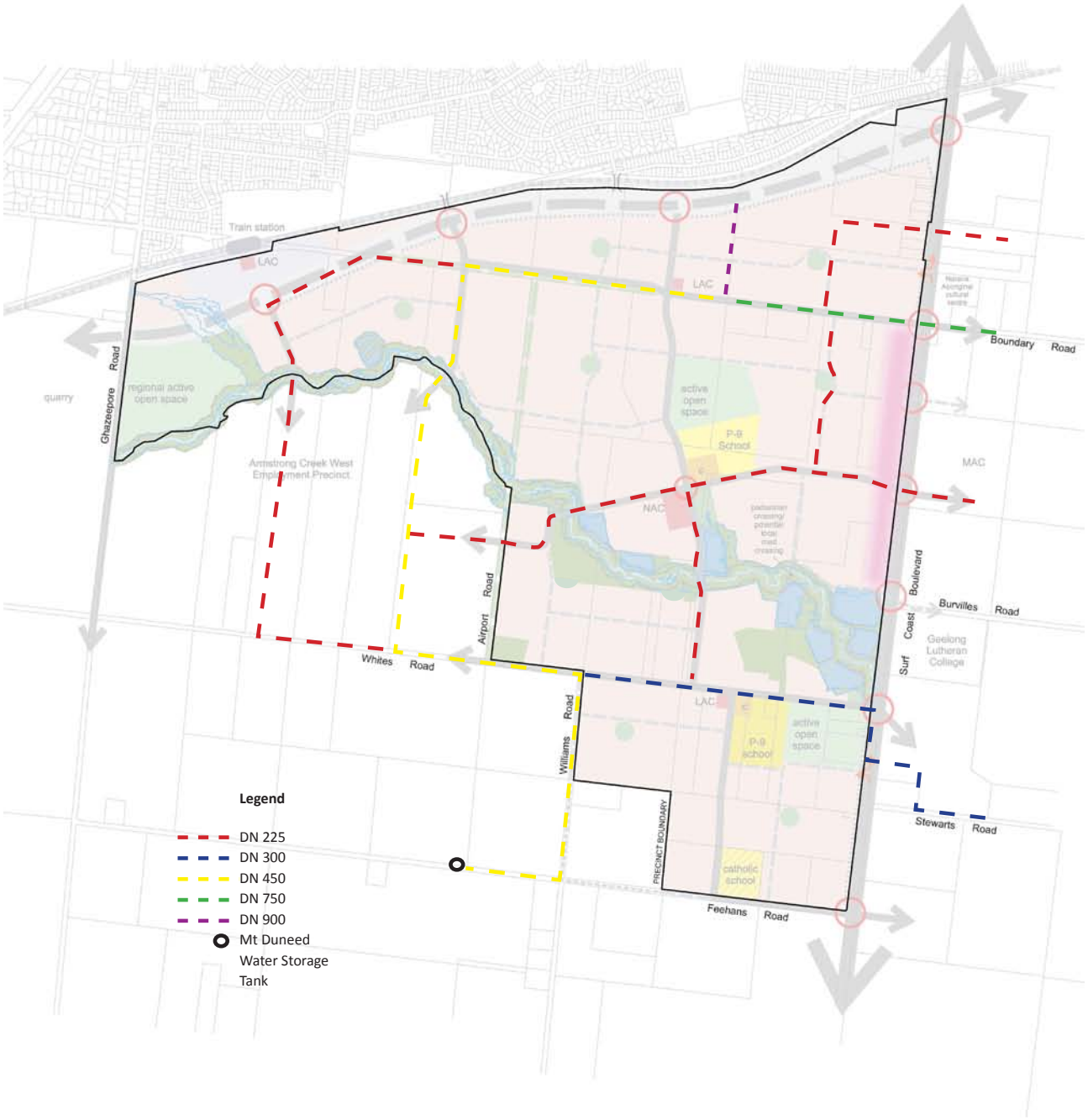
- Provision of sub-stations should be located outside unencumbered open space
- Services should avoid incursion into greenways where possible. Where incursion cannot be avoided, measures (eg. Underboring) must be undertaken to avoid detrimental impact on the ecological values of the greenway.

TABLE 6: SERVICE AUTHORITIES

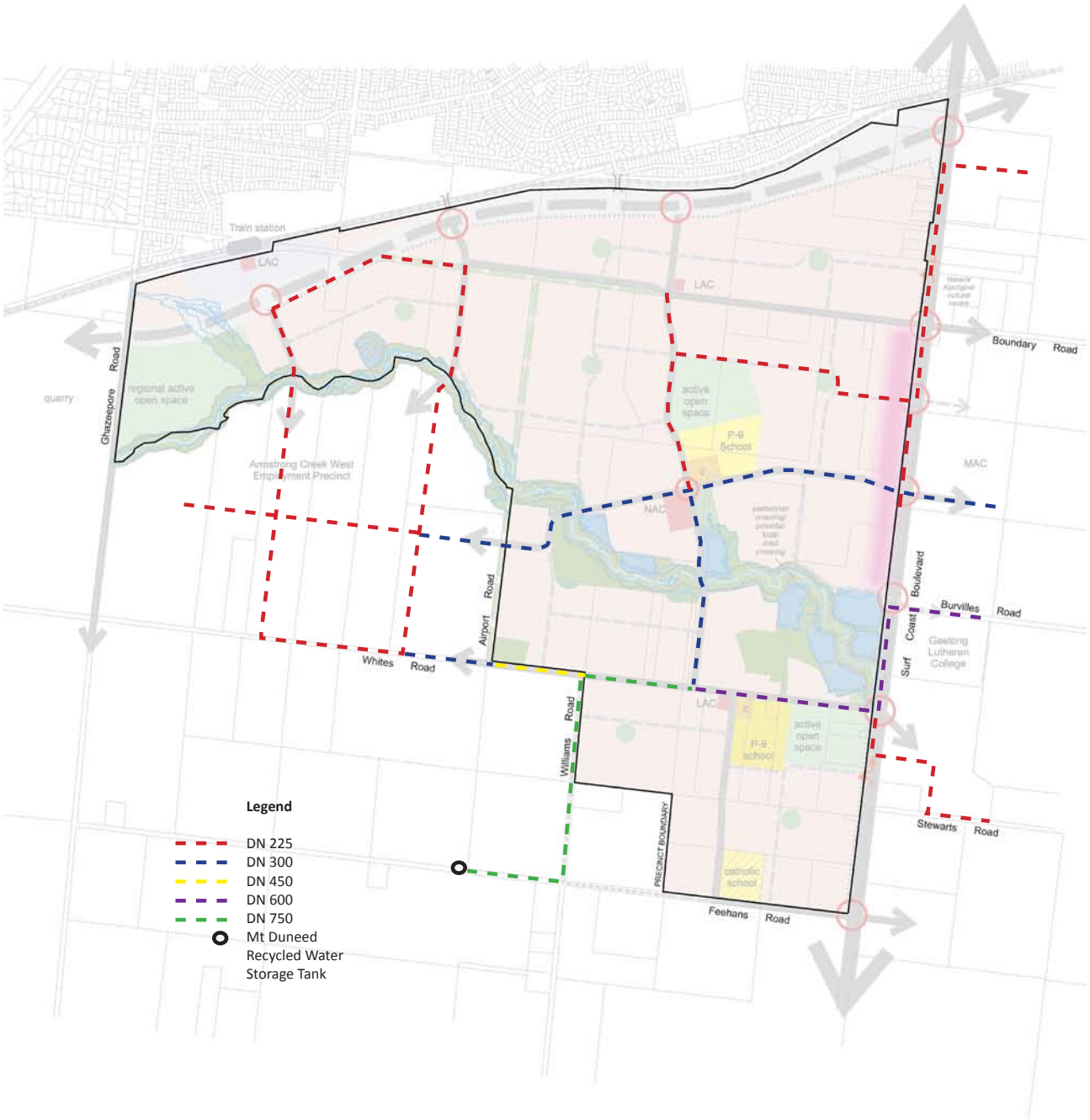
Service	Relevant Authority
Water	Barwon Water
Sewerage	Barwon Water
Gas	SP Aus Net
Electricity	Powercor
Telecommunications	NBN CO (or other supplier)
Reticulated Recycled Water	Barwon Water



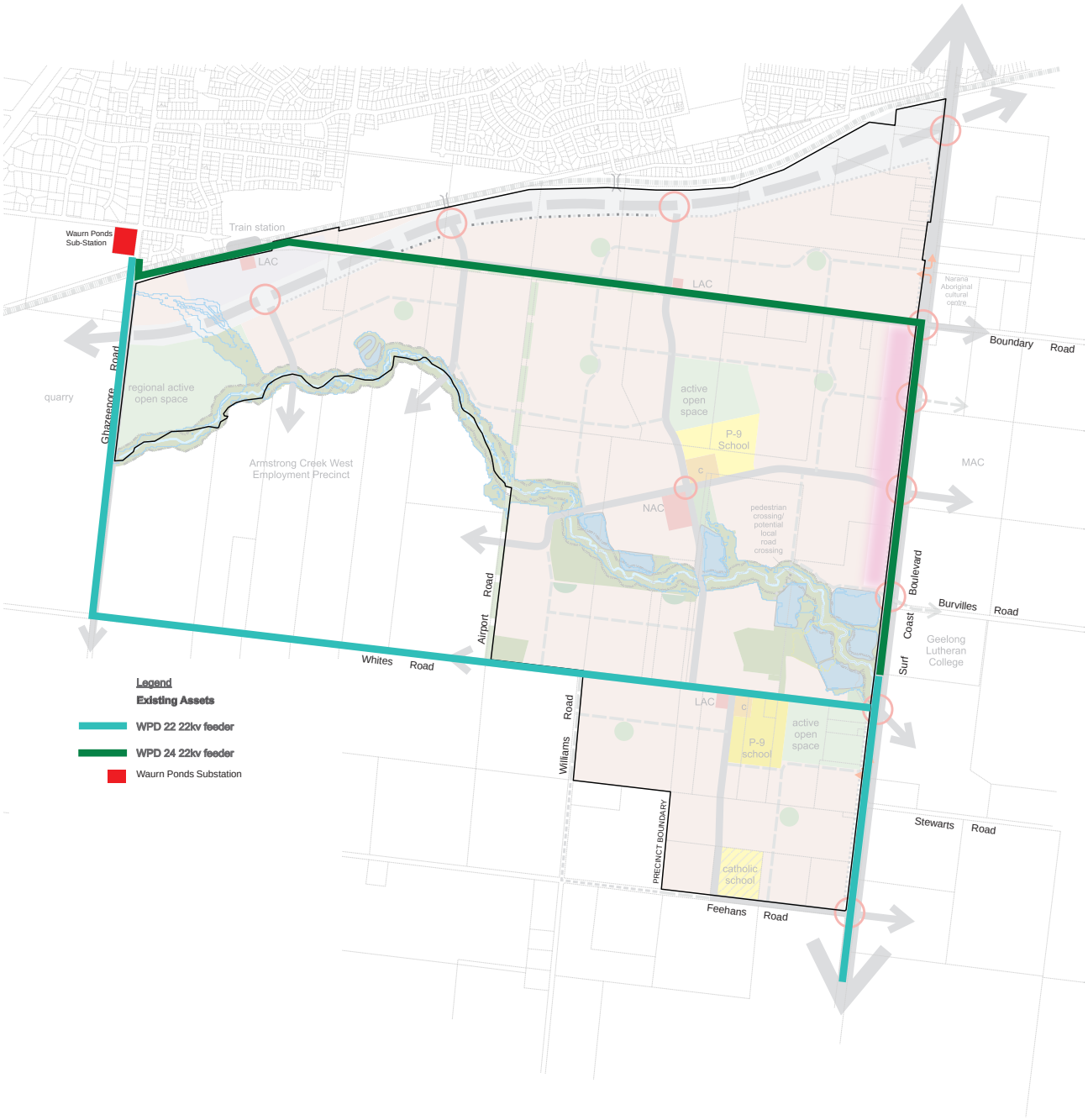
PLAN 14
SEWER ALIGNMENT PLAN



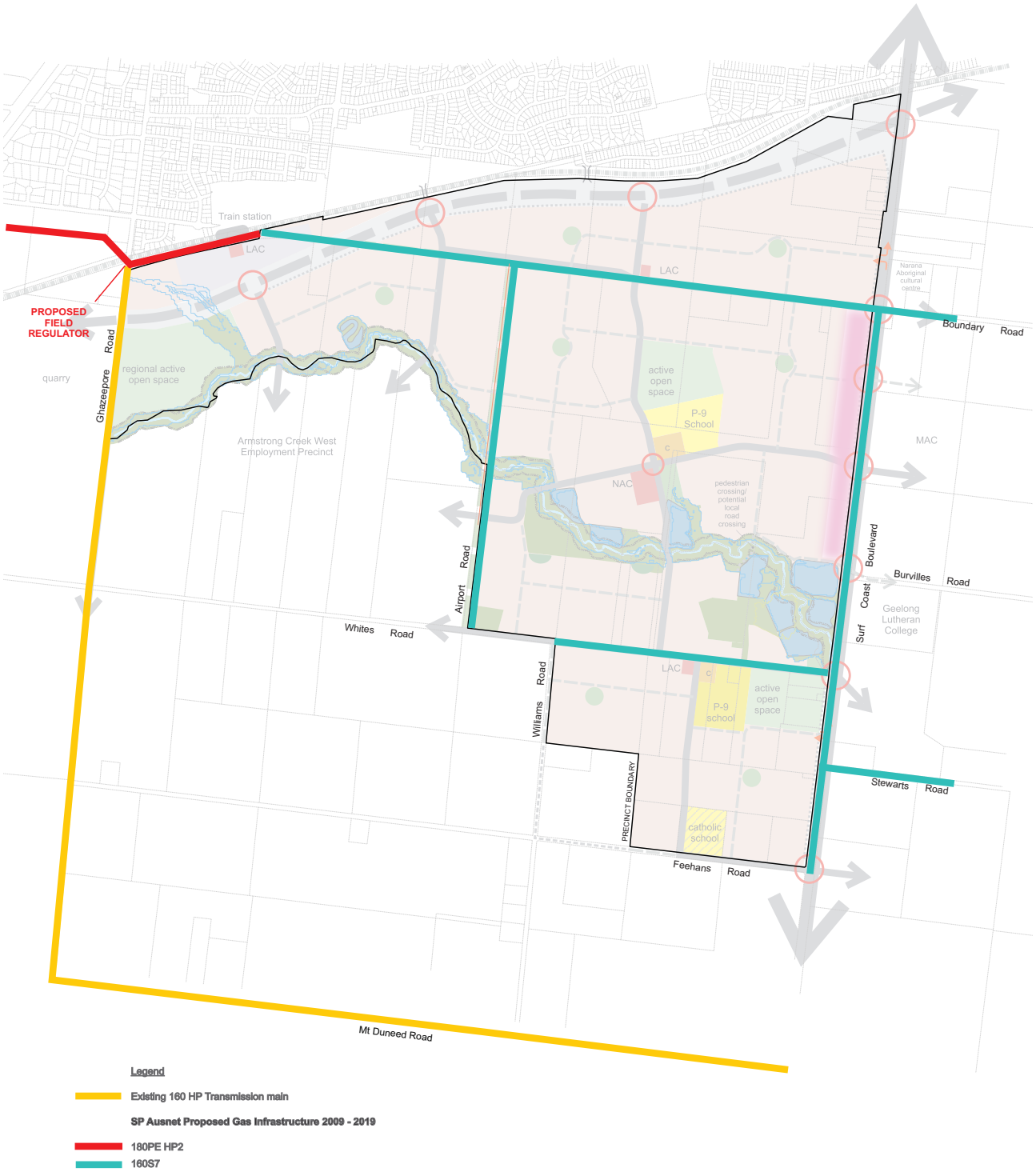
PLAN 15
POTABLE WATER PLAN



PLAN 16
RECYCLED WATER PLAN



PLAN 17
ELECTRICTY PLAN



PLAN 18
NATURAL GAS PLAN

4.8 DRAINAGE AND FLOODPLAIN MANAGEMENT

4.8.1 Objectives: Drainage and Floodplain Management

The objectives for the provision of drainage and floodplain management as an essential part of the development of ACWP are:

- to ensure appropriate floodplain management in ACWP and beyond;
- to protect and/or enhance downstream environments including recognised social, environmental and economic values, by managing appropriately the quality and quantity of stormwater runoff;
- to integrate appropriately stormwater systems into the natural and built environments whilst optimising the potential uses of drainage corridors;
- to reduce the total annual average volume of stormwater runoff from developed catchments by a minimum of 30% over traditional drainage treatment measures through implementation of the approved drainage strategy and design guidelines contained in the ACWPSP.
- to ensure the peak stormwater discharge from developed catchments is not greater than peak discharges from the same catchment subject to existing conditions;
- to avoid impervious surfaces and piped drainage systems that are directly connected to waterways.
- To encourage landholders to co-operate to ensure delivery of required drainage and wetland infrastructure as land is developed.

4.8.2 Implementation: Drainage and Floodplain Management

The objectives for drainage and floodplain management are met by implementation of all of the following.

- Plan 18 Stormwater

4.8.3 Planning and Design Guidelines: Drainage and Floodplain Management

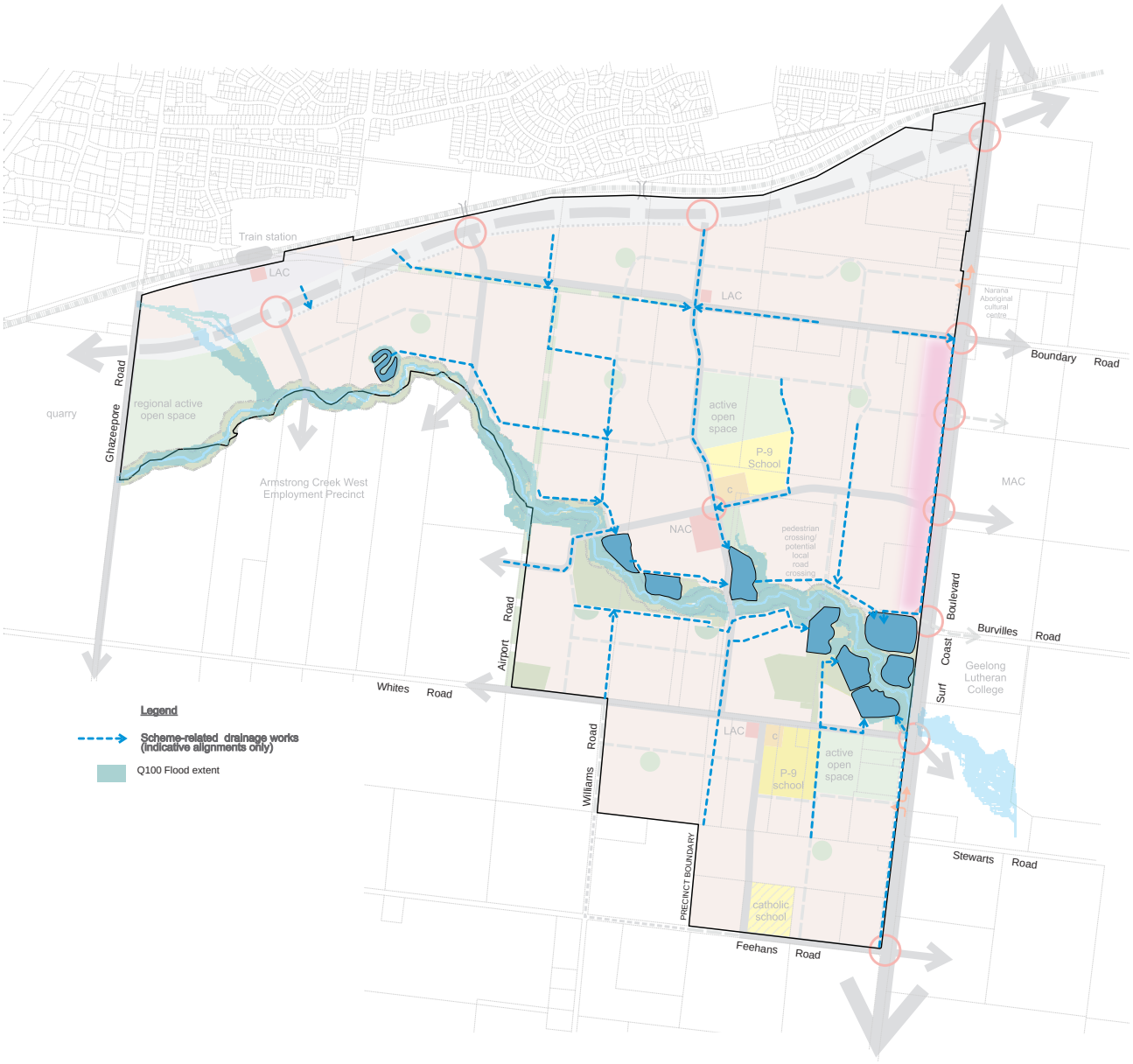
- Drainage infrastructure must be designed to satisfy the requirements of the Corangamite Catchment Management Authority (CCMA), including any interim flood mitigation works, to the satisfaction of the responsible authority.
- The minimum surface gradient on all lots to allow for appropriate drainage must be 1:150 (0.67 per cent).
- The minimum finished surface level (excluding access driveways and paths) on all lots must be 300 millimetres above the Q100 flood event.
- The minimum floor level on all buildings must be 300 millimetres above the Q100 flood event.
- Underground drainage must cater for the flood event as specified in the drainage strategy endorsed by CoGG for ACWP.
- Armstrong Creek must be maintained as a stream corridor with a meandering creek profile complemented by a series of offline wetland systems.
- Major culvert augmentation/upgrade works must be provided to the satisfaction of the responsible authority.
- Piped and open drains, water quality treatment trains and end-of-line retardation, must be provided to the satisfaction of the responsible authority
- Local retardation basins, overland flow paths, water quality treatment trains and stream interface / outlet works, must be provided to the satisfaction of the responsible authority on relevant land parcels in accordance with the stormwater management strategy for ACWP, as approved by the relevant drainage authority.
- The following planning and design guidelines should be met.
- Rainwater tanks are recommended for each dwelling and other relevant building structures.
- Gross pollutants/ litter should be effectively addressed as part of the drainage design downstream of areas of high generation of litter eg activity centres and schools.
- satisfaction of the responsible authority.

The following planning and design guidelines should be met.

- Rainwater tanks are recommended for each dwelling and other relevant building structures.
- Gross pollutants/ litter should be effectively addressed as part of the drainage design downstream of areas of high generation of litter eg activity centres and schools.

TABLE 7: DRAINAGE AND FLOODPLAIN MANAGEMENT AUTHORITIES

Management Item	Relevant Authority
Drainage	CoGG
Floodplain Management	Corrangamite Catchment Management Authority



PLAN 19
STORMWATER PLAN

5 PRECINCT INFRASTRUCTURE PLAN

5.1 INTRODUCTION

This Precinct Infrastructure Plan (Table 8 Infrastructure Required in Armstrong Creek West Precinct) summarises the infrastructure required to ensure the appropriate development of ACWP generally in accordance with the ACWPSP. The infrastructure is to be provided through a number of mechanisms including:

- land development works and/or full funding by developers (individually or jointly in some cases);
- development contributions (community infrastructure levy and development infrastructure levy);
- utility service provider works and/or funding;
- capital works and/or funding by the Australian Government, State Government, CoGG and other agencies and non-Government organisations;
- grants funding available from a variety of sources.

TABLE 8: INFRASTRUCTURE REQUIRED IN ARMSTRONG CREEK WEST PRECINCT

Project Group	Lead Agency	Funding Responsibility
8.1 Transport and Movement		
Geelong Ring Road 4C (Land and Road Corporation construction)	Roads Coorporation	Roads Coorporation
Geelong Ring Road 4C intersection with Ghazeepore Road	Roads Coorporation	Roads Coorporation
Geelong Ring Road 4C intersection with western connector road	Roads Coorporation	D.O.T
Geelong Ring Road 4C intersection- central connector road (west of Airport Road)	Roads Coorporation	DCP (80% ACW/20% WEP)
Geelong Ring Road 4C intersection with north south connector	Roads Coorporation	DCP 100%
Surf Coast Highway(land and construction)	Roads Coorporation	Roads Coorporation
Surf Coast Highway intersection with Geelong Ring Road 4C	Roads Coorporation	Roads Coorporation
Surf Coast Highway intersection with Boundary Road	Roads Coorporation	DCP (40% ACW / 60% MAC)
Surf Coast Highway intersection with MAC (north access)	Roads Coorporation	DCP (30% ACW / 70% MAC)
Surf Coast Highway intersection with main street (MAC)	Roads Coorporation	DCP (40% ACW / 60% MAC)
Surf Coast Highway intersection with Burvilles Road	Roads Coorporation	DCP (36% ACW / 64% MAC)
Surf Coast Highway intersection with Whites Road	Roads Coorporation	DCP (30% ACW / 20% WEP/50% ACE)
Surf Coast Highway intersection with Feehans Road	Roads Coorporation	DCP (50% ACW / 50% ACE)
Intersection at NAC	CoGG	DCP
Connector Roads	Developer	Developer
Connector Roads Creek Crossings	CoGG	DCP
Local Roads	Developer	Developer
Service roads/Frontage roads	Developer	Developer
Walking and cycling trail network	CoGG	DCP/Developer
8.2 Public Transport		
Armstrong Creek West Train Station and 'park and ride' carpark	DOT	DOT
Bus Service	DOT	DOT
Bus Stops	DOT	Developer
8.3 Community Facilites		
Northern Community Complex adjacent to NAC	CoGG	DCP
Southern Community Complex adjacent to Whites Road LAC	CoGG	DCP
Health and Well being centre in NAC	Commercial	Provider
Health and Well being centre in LAC	Commercial	Provider
Northern Active Open Space	CoGG	DCP/DEECD (for multi purpose stadium)
Southern Active Open Space	CoGG	DCP
Regional Active Open Space	CoGG	DCP/CoGG (for additional tennis courts)
Passive Active Open Space	CoGG	DCP/CoGG (for land in excess of 10% GDA).
Northern State P-9 School	DEECD	DEECD
Northern State P-9 School	DEECD	DEECD
Possible non-government school (but otherwise residential)	Provider (Cathollic Education Office)	Catholic Education Office
Armstrong Creek landscape, recreation and drainage works	CoGG	DCP

TABLE 8 (Cont.): INFRASTRUCTURE REQUIRED IN ARMSTRONG CREEK WEST PRECINCT

Project Group	Lead Agency	Funding Responsibility
8.4 Biodiversity		
Conservation areas/Native vegetation offset sites	CoGG/DSE	Developer
8.5 Utilities and Energy		
Potable water/Recycled water	Barwon Water	Barwon Water
Sewerage	Barwon Water	Barwon Water
Electricity	Power Cor	Power Cor
Gas	SP Aus Net	SP Aus Net
Telecommunications	NBN Co or other supplier	NBN Co or other supplier

5.1.1 Land Development Works by Developers

As part of land development works, new development by a developer must provide and fully fund the cost of delivering the following infrastructure on or where abutting or related to the land:

- land and construction of roads including related culverts, intersection works and traffic management measures for all category B to D roads and streets (excluding components funded by DCP) as listed in Appendix 7 Road Design and Delivery Characteristics;
- landscaping of all category B to D roads and streets as listed in Appendix 7 Road Design and Delivery Characteristics;
- local walking/cycling paths along category B to D roads and streets in accordance with Appendix 7 Road Design and Delivery Characteristics and the relevant road cross-sections;
- unencumbered land equal to 10 per cent of the net developable area for public open space, to be located as specified on Plan 6 Public Open Space or cash-in-lieu to the equivalent value, all subject to equalisation;
- local infrastructure as required by utility service providers including water, sewerage, electricity, gas and telecommunications;
- all drainage system and flood mitigation works (excluding Armstrong Creek works, which are a development contribution plan project).

5.1.2 Development Contributions Plan

A development contribution plan (DCP) has been prepared for ACWP in conjunction with this ACWPSP. The ACWPDCP is an incorporated document in the Scheme.

5.2 INFRASTRUCTURE AND SERVICES REQUIRED OUTSIDE ACWP TO SUPPORT DEVELOPMENT OF ACWP

There are no infrastructure or services outside ACWP required to be provided by developers or through the ACWPDCP to support its development.

5.3 PROJECT CO-ORDINATION

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

Examples of the projects that could be grouped for co-ordinated delivery include:

- combinations of sub-projects that make up the regional active open space;
- community facilities and associated works in the central neighbourhood activity centre;
- community facilities and associated works in the Whites Road local activity centre;
- the active public open space and bowling green located adjacent to central neighbourhood activity centre.

5.4 DELIVERY AND MONITORING

CoGG will monitor the implementation of the Precinct Infrastructure Plan.

6 OTHER INFORMATION

6.1 ACRONYMS AND GLOSSARY

Appendix 9 Acronyms and Glossary contains a list of acronyms used throughout this ACWPSP together with a glossary of words.

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APPENDICES

APPENDIX 1
DETAILED LAND USE BUDGET BY PROPERTY

PLAN 20
PROPERTY IDENTIFICATION

TABLE 9: DETAILED LAND USE BUDGET BY PROPERTY

		Transport			Community Uses			Encumbered Land for Recreation				Unencumbered land for Recreation				Key Percentages						
Property Number	Total Area (Hectares)	Arterial Roads (Geelong Ring Road Section 4C PAO)	DOT Station Precinct (PAO)	Sub Arterial Roads	Government Schools	Catholic Schools	Community Facilities	Drainage/sewer easement	Conservation Areas	Active Open Space	Greenway	Active Open Space	Passive Open Space	Wetland	Net Developable Area (NDA)	Net Developable Area % of Total Parcel Area	Active Open Space % of NDA	Passive Open Space % of NDA	Total Active + Passive Open space % of NDA	Open Space Delivery Target %	Difference	Equivalent Land Area (Ha)
1	12.763							2.989	0					2.959	6.82	53.40%	0.00%	0.00%	0.00%	10%	-10.00%	-0.68
2	1.124							1.021	0.022					0.026	0.05	4.89%	0.00%	0.00%	0.00%	10%	-10.00%	-0.01
3	10.808							4.288	1.616					2.141	2.76	25.56%	0.00%	0.00%	0.00%	10%	-10.00%	-0.28
4	17.981							2.265	3.463					0.452	11.80	65.63%	0.00%	0.00%	0.00%	10%	-10.00%	-1.18
4A	0.857							0.117	0.069						0.67	78.30%	0.00%	0.00%	0.00%	10%	-10.00%	-0.07
5	15.43				0.018		0.059	2.252	0.344				0.795	1.321	10.64	68.96%	0.00%	7.47%	7.47%	10%	-2.53%	-0.27
5A	0.88						0.053	0.044					0.368	0.039	0.38	42.73%	0.00%	97.87%	97.87%	10%	87.87%	0.33
6	47.484				1.849		1.138	0.463	0.064				1.080	0.125	42.77	90.06%	0.00%	2.53%	2.53%	10%	-7.47%	-3.20
7	12.343							2.693	0.631					0.176	8.84	71.64%	0.00%	0.00%	0.00%	10%	-10.00%	-0.88
8	22.263				1.081						0.122	5.242			15.82	71.05%	33.14%	0.00%	33.14%	10%	23.14%	3.66
9	25.621								0.149		0.399		1.174		23.90	93.28%	0.00%	4.91%	4.91%	10%	-5.09%	-1.22
10	23.505							2.796			1.291				19.42	82.61%	0.00%	0.00%	0.00%	10%	-10.00%	-1.94
11	5.469							0.906	0.027				0.250		4.29	78.37%	0.00%	5.83%	5.83%	10%	-4.17%	-0.18
12	1.643							0.147	0.008						1.49	90.57%	0.00%	0.00%	0.00%	10%	-10.00%	-0.15
13	10.268							0.75	0.86						8.66	84.32%	0.00%	0.00%	0.00%	10%	-10.00%	-0.87
14	1.335							1.218	0.026						0.09	6.82%	0.00%	0.00%	0.00%	10%	-10.00%	-0.01
15	1.789							1.308						0.401	0.08	4.47%	0.00%	0.00%	0.00%	10%	-10.00%	-0.01
16	24.161							1.178	4.523				0.250		18.21	75.37%	0.00%	1.37%	1.37%	10%	-8.63%	-1.57
17	10.853														10.85	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-1.09
18	0.48														0.48	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.05
19	20.282				2.574							3.505	0.082		14.12	69.62%	24.82%	0.58%	25.40%	10%	15.40%	2.17
20	2.088														2.09	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.21
21	2.079														2.08	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.21
22	15.828	0.343						1.902			0.112		0.750	1.358	11.36	71.79%	0.00%	6.60%	6.60%	10%	-3.40%	-0.39
23	2.014	0.804													1.21	60.08%	0.00%	0.00%	0.00%	10%	-10.00%	-0.12
24	52.209	7.795	7.579					3.973		2.2		15.677			14.99	28.70%	104.62%	0.00%	104.62%	10%	94.62%	14.18
25	6.652	3.391													3.26	49.02%	0.00%	0.00%	0.00%	10%	-10.00%	-0.33
26	10.912	3.763													7.15	65.52%	0.00%	0.00%	0.00%	10%	-10.00%	-0.71
27	13.178	3.691											0.750		8.74	66.30%	0.00%	8.58%	8.58%	10%	-1.42%	-0.12
28	19.805	4.622													15.18	76.66%	0.00%	0.00%	0.00%	10%	-10.00%	-1.52
29	20												0.750		19.25	96.25%	0.00%	3.90%	3.90%	10%	-6.10%	-1.18
30	16.821	4.49													12.33	73.31%	0.00%	0.00%	0.00%	10%	-10.00%	-1.23
31	7.042	0.866													6.18	87.70%	0.00%	0.00%	0.00%	10%	-10.00%	-0.62
32	3.594	3.52													0.07	2.06%	0.00%	0.00%	0.00%	10%	-10.00%	-0.01
33	3.279	2													1.28	39.01%	0.00%	0.00%	0.00%	10%	-10.00%	-0.13
34	0.4														0.40	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.04
35	0.4														0.40	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.04
36	0.4														0.40	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.04
37	0.365														0.37	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.04
38	0.369														0.37	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.04
39	0.462														0.46	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.05
40	0.25														0.25	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.03
40A	0.092														0.09	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.01
41	0.675	0.675													0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
42	1.557	1.557													0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
43	0.42	0.42													0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
44	1.008											0.836			0.17	17.06%	486.05%	0.00%	486.05%	10%	476.05%	0.82
45	0.797											0.771			0.03	3.26%	2965.38%	0.00%	2965.38%	10%	2955.38%	0.77
46	2.007											1.889			0.12	5.88%	1600.85%	0.00%	1600.85%	10%	1590.85%	1.88
47	3.66											0.352			3.31	90.38%	10.64%	0.00%	10.64%	10%	0.64%	0.02
48	8.962				1.255							4.065			3.64	40.64%	111.61%	0.00%	111.61%	10%	101.61%	3.70
49	4.826				2.832		0.144								1.85	38.33%	0.00%	0.00%	0.00%	10%	-10.00%	-0.19
50	0.412				0.376										0.04	8.74%	0.00%	0.00%	0.00%	10%	-10.00%	0.00
51	8.112				1.033		0.457								6.62	81.63%	0.00%	0.00%	0.00%	10%	-10.00%	-0.66
52	3.984														3.98	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.40
53	17.541												0.750		16.79	95.72%	0.00%	4.47%	4.47%	10%	-5.53%	-0.93
54	15.47												0.750		14.72	95.15%	0.00%	5.10%	5.10%	10%	-4.90%	-0.72
55	0.121														0.12	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.01
56	3.396														3.40	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.34
57	4.019														4.02	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.40
58	4.037					3.469									0.57	14.07%	0.00%	0.00%	0.00%	10%	-10.00%	-0.06
59	4.133														4.13	100.00%	0.00%	0.00%	0.00%	10%	-10.00%	-0.41
60	0.116											0.087			0.03	25.00%	300.00%	0.00%	300.00%	10%	290.00%	0.08
61	1.235			0.779											0.46	36.92%	0.00%	0.00%	0.00%	10%	-10.00%	-0.05
62	1.183							1.183							0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
Boundary Road	6.711			6.711											0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
Airport Road	3.245										3.245				0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
Whites Road	3.229			3.229											0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
Sunfoast Highway	6.771			6.771											0.00	0.00%	0	0	0.00%	10%	-10.00%	0.00
TOTAL	553.205	37.937	7.579	17.49	11.018	3.469	1.851	31.493	11.802	2.2	5.169	32.424	7.749	8.998	374.03	67.61%	8.67%	2.07%	10.74%	10%	0.74%	2.77

APPENDIX 2
SMALL LOT HOUSING CODE

growth areas AUTHORITY

SMALL LOT HOUSING CODE STANDARDS

August 2011

Victoria

Design Requirements

1 Front street Setback

1.1 The front wall of a dwelling must be set back from the front boundary of the lot at least the distance below:

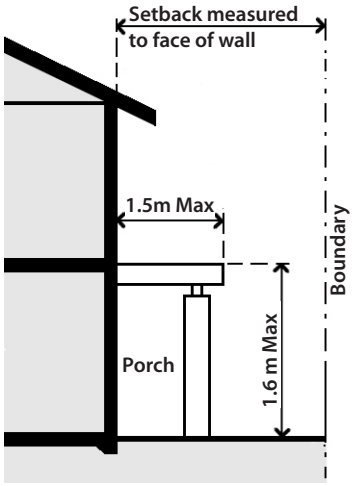
Land to which the standard applies	Front setback as measured to face of wall
Land within 120 metres of a local town centre, or as specified in the PSP or subdivision permit	1.5 metres or 4 metres for a declared road
Land within 120 metres of parks and waterways, or as specified in the PSP or subdivision permit	3 metres or 4 metres for a declared road or 1.5 metres if the dwelling fronts a public park

Garage Setback

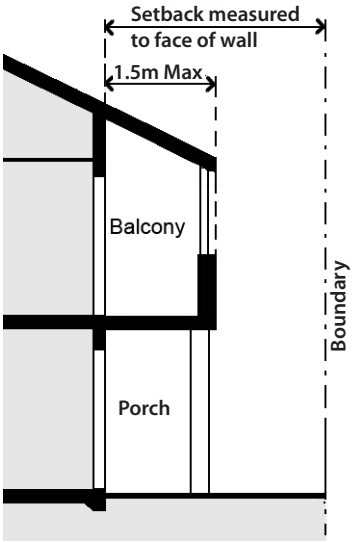
1.2 A garage door or opening that is accessed from the front street must be set back from the front wall of the dwelling at least 0.8 metres.

2 Encroachment into front setback

2.1 Porches, verandahs and pergolas that have a maximum height of less than 3.6 metres above natural ground level and are open on at least two sides may encroach no more than 1.5 metres into the front setback measured to the outermost point such as eaves fascia of the porch, verandah and pergola including gutters.



2.2 Balconies at the second storey may project no more than 1.5 metres into the front setback measured to the outermost point such as eaves fascia of the porch, verandah and pergola including gutters.



3 Building height

3.1 The maximum height of a dwelling must not exceed 10 metres from natural ground level unless the slope of the natural ground level where the building height is measured is 4% or more, in which case the maximum building height must not exceed 11 metres.

4 Permeability

4.1 The following minimum areas of a lot must not be covered by impervious surfaces:

Land to which the standard applies	Permeability
Land within 120 metres of a local town centre, or as specified in the PSP or subdivision permit	No minimum area
Land within 120 metres of parks and waterways, or as specified in the PSP or subdivision permit	10%. The area may be the average of lots of attached dwellings that are constructed simultaneously

5 On lot car parking

5.1 Minimum number of car spaces to be provided:

Land to which the standard applies	3 bedrooms or more	2 bedrooms or less
Land within 120 metres of a local town centre, or as specified in the PSP or subdivision permit	1 covered space	1 covered space
Land within 120 metres of parks and waterways, or as specified in the PSP or subdivision permit	2 car spaces including 1 covered space	

A car space provided in front of a garage must have a minimum depth of 5 metres.

6 Side and rear setbacks

6.1 A wall not on or within 150mm of a boundary must be set back from side or rear boundaries 1 metre, plus 0.3 metres for every metre of height over 3.6 metres up to 6.9 metres, plus 1 metre for every metre of height over 6.9 metres.

Where the setback is to a laneway the setback may be reduced by up to half the width of the laneway.

6.2 Sunblinds, verandahs, porches, fins, sunhoods, screens, eaves, fascias, gutters, masonry chimneys, flues, pipes, domestic fuel or water tanks, and heating or cooling equipment or other services may encroach not more than 0.5 metres into the setbacks of this standard.

7 Side street setbacks

7.1 A wall that faces a side street must be setback from the boundary of the lot at least the distance specified in the table.

7.2 A corner wall at a splayed boundary must be set back from the boundary of the lot at least the distance in the table.

7.3 A porch, verandah or pergola at a side street must be translucent on at least 2 sides and not more than 4 metres in length and set back from the side street at least the distance specified in the table.

Land to which the standard applies	Secondary boundary setback as measured to face of wall	Setback to corner splay as measured to face of wall:	Setback of translucent element to a secondary boundary:
Land within 120 metres of a local town centre, or as specified in the PSP or subdivision permit	Nil setback	-	Nil setback
Land within 120 metres of parks and waterways, or as specified in the PSP or subdivision permit	1.5m	1m	0.5m

8 Walls on boundaries

8.1 A wall constructed on or within 150mm of a side or rear boundary of a lot or a carport constructed on or within 1 metre of a side or rear boundary of a lot may:

- **fully abut the boundary where the maximum height of the wall does not exceed 3.6 metres; and**
- **abut the boundary above 3.6 metres for the length of an existing or simultaneously constructed wall.**

The height difference between abutting walls must be no more than 1 storey.

These requirements do not apply to a wall constructed on or within 150mm of a boundary with a laneway.

9 Overlooking above ground floor

9.1 Windows at a second level and above must be set back 4.5 metres from a side or rear boundary; or

- **must be obscured to 1.7 metres; or**
- **must have a sill height of 1.7 metres.**

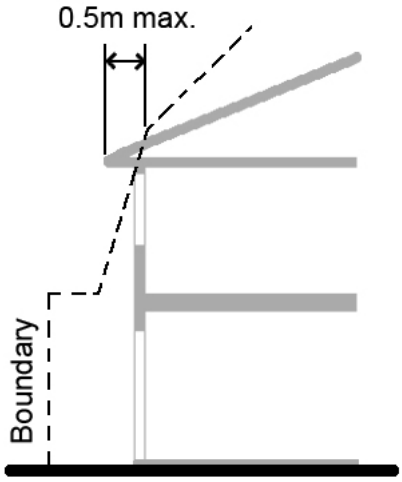
The setback of a window to a laneway may be reduced by up to half the width of the laneway.

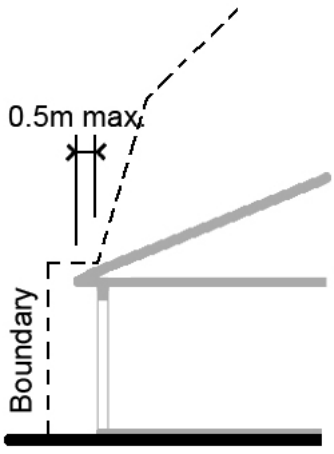
9.2 A roof top area that is private open space must be set back 4.5 metres from a side or rear boundary or must be obscured to a height of 1.7 metres at the perimeter of the rooftop area for any portion of the perimeter that is within 4.5 metres of a side or rear boundary.

The setback to a laneway may be reduced by up to half the width of the laneway.

10 Daylight

10.1 Eaves including gutters may project no more than 0.5 metres in to a side or rear setback.





11 Private open space

11.1 If a dwelling has 3 or more bedrooms:

- **at least 25 square metres of private open space at the side or rear of the dwelling with a minimum dimension of 3 metres must be provided; or**
- **A balcony of least 12 square metres of private open space with a minimum dimension of 3 metres must be provided; or**
- **A roof-top area of 12 square metres of private open space with a minimum dimension of 3 metres must be provided.**

11.2 If a dwelling has two bedrooms or less:

- **at least 15 square metres of private open space at the side or the rear of the dwelling with a minimum dimension of 3 metres must be provided; or**
- **if the private open space is provided as a balcony or rooftop area the minimum area may be reduced to no less than 10% of the dwelling (excluding garages) or 6 square metres, whichever is the greater.**

11.3 Private open space that is provided at the side or rear of the dwelling or as a balcony must be directly accessible from either a living room or dining room.

11.4 For the purposes of this Code a roof top area is not an additional storey.

12 Front fence

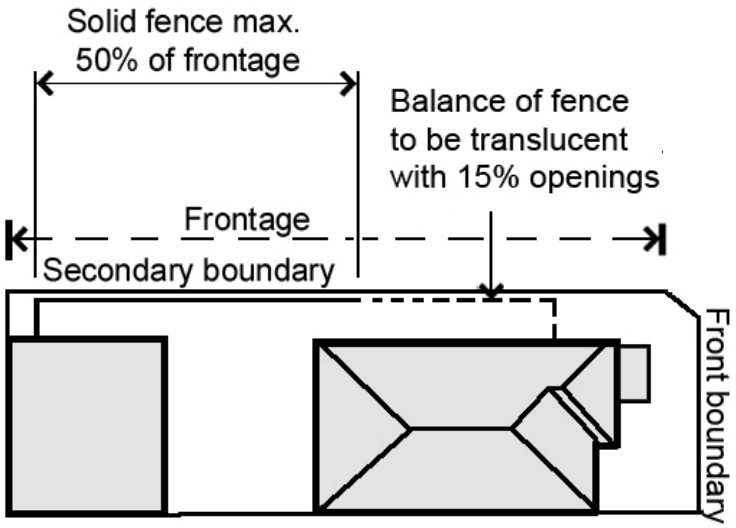
12.1 A fence constructed forward of the front wall or encroachment in to the front setback must not exceed 1.2 metres in height. Above 0.7 metres the fence must be no more than 85% solid.

This requirement does not apply to a front fence within 3 metres of a declared road.

13 Side fence

13.1 Where a fence faces a secondary boundary (side street) solid fencing must not exceed 50% of the length of the front and side boundary with maximum unbroken lengths of 10metres. The balance of the fence must be no more than 85% solid.

The height of a fence must not exceed 2 metres.



14 Integration with the street

14.1 Where garage doors or openings are located at the front of a dwelling:

- **the width of the garage doors or openings must not exceed 40% of the lot's total street front width if the dwelling is single storey, or**
- **if the dwelling is 2 or 3 storeys the area of garage doors or openings must not exceed 25% of the area of the front facade of the dwelling.**

The area of the front facade of the dwelling is measured from a two-dimensional elevation plan and excludes any area of the roof of the dwelling.

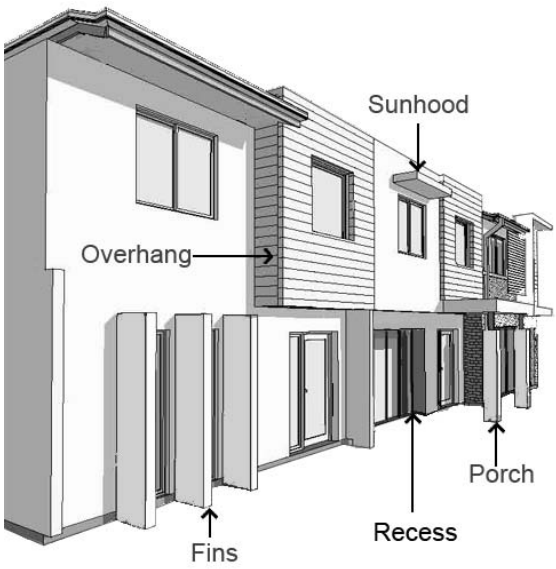
Vehicle access to a car space or garage on the lot must be from the rear of the dwelling if the lot has a front width of 6.0 metres or less.

15 Front façade articulation

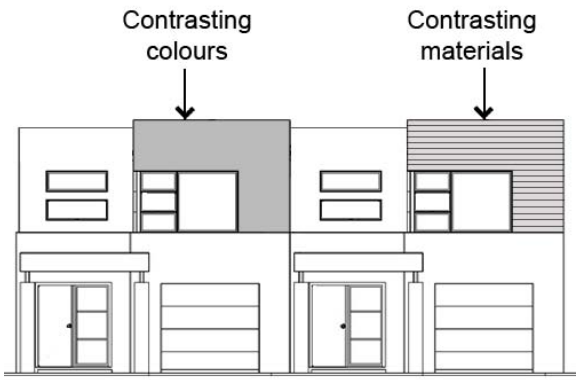
15.1 The front façade of each dwelling must have a minimum standard of articulation comprising at least two components of Group A OR at least one component of Group A and one component of Group B:

Group A	1. A plan profile stepped a minimum 0.3 metre in depth for a length of at least 1 metre. 2. An underhang or overhang architectural element stepped a minimum 0.3 metre for a distance of at least 1 metre. 3. Balconies, porches, pergolas, fins, sunhoods and screens which have a minimum depth of 0.3 metre and a minimum aggregate dimension of 2m. Eaves are not classed as articulation elements for this part.
Group B	1. Two or more contrasting wall colours and/or tones. 2. Feature materials including stained timber, stone, steel, metallic surfaces or profiled wall cladding.

Group A



Group B

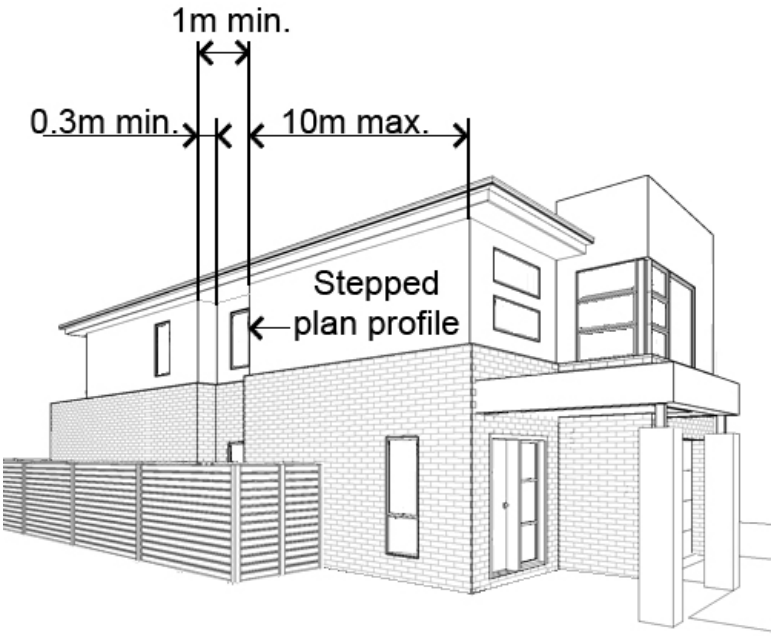


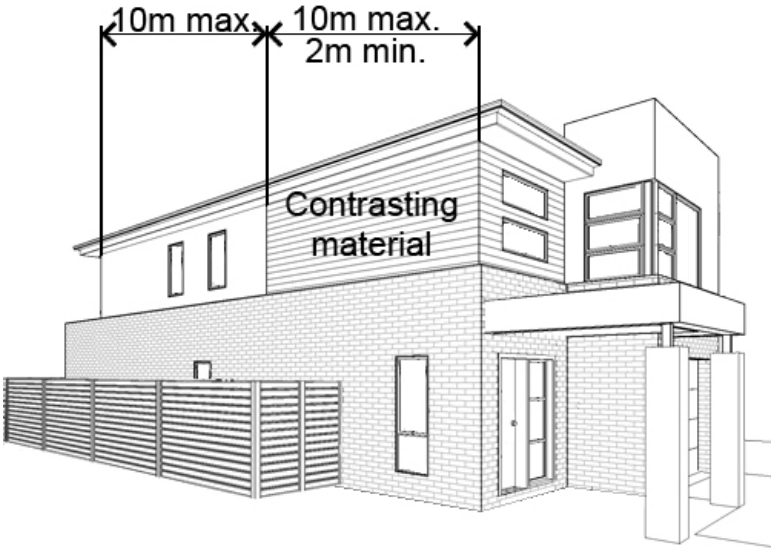
16 Side façade articulation

16.1 Where a wall of a dwelling exceeds 10 metres in length and faces a side street there must be a minimum standard of articulation of:

- **a plan profile stepped a minimum 0.3 metre in depth for a length of at least 1 metre to limit any unbroken length to 10 metres; or**
- **contrasting material for at least 2 metres to limit any unbroken length to 10m; or**
- **contrasting wall colours for at least 2 metres to limit any unbroken length to 10m.**

At least 50% of rooms including non-habitable rooms at the side of a dwelling that has an interface with a secondary boundary (side street) must have windows.

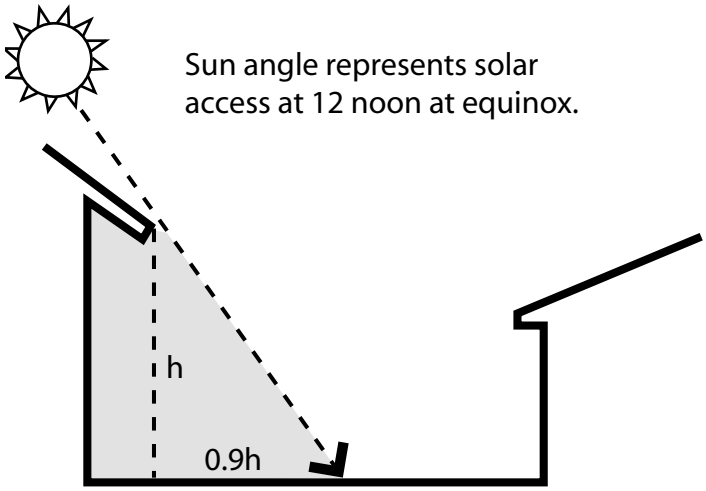


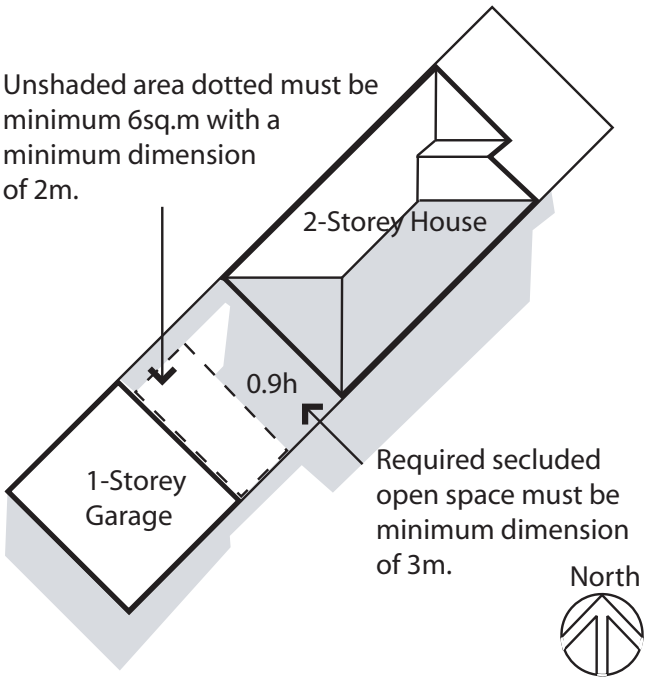


17 Sunlight to private open space

17.1 Where private open space is provided at the side or rear of a dwelling it must have a minimum area of 6 square metres of direct sunlight with a minimum dimension of 2 metres measured at ground level at noon on the equinox. The length of the shadow cast by walls and fences is calculated as 0.9h where 'h' is the height of the wall or fence.

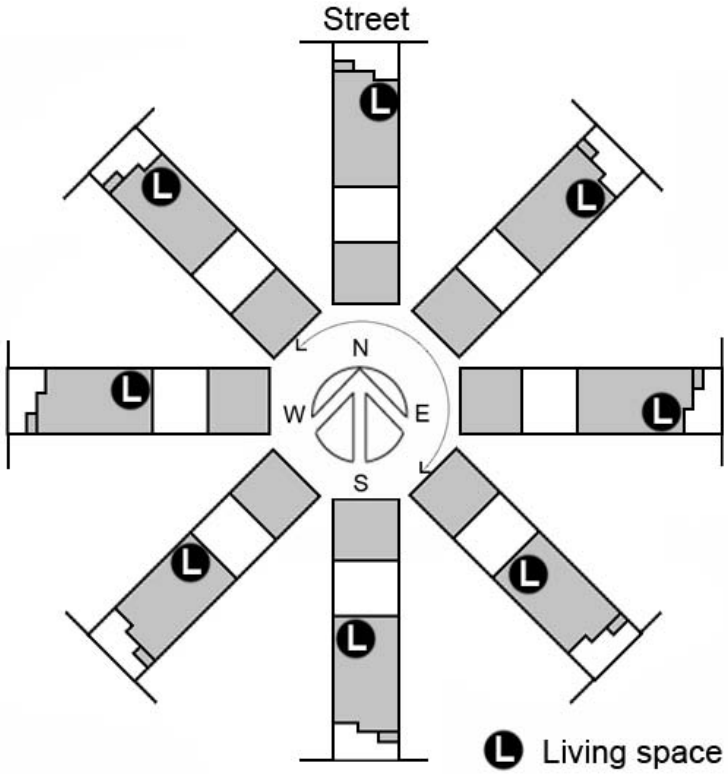
This requirement does not apply to private open space provided as a balcony or roof top area.





18 Solar orientation

18.1 A house must contain a principal living space that faces within 45 degrees of true north and/or east. A principal living space is a living room or a dining room.



19 Vehicle access

19.1 Vehicle access to a car space or garage on the lot must not be from a private road or access way.

GROWTH AREAS AUTHORITY
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Melbourne VIC 3000
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The Growth Areas Authority is always interested in your views about our programs and initiatives, and the issues covered in this publication.

If you would like to receive regular email updates on the work of the Growth Areas Authority, please register via our website www.gaa.vic.au

APPENDIX 3
INDICATIVE STREET TREE PLANTING

TABLE 10: PREFFERED SPECIES LIST

Road / Area Type	Botanical Name	Common Name	Minimum planting space requirements (Nature strip width)
Arterial Road	*Angophora costata*	Smooth bark apple myrtle	3m
	Bracychiton populneus	Kurrajong	2m
	Corymbia ficifolia	Red-flowering gum	2m
	Corymbia maculata	Spotted gum	3m
	Platanus acerifolia	London plane tree	3m
	Quercus robur	English oak	3m
Collector Road	*Acacia melanoxylon*	Blackwood	3m
	Bracychiton populneus	Kurrajong	2m
	Corymbia ficifolia	Red-flowering gum	2m
	Eucalyptus mannifera ssp maculosa	Red Spotted Gum	2m
	Eucalyptus mannifera ssp mannifera	Brittle Gum	2m
	Eucalyptus melliodora	Yellow box	3m
	Eucalyptus sideroxylon	Red ironbark	2m
	Eucalyptus scoparia	Wallangarra gum	2m
	Melia azedarach	White cedar	2m
	Quercus robur	English oak	3m
	*Ulmus parvifolia "*Todd*"*	Chinese elm	2m
Industrial Area	*Angophora costata*	Smooth bark apple myrtle	3m
	Bracychiton spp	Various species	2m
	Callistemon salignus	Willow bottlebrush	2m
	Corymbia citriodora	Lemon-scented gum	3m
	Corymbia maculata	Spotted gum	3m
	Eucalyptus melliodora	Yellow box	3m
	Melia azedarach	White cedar	2m
	Platanus acerifolia	London plane tree	3m
	Quercus palustris	Pin oak	3m
	Tristaniopsis laurina	Water gum	2m
	Ulmus glabra Lutescens	Golden elm	2m
Residential Area	*Angophora costata*	Smooth bark apple myrtle	3m
	Bracychiton populneus	Kurrajong	2m
	Corymbia citriodora	Lemon-scented gum	3m
	Corymbia maculata	Spotted gum	3m
	Corymbia ficifolia	Red-flowering gum	2m
	Eucalyptus mannifera "Little Spotty"	Little Spotty Gum	2m
	Eucalyptus melliodora	Yellow box	3m
	Eucalyptus sideroxylon rosea	Red-flowered ironbark	3m
	Eucalyptus scoparia	Wallangarra gum	2m
	Gletisia triacanthus "Shademaster"	Honey Locust	2m
	Lagerstroemia indica cultivars	Crepe Myrtle	2m
	Melia azedarach	White cedar	2m
	Magnolia grandiflora "Exmouth"	Magnolia	3m
	Pyrus cultivars (eg. Red Spire, Capital etc.)	Ornamental Pears	2m
	Quercus palustris	Pin oak	3m
	Robinia psuedoacacia varieties	Robinias	2m
	Tristaniopsis laurina	Water gum	2m
	Ulmus glabra Lutescens	Golden elm	2m
Activity Centre	*Gletisia triacanthus "Shademaster"*	Honey Locust	3m
	Fraxinus angustifolia "Raywood"	Claret ash	3m
	Magnolia grandiflora "Exmouth"	Magnolia	3m
	Pyrus ussuriensis	Manchurian Pear	2m
	*Quercus robur "*fastigata*"*	Fastigated english oak	3m
	Ulmus parvifolia "Todd"	Chinese Elm	2m
Conservation Areas	*Eucalyptus leucoxylon ssp bellarinensis*	Bellarine Yellow Gum	
	Acacia melanoxylon	Blackwood	
	Eucalyptus viminalis	Manna Gum	
	Eucalyptus camaldulensis	River Red Gum	
	Allocasurina littoralis	Drooping Sheoak	
	Melalueca lanceloata	Moonah	
	Acacia implexa	Lightwood	
	Banksia marginata	Silver Banksia	

APPENDIX 4
COMMUNITY FACILITES DELIVERY STATEMENT

- CoGG, in particular through the Integrated Infrastructure Delivery Plan (IIDP), recognises the importance for healthy community development of the earliest possible provision of community facilities and services. This will be facilitated having regard to the following delivery principles and guidance.
- CoGG through its IIDP working group and the involvement of key developers, will investigate and facilitate opportunities for partnership approaches to support community facility provision objectives.
- Potential funding sources to be considered include:
  - the Armstrong Creek West Precinct Development Contribution Plan (ACWPDCP);
  - the CoGG capital works program;
  - the provision of commercial community facilities by private sector proponents;
  - State and Federal Government grants, with funding potential across a broad range of community facilities and services;
  - non-government and voluntary organisation funding and in-kind works, individually or in partnership with one or more of the above.
- Community facility requirements will change over time with changes in delivery models, responsibilities, competing priorities within and outside ACWP and the ACUGA and actual available funding. The ACWPSP has been designed to be flexible enough to be able to accommodate change over time.
- Opportunities for shared use of clubhouse and pavilion buildings should be facilitated through flexible facility design and management, subject to suitability of the building and compatibility of uses.
- Where facilities are associated with schools, they should be designed to ensure integrated delivery and maximum shared community use.
- The detailed design of the neighbourhood and local activity centres must include a close working relationship between the proponent and CoGG to facilitate the integrated design of the centres including all public facilities and spaces.

APPENDIX 5
PUBLIC OPEN SPACE GUIDELINES

TABLE 11: PUBLIC OPEN SPACE GUIDELINES

Public Open Space Characteristic	Planning and Design Guidelines
All Spaces	• Spaces should be designed and developed to assist in promoting 'sense of place' and community for people of all ages, providing opportunities to meet and interact in appropriate spaces in suitable ways and times. It should provide popular, 'in-demand' active (with planned recreation opportunities) and passive (including for walking, sitting, contemplating, picnicking and such) spaces and landscapes. • Spaces should be well-designed (that is, fit for their intended purpose, useable and attractive - a place where people want to be). • Active recreation spaces and facilities should be designed to facilitate shared use (school and community; different community user-groups). • Spaces should, as appropriate to their functions, contain shade and shelter, 'kick-about' areas and viewing places. • All spaces should be developed to maximise active and passive surveillance from adjoining areas and uses.
Common boundary with habitat conservation areas	• The design of spaces should not prejudice the biodiversity values of habitat conservation areas and wherever possible should integrate with such areas to enhance recreation / conservation experiences / opportunities. • Spaces abutting habitat conservation areas should be designed to protect those areas from unplanned walking / cycling and vehicular use and from pest weed and plant infestation.
Common boundary with roads	• Spaces (other than easements) should have a road frontage to all boundaries except where addressed directly by purpose-designed active-frontage alternative land uses. Public open space that is linear in nature to provide for an infrastructure easement should be developed to include some variety of boundary finish such as feature fencing to the side or rear of lots, abutting court heads and sections of road frontage. • Design of spaces should ensure safety of users in respect of traffic on adjoining roads. • Streetscape planting and paths should complement and integrate with the abutting open space design.

TABLE 11 (Cont.): PUBLIC OPEN SPACE GUIDELINES

Public Open Space Characteristic	Planning and Design Guidelines
Common boundary with residential development	• Spaces should 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 should be well articulated and facilitate passive surveillance with windows, balconies and pedestrian access points. • Rear fencing and blank walls of abutting development should be avoided. A road at the interface between public open space (and particularly those that form habitat conservation areas) and other land uses can be an appropriate transition mechanism between the two uses. • Where fencing is required it should be low height and permeable to facilitate public safety and surveillance. • Landscaping of adjoining development should complement the open space landscape design.
Multi-use recreation and drainage	• Walking / cycling links and other recreation opportunities should be incorporated with the drainage system to maximise land use sustainability. • Pedestrian bridges and boardwalks should be incorporated into the path network to facilitate permeability of neighbourhoods. • Paths, bridges, boardwalks and structures should be designed to be at least above a minimum of the Q10 flood event to the satisfaction of the relevant authority.
Structures	• Structures should be sited above the Q100 flood event and designed to integrate with and complement rather than dominate the landscape. • Structures should be sited to frame spaces or punctuate vistas and should avoid disrupting usable and effective spaces. • Structures should be attractive in design with planned solar orientation, materials choices, design detailing and plant and equipment, maximising total life-cycle sustainability. • Material choices should complement the proposed landscape character.
Public Safety	• Open spaces should 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 spaces and the infrastructure they contain. • Surrounding land uses should provide passive surveillance of adjoining open space and planting design should promote a highly visible public realm.

TABLE 11 (Cont.): **PUBLIC OPEN SPACE GUIDELINES**

Public Open Space Characteristic	Planning and Design Guidelines
Public Safety	• The detailed design of spaces that immediately abut development should complement and enhance the function and safety of that development. • Paths should facilitate clear, direct and easy movement to and from key destinations. • Lighting in open spaces should be encouraged along key walking / cycling links for safe pedestrian movement throughout the network but discourage inappropriate use of main parkland areas after dark. • 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. • Light fittings should be compact fluorescent or similar that emit white light.
Landscape Character	• A predominantly indigenous and Australian native planting theme supporting the biodiversity values of ACWP should characterise the open space network. • Exotic species may be appropriate in locations with the approval of the responsible authority. • Species chosen should be appropriately robust to perform adequately in the local urban environment and micro-climate. • Exotic and Australian native species should be considered to achieve particular planting effects in ACWP such as highlight planting at entries and key focal points as well as avenues. • Advice should be sought from CoGG staff regarding suitability of proposed species before confirming plant schedules.
Other elements and infrastructure	• The design and siting of landscape elements and infrastructure should complement the area. • Infrastructure such as playgrounds, shelters, barbeques, picnic tables, toilets and such, should be clustered in nodes. Park planting themes should enhance and complement these nodes. • Park seating should be provided about every 400 metres along key paths. • Public toilet facilities should be integrated (where appropriate) with pavilions and clubhouses. • Use of bollards and fencing should be functional in the particular circumstances, should not restrict surveillance and should be kept to a minimum. • Where car parking is required within spaces, it should be designed with shade trees to minimise large areas of open, unshaded hard surfaces. • Safe pedestrian access should be integrated within car park designs. • Opportunities should be considered for appropriate urban art.

TABLE 11 (Cont.): PUBLIC OPEN SPACE GUIDELINES

Public Open Space Characteristic	Planning and Design Guidelines
Signs and Furniture	• Parks and sports fields should be signed clearly, if required. • Generally, signs within parks should be kept to a minimum with locations focused on key access or heritage interpretation points and major pedestrian / cycle routes. • Furniture and materials should be co-ordinated and should complement the overall landscape design theme.
Water sensitive urban design	• The design and layout of spaces should maximise water use efficiency, stormwater quality and long term health of vegetation through the use of water sensitive urban design (WSUD) initiatives. • WSUD principles should include excess run-off water from within or where appropriate external to the space, being directed to support watering regimes rather than being diverted to drains. • Warm season grasses should be used within passive reserves and sports fields to minimise recycled, harvested and potable water use. • Opportunities for water harvesting / reuse should be maximised where possible within or abutting public open space.
Structures	• Structures should be sited above the Q100 flood event and designed to integrate with and complement rather than dominate the landscape. • Structures should be sited to frame spaces or punctuate vistas and should avoid disrupting usable and effective spaces. • Structures should be attractive in design with planned solar orientation, materials choices, design detailing and plant and equipment, maximising total life-cycle sustainability. • Material choices should complement the proposed landscape character.
Public Safety	• Open spaces should 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 spaces and the infrastructure they contain. • Surrounding land uses should provide passive surveillance of adjoining open space and planting design should promote a highly visible public realm.

APPENDIX 6
NEIGHBOURHOOD ACTIVITY CENTRE URBAN DESIGN FRAMEWORK GUIDELINES

TABLE 12: NEIGHBOURHOOD ACTIVITY CENTRE URBAN DESIGN FRAMEWORK GUIDELINES

Design Issue	Planning and Design Guidelines
Overall centre design and public realm	• Development should complement and enhance the planned character of the surrounding area as reflected in this ACWPSP and address appropriately the topography and physical features of the site and surrounds. • The detailed design of the centre should ensure a future 'main street' layout and structure that will provide a permeable (within the centre and beyond) network of streets, walking / cycling links and public spaces. • Key view lines into and out of the centre should be incorporated in the detailed planning of the layout and overall design. • Streets, walking / cycling links and public spaces should be installed with lighting that promotes surveillance and enhances public safety. • Building design and construction should include co-ordinated (design, height and materials) verandahs or covered pedestrian ways to provide attractive but functional weather protection. • Urban art should be incorporated into the design of the public realm. • Public toilets should be provided in locations that are safe and accessible. • All public spaces should respond appropriately to the principles of design for mobility access.
Built Form	• The design of each building should contribute to a planned cohesive and legible character for the centre as a whole. • Building design guidelines should be developed that include suggestions on siting, appearance principles, architectural features, heights and materials. • The built form should be aligned with the property boundary of the 'main street'. • Street facades and any exposed side or rear facades should be visually rich and interesting. Extensive building facades without openings, articulation, activity or visual interest, should be avoided. • Plant structures on the roof should be included within roof lines or otherwise hidden.
Building / street interface	• Developments / buildings fronting streets and public spaces should be designed to maximise outward-looking active facades that contribute to the vibrancy and visual attraction of the centre public realm. • The design of buildings and in particular their facades, should respond appropriately to all abutting streets. • Sites in prominent locations should be identified for significant buildings, structures, urban art or a public square or equivalent. • Landscaping of the interface should be of a high but sustainable standard. • 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, which could be achieved, for example, through the use of a substantial volume building located at the corner;

TABLE 12 (Cont.): **NEIGHBOURHOOD ACTIVITY CENTRE URBAN DESIGN FRAMEWORK GUIDELINES**

Public Open Space Characteristic	Planning and Design Guidelines
Overall centre design and public realm	• should not be developed for standard single-storey fast food outlets; • should be developed to have a ground floor retail space component to the 'main street' frontage.
Occupancies and centre activation	• Developments and uses should facilitate convenience, variety and choice through a viable mix of retail, recreation and community facilities. • Ground floor use should address streets and particular the 'main street', to maximise exposure to passing trade, promote active frontages and facilitate social interaction, surveillance and safety and active meeting places. • Shops should have a variety of widths and floorspaces to promote a diversity of occupancies and start-up opportunities. • Shops should have a variety of setbacks to provide articulation in the façade. • A variety of employment and business opportunities should be planned and encouraged (including, retail, non-retail commercial, community and residential uses) to maximise the popularity of the centre and thus promote its activation.
Supermarkets and other large floorplate occupanciesn	• Supermarkets and other large floorplate occupancies should be located and designed to assist with the planned movement of people to activities and destinations within and outside the centre. • Supermarkets and other large floorplate occupancies with street frontages and particularly to the 'main street' should use clear glazing to allow views into and out of the building from the street. (Planning permits for buildings and works should include conditions against the use of white washed windows and excessive window advertising). • The design and siting of supermarkets and other large floorplate occupancies should provide an appropriate response to the entire public realm, including car parking areas, walking / cycling links, streets and other public places. • Supermarkets and other 'anchor' stores should have a key access point that addresses directly (such as via a short access mall through which the supermarket entry is visible clearly from the footpath) the 'main street' so that the use integrates with and promotes activity within the 'main street'. A high proportion of the perimeter of such supermarkets and other stores should be 'veneered' behind speciality shops and other uses. • Secondary access to supermarkets and other stores from car parking areas is appropriate where it does not diminish the role of a key access from the 'main street'. • Internal malls that are primarily to provide access to a supermarket/other large floorplate occupancies may form part of the overall design. Such access malls may have a limited number of internalised shops.

TABLE 12 (Cont.): **NEIGHBOURHOOD ACTIVITY CENTRE URBAN DESIGN FRAMEWORK GUIDELINES**

Public Open Space Characteristic	Planning and Design Guidelines

Movement, access and parking	• The design and siting of supermarkets and other large floorplate occupancies should provide an appropriate response to the entire public realm, including car parking areas, walking / cycling links, streets and other public places.
	• Supermarkets and other 'anchor' stores should have a key access point that addresses directly (such as via a short access mall through which the supermarket entry is visible clearly from the footpath) the 'main street' so that the use integrates with and promotes activity within the 'main street'. A high proportion of the perimeter of such supermarkets and other stores should be 'veneered' behind speciality shops and other uses.
	• Secondary access to supermarkets and other stores from car parking areas is appropriate where it does not diminish the role of a key access from the 'main street'.
	• Internal malls that are primarily to provide access to a supermarket / other large floorplate occupancies may form part of the overall design. Such access malls may have a limited number of internalised shops.
	• Retail and other commercial or community anchors or secondary anchors within the centre should be located to be removed from one another and ideally at opposite ends of the centre, to promote pedestrian traffic that maximises movement along the length of the 'main street'.
	• The detailed design of the centre should incorporate access, movement and linkages principles contained in this ACWPSP.
	• Footpath widths should allow for comfortable movement and access for pedestrian including those with restricted mobility, outdoor seating and eating spaces including any hoarding or temporary enclosure fencing, approved footpath display and sales areas and access to parked vehicles, along the 'main street' frontages. The main street cross-section should be determined as part of the Urban Design Framework.
	• Roads and traffic plans should maximise pedestrian convenience and safety including:
	  ◦ the 'main street' being designed, constructed and managed to give priority to pedestrian movement;
	  ◦ the 'main street' being designed with a speed environment of 30-40 kilometres per hour;
	  ◦ bus stops and taxi bays being in locations that promote the efficient and safe movement of pedestrians to and from key destinations within the centre and waiting at stops.
	• Parking areas should be located to the rear and/or side of street based retail frontages.
	• Car parking areas should be designed to accommodate alternative temporary uses at specified non-peak parking times.
	• Streets should include on-street parallel short-stay parking to encourage easy access and activity.
	• Car parking entry / exit points and areas should be:
	  ◦ limited in accordance with an approved traffic and parking study for the centre;
	  ◦ designed to minimise pedestrian/vehicle (including delivery and service) conflict;

TABLE 12 (Cont.): **NEIGHBOURHOOD ACTIVITY CENTRE URBAN DESIGN FRAMEWORK GUIDELINES**

Public Open Space Characteristic	Planning and Design Guidelines
	• Landscaped appropriately to provide shade and visual relief. • Heavy vehicle movements associated with loading/unloading should be concentrated to the rear and/or side of street based retail frontages. • Bicycle parking facilities should be provided in safe, convenient and accessible locations and in numbers, in accordance with the Scheme to the satisfaction of the responsible authority.
Public transport	• Bus stops (for V-line and local services) should be provided in accessible and safe locations and in accordance with the Department of Transport guidelines. • Convenient and sufficient taxi waiting bays should be provided. • Access to bus stops and taxi bays within the 'main street' should be designed to incorporate the public transport network outlined in Plan 12 Public Transport Network in consultation with the Department of Transport.
Service Areas	• Service areas should be internalised wherever possible. • Where not internalised, the design, location and screening (acoustic and visual) of service areas (such as loading bays, trolley storage and waste holding/collection areas) should minimise amenity impacts and should be removed from the 'main street'. • Service areas should be designed wherever possible to separate manoeuvring and access of heavy delivery and service vehicles from car park access lanes and entry/exit points
Advertising Signage	• Advertising sign areas and locations should be designed to be incorporated in the design of buildings and not added as an afterthought. • Advertising signs should be co-ordinated and minimised for each premises to avoid unnecessary visual clutter and to maximise the architectural merit and theme of the space. • Planning permits for buildings and works should include conditions against the use of white washed windows and excessive window advertising. • Large free-standing pole signs should be minimised preferably to no more than one pole sign for each centre advertising its existence and its traders.

TABLE 12 (Cont.): NEIGHBOURHOOD ACTIVITY CENTRE URBAN DESIGN FRAMEWORK GUIDELINES

Public Open Space Characteristic	Planning and Design Guidelines
Sustainable design	• Natural ventilation of all buildings to reduce the reliance on non-renewable energy for heating and cooling. • Passive solar orientation. • Waste collection points grouped to maximise opportunities for efficient recycling. • Solar energy for water and space heating, electricity generation and internal and external lighting. • Other ways that the design of the built form should reduce greenhouse gas emissions associated with the use of the buildings. • The intentions for use of recycled materials to be incorporated into building design.

APPENDIX 7
ROAD DESIGN AND DELIVERY CHARACTERISTICS

TABLE 13: ROAD DESIGN AND DELIVERY CHARACTERISTICS

Category (refer Section 5.1.1)	Related Cross Section in ACWPSP	Road / Street	Existing Reserve (metres)	Ultimate Reserve (metres)	Access Management Policy	Indicative Vehicles per Day (VPD - maximum)	Traffic Lanes	Dedicated Parking Lanes	Median	Speed Limit (Maximum)	Bus Compatible	Property Access	On Road Cycle Lane	Shared Path (2.5 metres)	Footpath (1.5 metres)	Construction Responsibility *	Funding Responsibility	Trigger for construction
ROADS																		
Existing Arterial	NA	Surf Coast Hwy	40	40	AMP2*	30,000	6	0	Yes	80 (interim) 60/70 (ultimate)	yes	no	yes x 2	No	As required	Roads Corp	Roads Corp	As required
Proposed Arterial	NA	Ring Road 4C	NA	?	AMP2*	17,000	6	0	Yes	80	yes	no	yes x 2	yes (north side)	As required	Roads Corp	Roads Corp	As required
Connector Road	Figure G	Boundary Road (east of Connector C)	21.5-22	31	NA	6,500	2	2	Yes	60	yes	yes	no	yes x 1 (north side) - dedicated 2 way cycle path on south side	yes x 1	Developer	Developer	As abutting development occurs
Connector Road	Figure H	Boundary Road Greenway (west of Connector C)	21.5-23	53	Service road on south side to protect native veg	6,000	2	1 on north side	No	60	yes	yes on north side no on south side	no	shared cycle/pedestrian use of existing road pavement	yes x 1	Developer	Developer	As abutting development occurs
Connector Road with Potential median	Figure J or K	North-south connector A	0	25-27	NA	8,500	2	2	Potential for median in sections for character purposes	60	yes	yes	yes x 2	no	yes x 2	Developer	Developer	As abutting development occurs
Connector Road with Potential median	Figure J or K	North-south connector B	0	25-27	NA	7,200	2	2	Potential for median in sections for character purposes	60	yes	yes	yes x 2	Yes x 1	yes x 1	Developer	Developer	As abutting development occurs
Connector Road with Potential median	Figure J or K	North-south Connector C	0	25-27	NA	7,400	2	2	Potential for median in sections for character purposes	60	yes	yes	yes x 2	yes (on east side)	yes (on west side)	Developer	Developer	As abutting development occurs
Connector Road with Potential median	Figure J or K	Connector D Main Street Extension	0	25-27	NA	7,500	2	2	Potential for median in sections for character purposes	60 (30-40 within NAC)	yes	yes	yes x 2	yes x1	yes x 1	Developer	Developer	As abutting development occurs
Connector Road with Potential median	Figure J or K	North-south Connector E	0	25-27	NA	2,000	2	2	Potential for median in sections for character purposes	60	yes	yes	yes x 2	yes x1	yes x 1	Developer	Developer	As abutting development occurs
Connector Road	10	Whites Road	20	26	NA	6,500	2	2	No	60	yes	yes	yes x 2	no	yes x 2	Developer	Developer	As abutting development occurs
Connector Road	11	Whites road (west of Willams road)	20	20	NA	3,200	2	1	No	60	yes	yes	yes x 2	no	yes x 2	Developer	Developer	As abutting development occurs
Connector Road	12	Feehans Road	20	25	NA	6,000	2	2	No	60	yes	yes	yes x 2	no	yes x 2	Developer	Developer	As abutting development occurs
Key Local Road	5	Key Local Roads**	0	17-18	NA	5,000	2	0	no	50	no	yes	no	no	yes x 2	Developer	Developer	As abutting development occurs
Typical Access Street	6	Typical Access Street**	0	16	NA	<1,000	2	0	no	50	no	yes	no	no	yes x 2	Developer	Developer	As abutting development occurs
Service Road	7A	Service Roads to 4C**	0	10 (to be located within PAO)	NA	<1,000	1	1	no	50	no	yes	no	no	yes x 1	Developer	Developer	As abutting development occurs
Service Road	7B	Service Roads to Surf Coast Hwy**	0	10	NA	<1,000	1	1	no	50	no	yes	no	no	yes x 1	Developer	Developer	As abutting development occurs
Edge Road to Greenways	8	Edge Road to Greenways**	0	13.5	NA	<300	2	0	no	50	no	yes	no	no	yes x 1	Developer	Developer	As abutting development occurs
Edge Road to open space/creek	9	Edge Road to open space/creek**	0	13.5	NA	<301	2	0	no	50	no	yes	no	no	yes x 1	Developer	Developer	As abutting development occurs
Access Lane	NA	Access Lane**	0	6-8	NA	<300	1	0	no	30	no	yes	no	no	no	Developer	Developer	As abutting development occurs

TABLE 13 (cont): ROAD DESIGN AND DELIVERY CHARACTERISTICS

Category (refer Section 5.1.1)	Related Cross Section in ACWPSP	Road / Street	Existing Reserve (metres)	Ultimate Reserve (metres)	Access Management Policy	Indicative Vehicles per Day (VPD - maximum)	Traffic Lanes	Dedicated Parking Lanes	Median	Speed Limit (Maximum)	Bus Compatible	Property Access	On Road Cycle Lane	Shared Path (2.5 metres)	Footpath (1.5 metres)	Construction Responsibility *	Funding Responsibility	Trigger for construction
INTERSECTIONS																		
Signalised	NA	Boundary Road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP^ for interim, Roads Corp for ultimate	As required
Signalised	NA	Key local road south of Boundary Road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP^ for interim, Roads Corp for ultimate	As required
Signalised	NA	Main Street and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP^ for interim, Roads Corp for ultimate	As required
Signalised	NA	Burvilles Road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP^ for interim, Roads Corp for ultimate	As required
Signalised	NA	Whites Road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP^ for interim, Roads Corp for ultimate	As required
Signalised	NA	Feehans Road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP^ for interim, Roads Corp for ultimate	As required
Left in/Left out	NA	Northern key local road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	Developer	As required
Left in/Left out	NA	Southern key local road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	Developer	As required
Signalised	NA	4C Ring Road and Ghazepoore Road	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Roads Corp	Roads Corp	
Signalised	NA	4C Ring Road and Surf Coast Hwy	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Roads Corp	Roads Corp	
Signalised	NA	North-south connector (west) and 4C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Department of Transport	Department of Transport	When connection to 4C required
Signalised	NA	North-south connector (central) and 4C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP	When connection to 4C required
Signalised	NA	North-south connector (east) and 4C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP	When connection to 4C required
Signalised	NA	NAC intersection	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Developer	DCP	As required

NOTES

* Vic Roads Access Management Policies, May 2006 Version 1.02

** includes land and full construction including non-signalised intersections (except as specified in the table), main culverts, lighting and landscaping.

^ Refer to Precinct Infrastructure Plan (Table 5) for apportionment

APPENDIX 8
ROAD CROSS SECTIONS

FIGURE G: BOUNDARY ROAD (EAST OF CONNECTOR C)

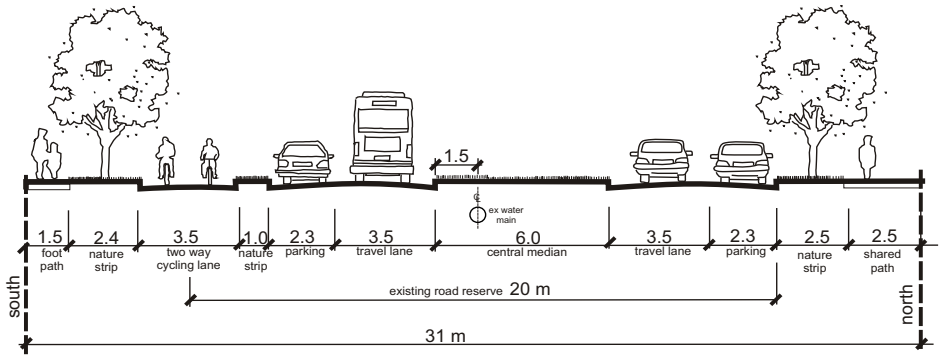


FIGURE H: BOUNDARY ROAD (WEST OF CONNECTOR C)

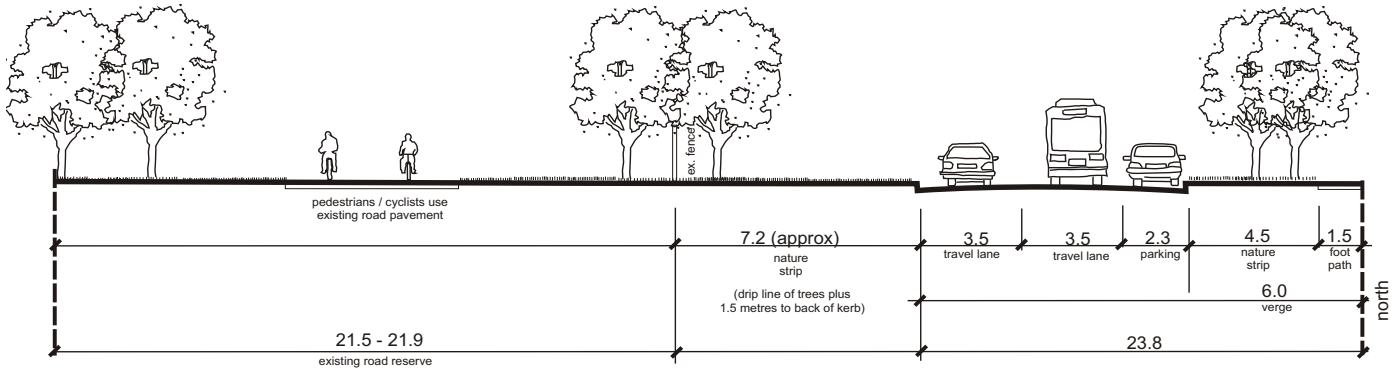


FIGURE I: BOUNDARY ROAD EAST PLAN VIEW

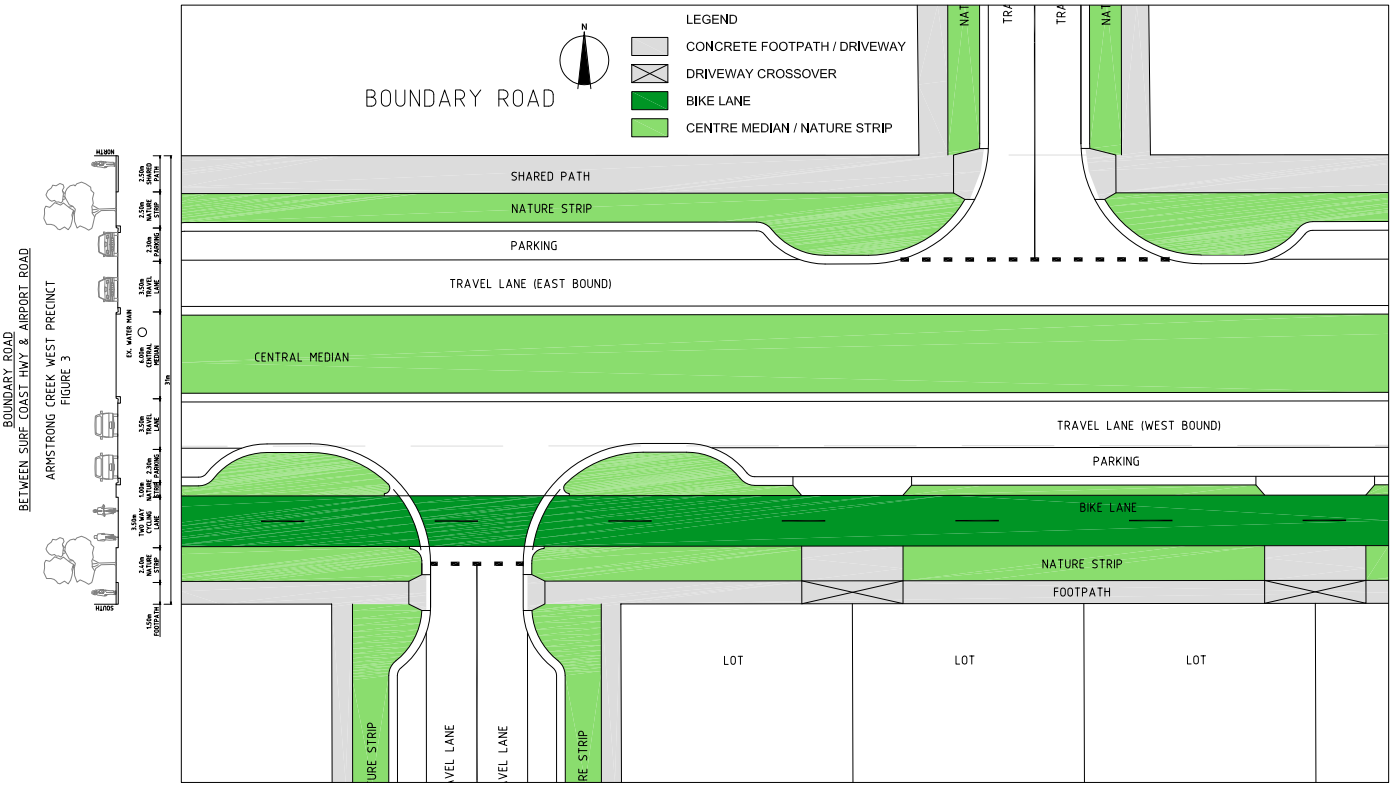


FIGURE J: CONNECTOR ROAD

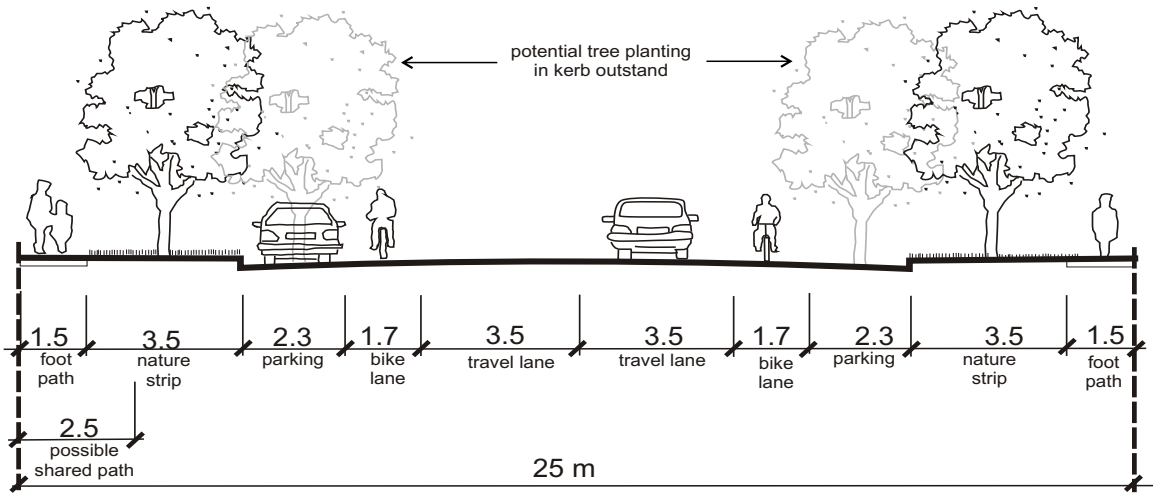
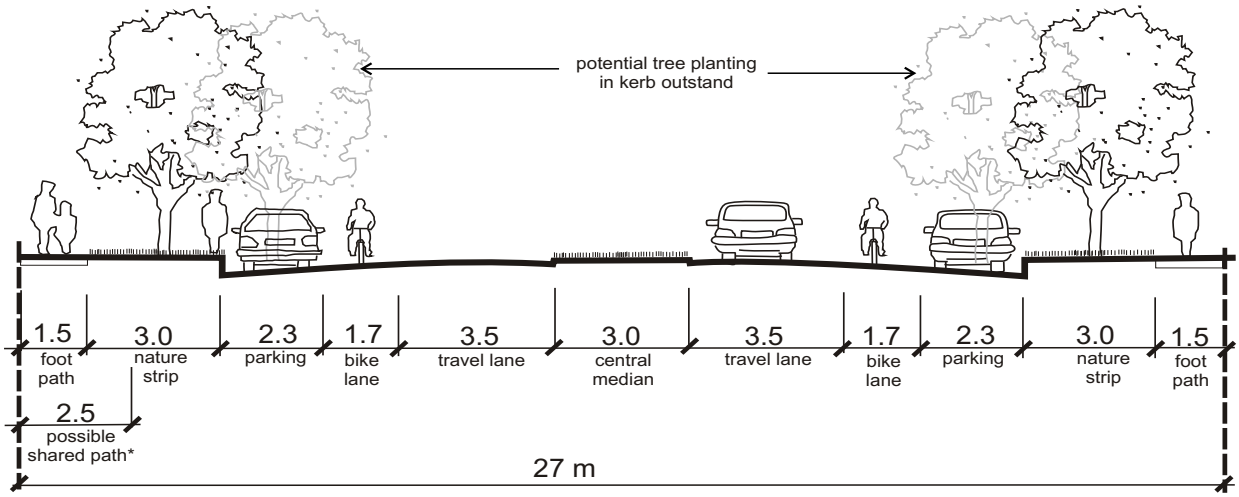
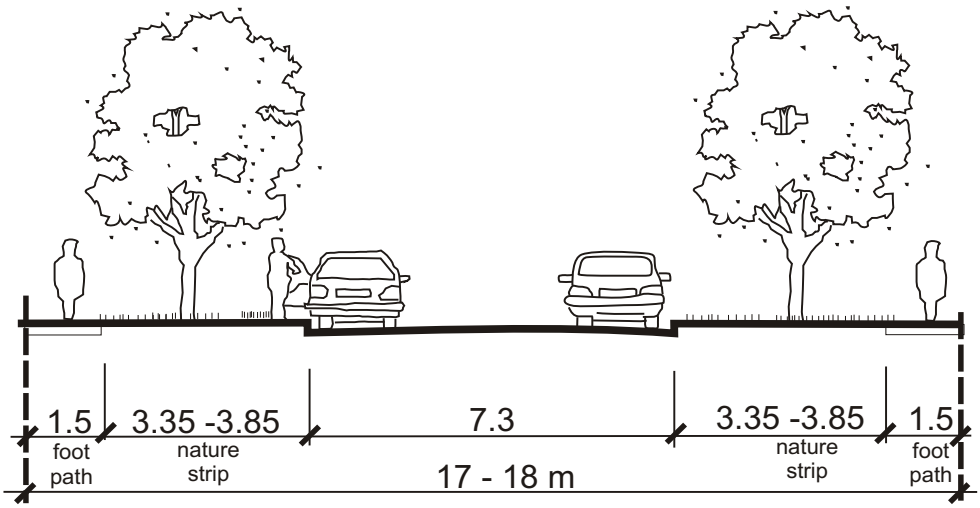


FIGURE K: CONNECTOR ROAD WITH MEDIAN



*Shared path must be combined with indented parking or an extra metre added to road reserve

FIGURE L: ACCESS STREET (KEY LOCAL ROAD)



*Pavement width may increase to respond to site - specific requirements

FIGURE M: TYPICAL ACCESS STREET

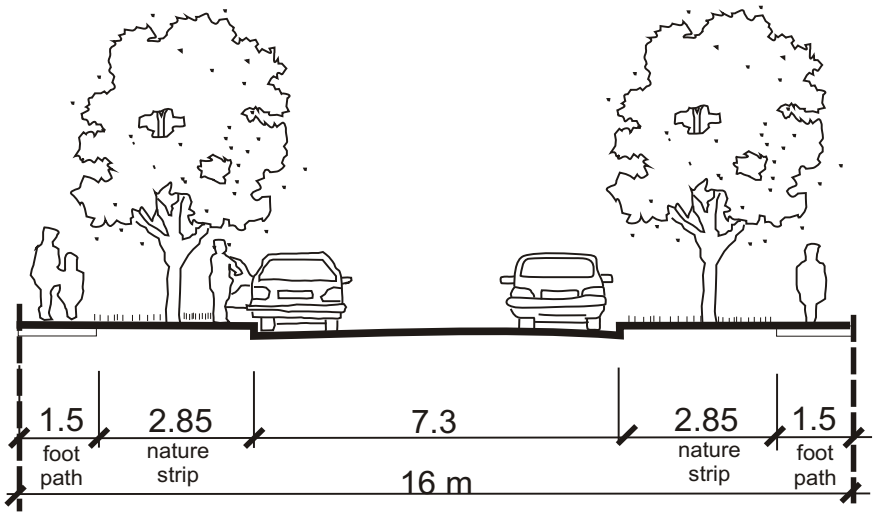


FIGURE N: SERVICE ROAD TO 4C RING ROAD

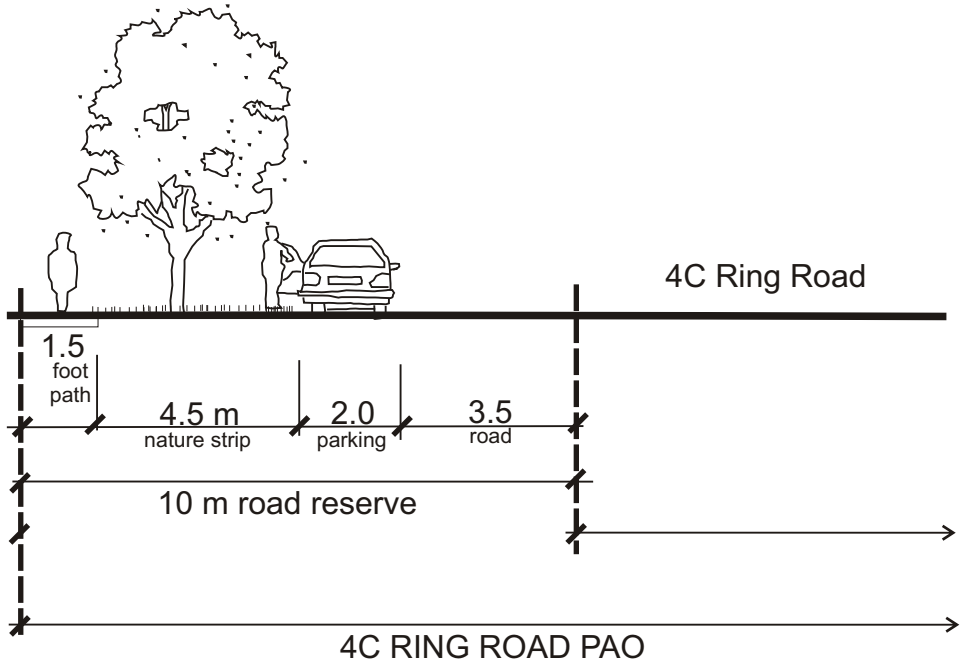


FIGURE O: SERVICE ROAD TO SURF COAST HIGHWAY

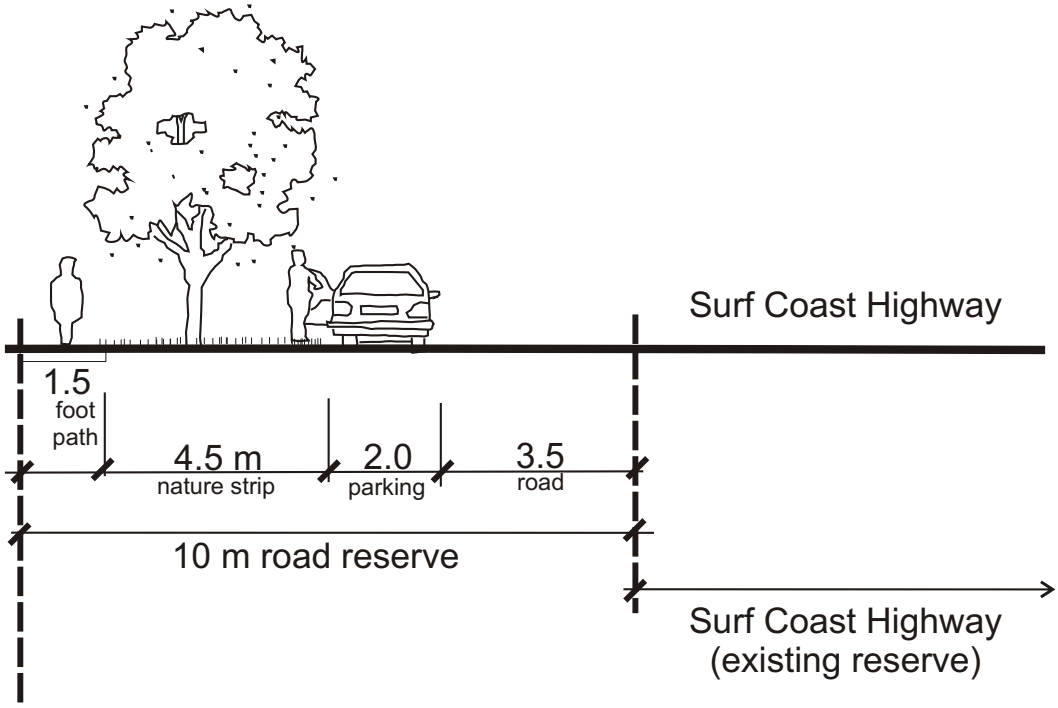


FIGURE P: EDGE ROAD TO GREENWAYS (AIRPORT ROAD/BOUNDARY ROAD)

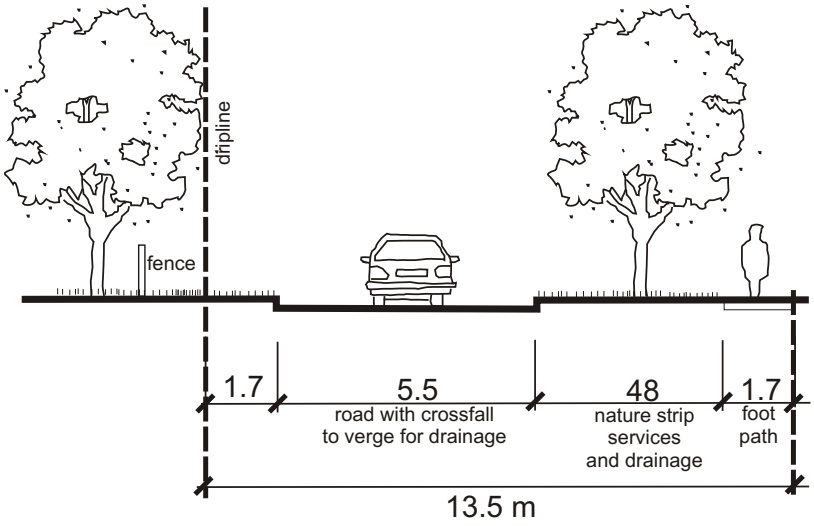


FIGURE Q: EDGE ROAD TO OPEN SPACE

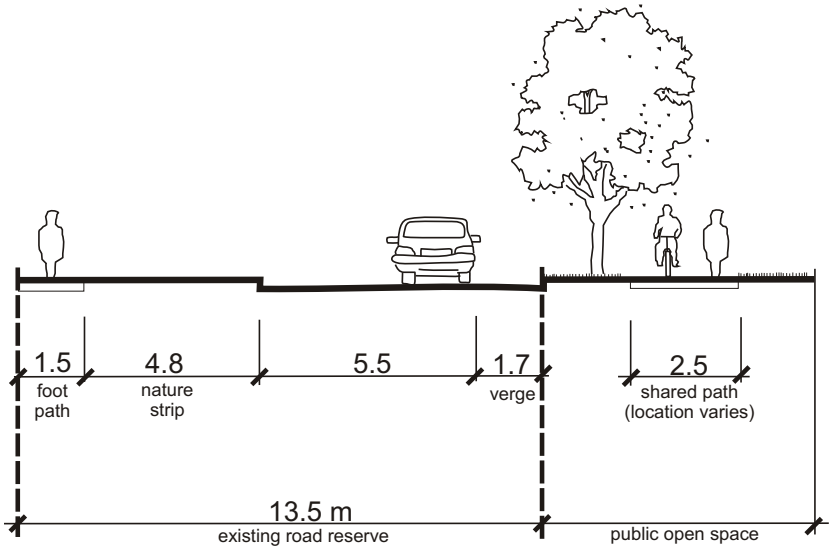


FIGURE R: WHITES ROAD (EAST OF WILLIAMS ROAD)

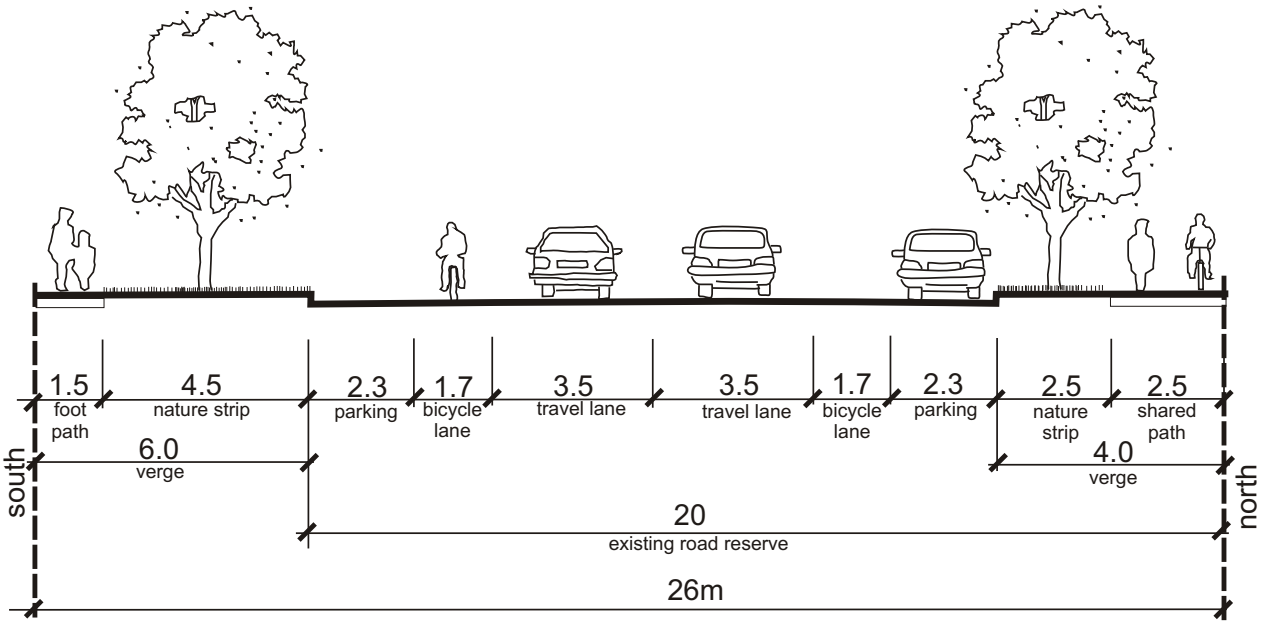


FIGURE S: WHITES ROAD (WEST OF WILLIAMS ROAD)

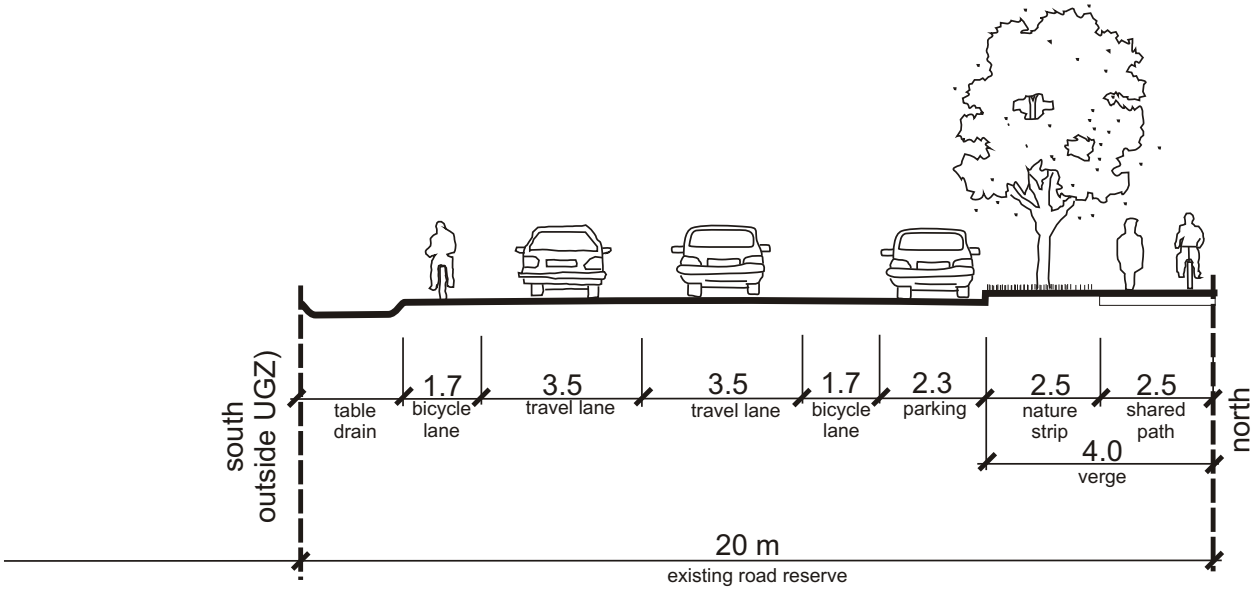
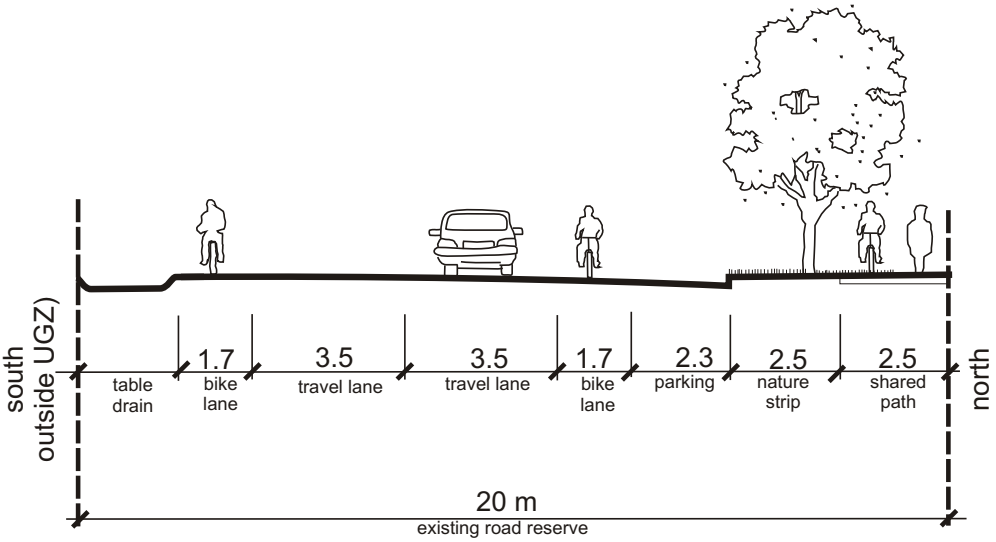


FIGURE T: FEEHANS ROAD

*Road reserve width may increase to respond to adjoining rural land and topography outside UGZ boundary



APPENDIX 9
ACRONYMS AND GLOSSARY

AAV	Aboriginal Affairs Victoria
ABS	Australian Bureau of Statistics
ACWNVPP	Armstrong Creek West Native Vegetation Precinct Plan
ACWP	Armstrong Creek West Precinct
ACWPDCP	Armstrong Creek West Precinct Development Contributions Plan
ACWPSP	Armstrong Creek West Precinct Structure Plan
ACUGA	Armstrong Creek Urban Growth Area
ACUGP	Armstrong Creek Urban Growth Plan Volume 1, May 2010
CCMA	Corangamite Catchment Management Authority
CoGG	City of Greater Geelong
DEECD	Department of Education and Early Childhood Development
EVC	Ecological Vegetation Class
G21	Geelong Region Alliance
GDA	Gross Development Area
IIDP	Armstrong Creek Integrated Infrastructure Delivery Plan, March 2009
LAC	Local Activity Centre
LOT	Large Old Tree
MOT	Medium Old Tree
NAC	Neighbourhood Activity Centre
NDA	Net Developable Area
PPTN	Principal Public Transport Network
PSP	Precinct Structure Plan
RDA	Residential Development Area
SIIDP	Armstrong Creek Social Interagency Infrastructure Delivery Plan, February 2009
SOT	Small Old Tree
VLOT	Very Large Old Tree

Public Open Space Characteristic	Planning and Design Guidelines
Active public open space	Land set aside for the specific purpose of active recreation, including playing fields and courts and their associated buildings and infrastructure.
Affordable Housing	Well-located housing, appropriate to the needs of a given household, where the cost (whether mortgage repayment or rent) is no more than 30 per cent of the income of that household.
Bulk earthworks	The general shaping of land to levels suitable as a base for the construction of ovals and other planned recreation activities.
Co-location	Locating land uses adjoining each other or very nearby to enable complementary programs, activities and services and shared use of resources and facilities.
Community facilities	Infrastructure provided by government or non-government organisations for accommodating a range of community support services, programs and activities. This includes facilities for education and learning (such as childcare, pre-schools, government and non-government primary and secondary schools, universities, adult learning centres), health and community services (such as maternal and child health, hospitals, aged care, doctors, dentists, family and youth services, specialist health services); community (such as civic centres, libraries, neighbourhood houses), arts and culture (such as galleries, museums, performance space), sport, recreation and leisure (such as public open space, swimming pools and other recreation), justice (such as law courts), voluntary and faith (such as places of worship) and emergency services (such as police, fire and ambulance stations).
Development	Includes: a) the construction or exterior alteration or exterior decoration of a building; and b) the demolition or removal of a building or works; and c) the construction or carrying out of works; and d) the subdivision or consolidation of land, including buildings or airspace; and e) the placing or relocation of a building or works on land; and f) the construction or putting up for display of signs or hoardings;
Development Contributions Plan	Document that 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.
Equalisation - unencumbered land for public open space	Each property owner in ACWP must provide land or cash-in-lieu equal to 10 per cent of the net developable area of ACWP, at a pro-rata rate equivalent to the net developable area of that property. Plan 7 and the land use budget in section 3.2 of this ACWPSP provide jointly the relevant details for each property. A property with greater than 10 per cent unencumbered public open space will receive compensation for the value of the land above 10 per cent. A property with less than 10 per cent unencumbered public open space will be required to pay cash-in-lieu equal to the value of the land less than 10 per cent.

Public Open Space Characteristic	Planning and Design Guidelines
Encumbered public open space	Land for public open space that is constrained for development purposes by easements for electricity transmission lines, sewers or gas, by retarding basins or wetlands, by landfill and by habitat conservation areas. This land may be used for a range of activities including walking / cycling trails and active recreation.
Framework Plan	Armstrong Creek Urban Growth Plan - Framework Plan May 2010
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 has its main pedestrian entry.
Gross residential density	Gross residential density means the number of dwellings per hectare of land excluding encumbered land, arterial roads and other roads with four or more lanes.
High Density Housing	Housing with an average density of more than 30 dwellings per net developable hectare.
Job year	The estimated number of jobs over the life of the construction project plus continuing multiplier effects, for the equivalent of one year.
Linear public open space network	Corridors of public open space such as along waterways that link nodes of public open space or other activity areas or community facilities.
Native vegetation precinct plan	A plan relating to native vegetation within ACWP that must be implemented in conjunction with the ACWPSP. The ACWNVPP is incorporated into the Scheme and listed in the schedule to Clause 52.16.
Medium density housing	Housing with an average density of 16 to 30 dwellings per net developable hectare.
Net development area	Total amount of land within ACWP that is made available for development of housing and employment buildings, including lots, local and connector streets. Total ACWP area minus community facilities, schools and educational facilities and open space, arterial roads and encumbered land. Small local parks defined at subdivision stage are included in the net developable area. Net developable area may be expressed in terms of hectare units (that is, net developable hectare (NDHa)).
Net residential area	As for net developable area but excludes neighbourhood activity centres, non-government schools and other existing or permitted non-residential land uses (such as golf course sites). Net residential area may be expressed in terms of hectare units (that is, net residential hectare (NRHa)).
Passive public open space	Public open space that is set aside for parks, gardens, linear corridors, habitat conservation, natural systems, nature reserves, public squares and community gardens that are made available for passive recreation, play and unstructured physical activity including walking, cycling, hiking, revitalisation, contemplation and enjoying nature.
Q10 flood event	In relation to land, is the area that may be flooded by the Barwon River or Armstrong Creek topping their banks in a rainfall event that has a 10 per cent chance statistically of occurring in any year or, looking at it another way, is the area that statistically would be affected by such a flood on a once in 10 years average return interval.
Q100 flood event	In relation to land, is the area that may be flooded by the Barwon River or Armstrong Creek topping their banks in a rainfall event that has a 1 per cent chance statistically of occurring in any year or, looking at it another way, is the area that statistically would be affected by such a flood on a once in 100 years average return interval.

Public Open Space Characteristic	Planning and Design Guidelines
Ramsar	A convention on wetlands, which is a global inter-governmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975.
Scheme	Greater Geelong Planning Scheme
Social Housing	Non-profit housing owned and managed for the primary purpose of meeting social objectives such as affordable rents, responsible management, security of tenure and good location on relation to employment services. The term encompasses public housing and includes housing owned or managed by the community.
Water Sensitive Urban Design	A sustainable water management approach that aims to provide water-quality treatment, flood management to reduce the pollution carried to our waterways and more sustainable urban landscapes. 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 re-use of rain; encouraging on-site treatment to improve water quality and remove pollution and using temporary rainfall storage (retarding basins / wetlands) to reduce the load on drains and improve landscape viability.