



ACT Planning &
Land Authority

Casey Concept Plan

Addendum for Concept Plans

This concept plan was originally adopted as a Guideline under the Territory Plan. These original content of the plans have not been amended since their adoption, but are included in the new Territory Plan and have statutory effect.

Under the *Planning and Development Act 2007*, a concept plan:

- applies the principles and policies in the structure plan, to future urban areas (formerly know as defined land); and
- is a precinct code in the Territory Plan.

A concept plan is used to guide the preparation and assessment of estate development plans (which are development applications), and can also be used to assist in the assessment of development when an area ceases to be a future urban area.

In this Concept Plan, any references to Land use Policies should be read as a reference to zones.

Consistent with the ACT Government's Affordable Housing Action Plan, the Concept Plan is amended to require that a minimum of 15% of all dwellings in the suburb be affordable housing product.

To provide diversity in affordable land and housing products to meet the Government's requirement, the controls for blocks up to 250m² have been incorporated into Residential Zones Development controls, which need to be considered during the subdivision design.

To give effect to the Government's Affordable Housing Action Plan, this Concept Plan is further amended to specify the following locational requirements for Compact Blocks:

- compact blocks must be located opposite high quality open space. If this is not possible, then located within the vicinity of 100m from high quality open space or parkland or alternatively adjacent to a wide verge with high quality landscaping and medium sized street trees;
- if the compact block is accessed from the front, the block should be located on an internal local road and not fronting a main collector road;
- if the compact block is accessed from the rear, the blocks can be located fronting a collector road;
- compact blocks may be suitable for corner blocks and section ends but may also facilitate a narrower section depth.
- compact blocks and the adjacent public realm are required to be integrated so that a high quality streetscape is provided for the residents, which includes on-street parking (as required), street trees, verge crossings, services, footpaths and garbage collection points.

Estate Development Plans prepared under this concept plan must have regard to these requirements. Any amendments to the concept plan other relevant codes within the Territory Plan in order to give effect to these requirements, will be undertaken in accordance with section 96 of the Planning and Development Act 2006. That section requires the Authority to vary the plan once and estate development plan is approved, to remove the Future Urban Area overlay and identify the zones to apply to the land consistent with the estate development plan. Section 96 also enables the Authority to incorporate any other element of the estate development plan that should be ongoing, such as the identification of compact blocks (if necessary).

1. INTRODUCTION

1.1 Background

The Casey Concept Plan and associated studies was commissioned by the ACT Planning and Land Authority (the Authority) in September 2003, to present a Concept Plan for the new suburb of Casey in Gungahlin, ACT.

The Casey Concept Plan will provide a framework for subsequent planning and development of the new suburb. Casey is located in north-west Gungahlin adjacent to the existing suburbs of Nicholls and Ngunnawal, and the future suburbs of Kinlyside, Taylor and Moncrieff, approximately 4kms from the Gungahlin Town Centre and about 13kms from Civic.

The suburb of Casey was identified in the North Gungahlin Structure Plan (NGSP) as part of the future development of Gungahlin. The outline plan for Casey, and principles for development were incorporated into the Territory Plan as part of Variation No.130.

The development area of Casey is under a Defined Land overlay, and the principles and policies for development of the defined land are contained in Variation No.130. It should be noted that the Casey Concept Plan has a number of minor differences from the outline plan contained in the NGSP, however the principles expressed are consistent.

2. CASEY CONCEPT PLAN

2.1 Introduction

This document outlines the main planning objectives and principles on which the Casey Concept Plan is devised, as well as presenting the Casey Concept Plan including the Important Planning Requirements as the basis for future detail planning and development of the suburb.

2.2 Casey Planning Objectives and Principles

2.2.1 Objectives

The following objectives are adopted as part of the Casey Concept Plan to create a suburb that is:

- feasible to build
- safe, attractive and interesting
- inclusive and equitable
- contains streets as places to be rather than spaces to pass through
- integrated with its surroundings including adjacent suburbs and the local environment
- accessible to adjacent schools, jobs, friends and recreational facilities
- an adequate financial return to the Territory.

The key intrinsic site values ascribed to the site that should not be compromised and that would add amenity and economic value to the final development are summarised below:

- the western edge of the visual catchment (ridgeline)
- major tree groupings along the ridge, elevated areas, and along Horse Park Drive
- views to ridgelines from existing public areas (eg. Horse Park Drive east)
- minor gullies and water courses
- retention of all exceptional value trees in public land, and all other suitable significant trees where possible
- use of the natural drainage systems to ensure a sustainable stormwater strategy integrated with the open space system.

2.2.2 Principles

A number of principles are adopted as part of the Casey Concept Plan. These principles are set out below and summarised in Figure 6.

Working with the natural environment

- micro-climate
- hydrology
- aspect
- vegetation
- stands of trees through the site including the linear strip of native vegetation along a former road adjacent to Horse Park Drive (which also has heritage significance).

Retaining the intrinsic values of the site, principally

- the treed skyline / ridge
- the variety of topography
- the ravine
- the combination of distant “escaping” views and local “captured” views
- understanding and responding to the environmental landscape

Understanding and responding to the social landscape

- affordability
- housing mix
- people’s needs
- tenure
- public and private amenity

Optimising connectivity

- public transport routes
- to adjacent suburbs
- within suburb
- road connection to Kinlyside
- road network – edge roads to ridgeline

Creating public open spaces

- linear
- playgrounds
- playing fields

Providing adequate community facilities to meet local and district needs

- needs assessment
- site identification

Maximising dwelling yields within other objectives

- densities
- block sizes

Recognising commercial reality

- retail facilities
- residential market needs
- site servicing
- minimising bushfire risk

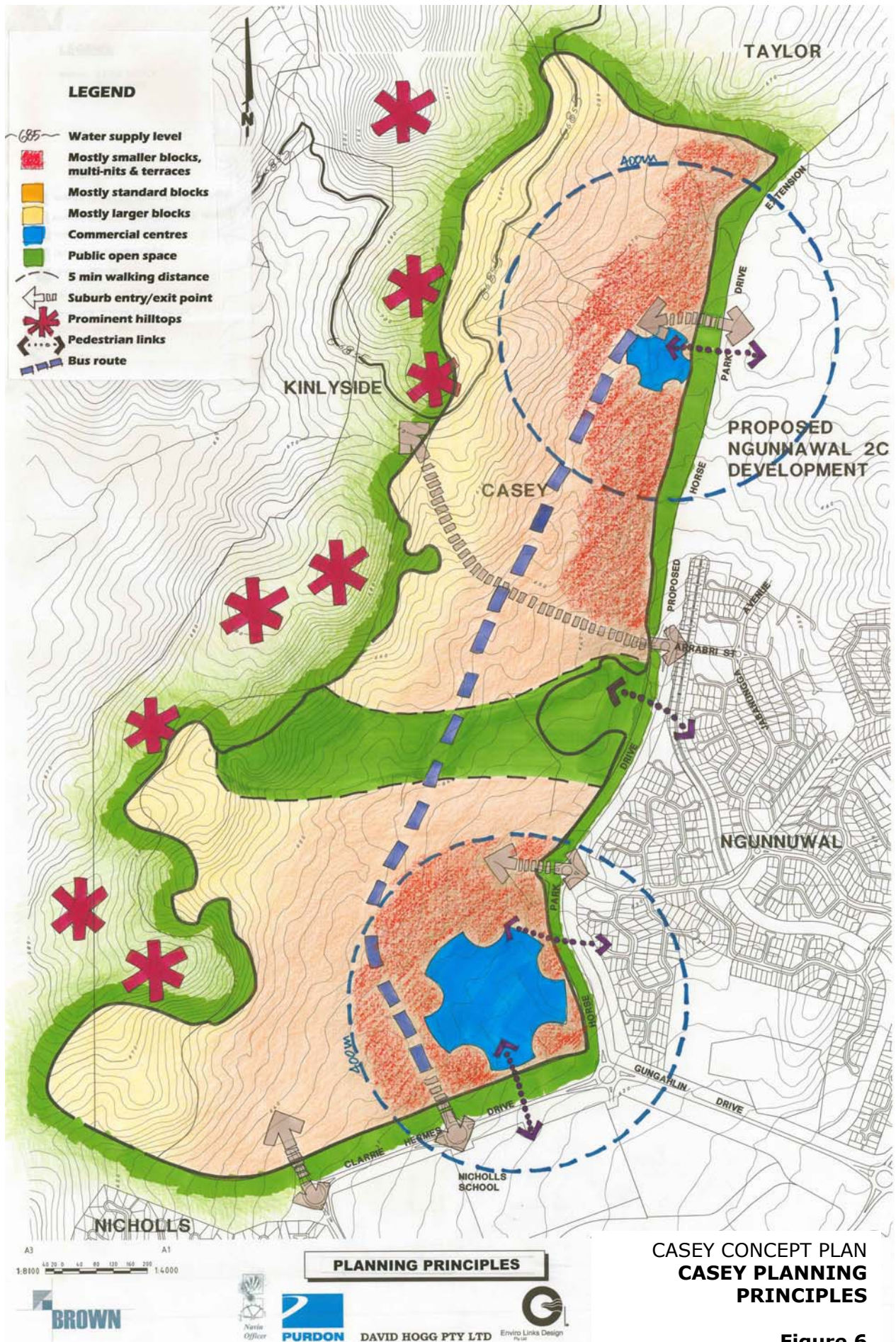


Figure 6

2.3 Planning Assessments

This section summarises some of the key planning considerations used as the basis for development of Concept Plan for Casey.

2.3.1 Physical features

The steeper land on the west of the site has had a major influence on planning for Casey. For example, detailed analysis of the western edge road has been carried out to determine the most suitable arrangement for the road reserves, residential subdivision and open space. In general, no urban development has been proposed on land steeper than 15%, and on land that cannot be serviced by water supply.

The land to the east of the site has general slopes in the range of 0% to 5% and will cause no foreseeable problems to future development. The proposed edge of development is to be outside the 100 year flood level of the creek at the northern boundary of Casey.

A geotechnical study identified two areas of potential geotechnical constraints, as well as a number of springs:

- Uncontrolled Fill. There are two sites where fill has been dumped plus filling for the embankments of the many farm dams.
- Potential Water-Logging. Information based on a previous study suggests that water that emerges from watercourses on the steeper slopes could disappear in the flatter terrain. Hence water-logging could occur in these areas.

There are two sets of stockyards at the site and these could be sites of contamination and will require further investigation.

On balance however, there is no evidence of substantial geotechnical constraints that would adversely affect urban development in Casey.

2.3.2 Ecology

Woodland Conservation

The development of Casey is consistent with the ACT Lowland Woodland Conservation Strategy (Action Plan No. 27) in that it:

- retains woodland along the ridge between Casey and Kinlyside, which will add to the important Kinlyside woodland area;
- maintains the existing ecological connectivity along the ridge between the Harcourt Hill area and the hills to the north of Gungahlin; and
- maintains and connects a selection of the better quality woodland areas within Casey, although the ecological quality of these areas may be limited by bushfire management priorities.

Ecological Connectivity

From the viewpoint of ecological connectivity, the most important areas within or associated with Casey are likely to be along the ridge separating Casey from Kinlyside.

In contrast, the central woodland corridor proposed through Casey itself connects with some small woodland patches on the lower slopes but does not connect further with any major habitat areas. The main value is likely to be for human use, providing access to the ridgeline, and linking also with the band of Red Gums retained adjacent to Horse Park Drive.

2.3.3 Heritage

A heritage study for Casey identifies eighteen recorded Aboriginal sites and three recorded European heritage sites and a number of Potential Archaeological Deposits (PADS) with predicted subsurface archaeological potential.

The study confirmed that no immediate heritage constraints have been identified within the study area other than the protection of the stand of trees along the old road alignment parallel to Horse Park Drive (site HPDH1). Many of the remaining identified Aboriginal sites have been incorporated into urban open space provisions in the Casey Concept Plan.

There is also a requirement for further investigation of sites prior to urban development in Casey, and the preparation of a site/artefact management strategy.

2.3.4 Community Needs

Table 1 lists the type of community facilities that could be provided in Casey. Most of these facilities would normally be located at the Group Centre, as this is the most accessible place within the suburb and the surrounding area. In this location, community facilities would be able to interact with related land uses in a positive way.

The Concept Plan proposes five playground facilities and a possible playing field. There is capacity for other community and recreation facilities (eg half-court basketball sites; tennis courts; scout hall; etc) in the Group Centre, Local Centre and open space areas.

Table 1: Casey Community Facilities

Facility	Land Take	Location
Art / Craft Gallery	0.3ha	Group Centre
Bus Routes		Throughout Suburb
Child Care Centre	0.15 - 0.2ha*	Local Centre
Fitness (Gym, Squash)	0.6ha*	Group Centre (Private)
Indoor Cricket Centre	*	Group Centre (Private)
Licensed Club	*	Group Centre (Private)
Local/Neighbourhood Park		Throughout Suburb
Neighbourhood Oval	3ha	Centre of Suburb
Place of Worship	0.5ha	Group/Local Centre
Post Shop		Group Centre
Pre School	0.35ha	Group Centre
Public Phone		Throughout Suburb
Public Toilets		Group/Local Centre
Scout / Guide Hall		Local Centre
Special Dwellings (as per Territory Plan)	0.1ha	Throughout Suburb
Street Post Box		Throughout Suburb
Swimming Complex (minor)	1.5 - 3ha*	Group Centre (Private)

Source: *Gungahlin Community Facilities Strategy, 1998 (Purdon Associates & Brian Elton & Associates)*

* A combined Club, indoor pool, indoor sports, gym, and child care centre is proposed for Group Centre, based on Kaleen model.

2.4 Casey Concept Plan and Indicative Subdivision Plan

The Concept Plan for Casey is shown in Figure 7. An indicative Subdivision Plan is shown at Figure 8.

Both plans embody the principles and objectives listed above, and are based on the assessment of a range of alternative solutions for both the pattern of residential subdivision and the commercial centres.

2.5 Land Budget

Casey has a gross urban area of approximately 192ha. This total includes an Urban Open Space (UOS) area adjacent to Horse Park Drive, and a 30m band of UOS running adjacent to edge roads along the western and northern boundaries of the site.

Within this boundary, a new suburb is planned comprising a range of major types of land use as shown in Table 2.

Table 2: Casey Concept Plan - Land Budget (indicative)

Land Use	Approx area (Ha)	% total area
Residential	88	46%
Commercial (including surface parking)	7	4%
Urban open space (incl. Inner Asset Protection Zone)	41	21%
Road reservations	56	29%
Total	192	100%

Note: Figures rounded to whole ha.

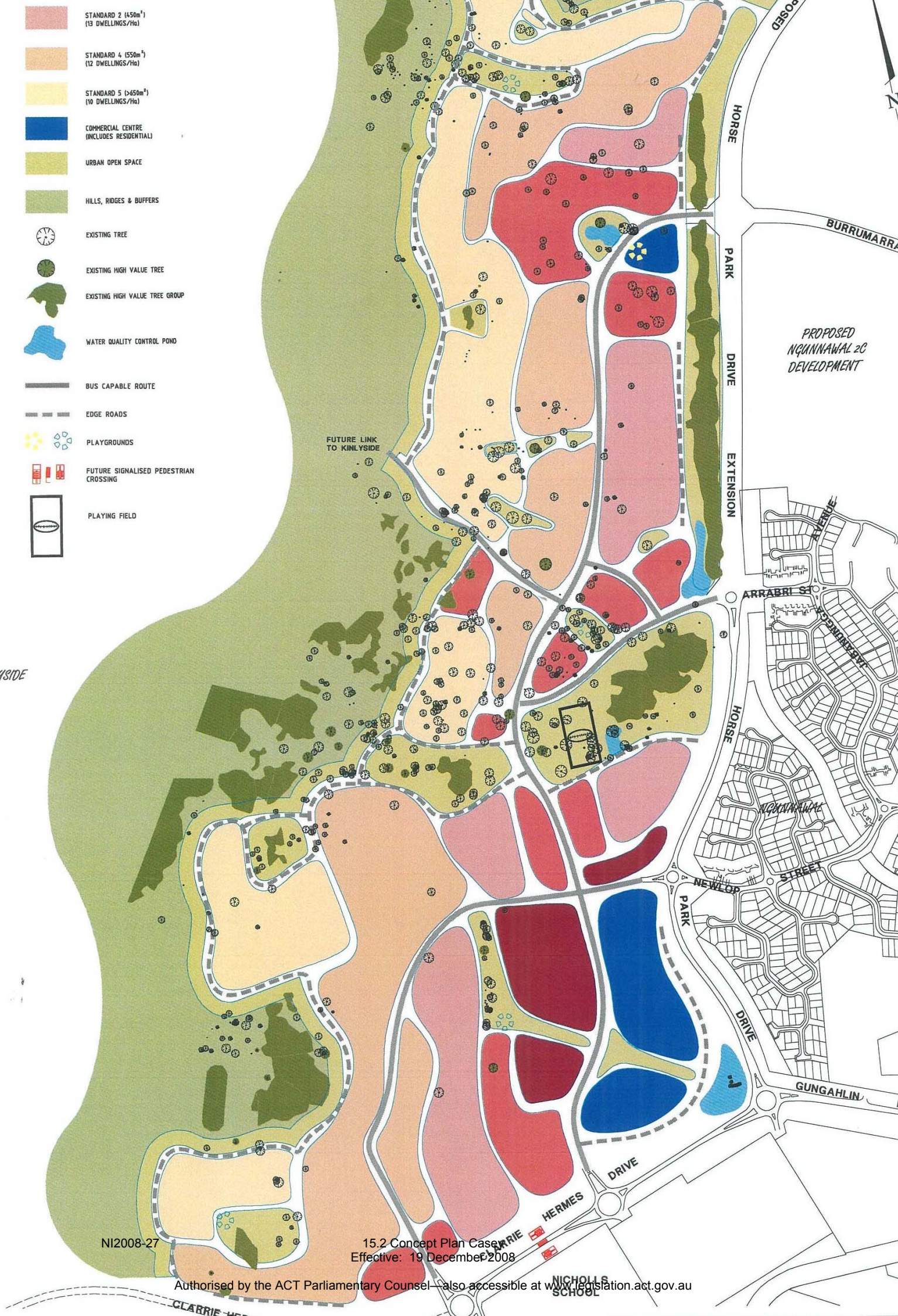
The planning has taken into account the need for a balanced mix of housing types, as well as for two commercial centres that will service local needs and the wider district in the western part of Gungahlin. It has also considered the positive features of the natural landscape and made these an integral part of the overall Concept Plan.

Details of the housing mix and commercial land use are discussed below and are based on the Concept Plan and Indicative Subdivision Plan.

2.6 Residential Areas

The Casey Concept Plan shows a residential block yield of approximately 1,940 dwellings, including about 275 medium density units in the commercial centres. The Concept Plan has the capacity to extend this number if lifestyle changes warrant within the development period of the suburb.

-  STANDARD 2 (450m²) (13 DWELLINGS/Ha)
-  STANDARD 4 (550m²) (12 DWELLINGS/Ha)
-  STANDARD 5 (>650m²) (10 DWELLINGS/Ha)
-  COMMERCIAL CENTRE (INCLUDES RESIDENTIAL)
-  URBAN OPEN SPACE
-  HILLS, RIDGES & BUFFERS
-  EXISTING TREE
-  EXISTING HIGH VALUE TREE
-  EXISTING HIGH VALUE TREE GROUP
-  WATER QUALITY CONTROL POND
-  BUS CAPABLE ROUTE
-  EDGE ROADS
-  PLAYGROUNDS
-  FUTURE SIGNALISED PEDESTRIAN CROSSING
-  PLAYING FIELD

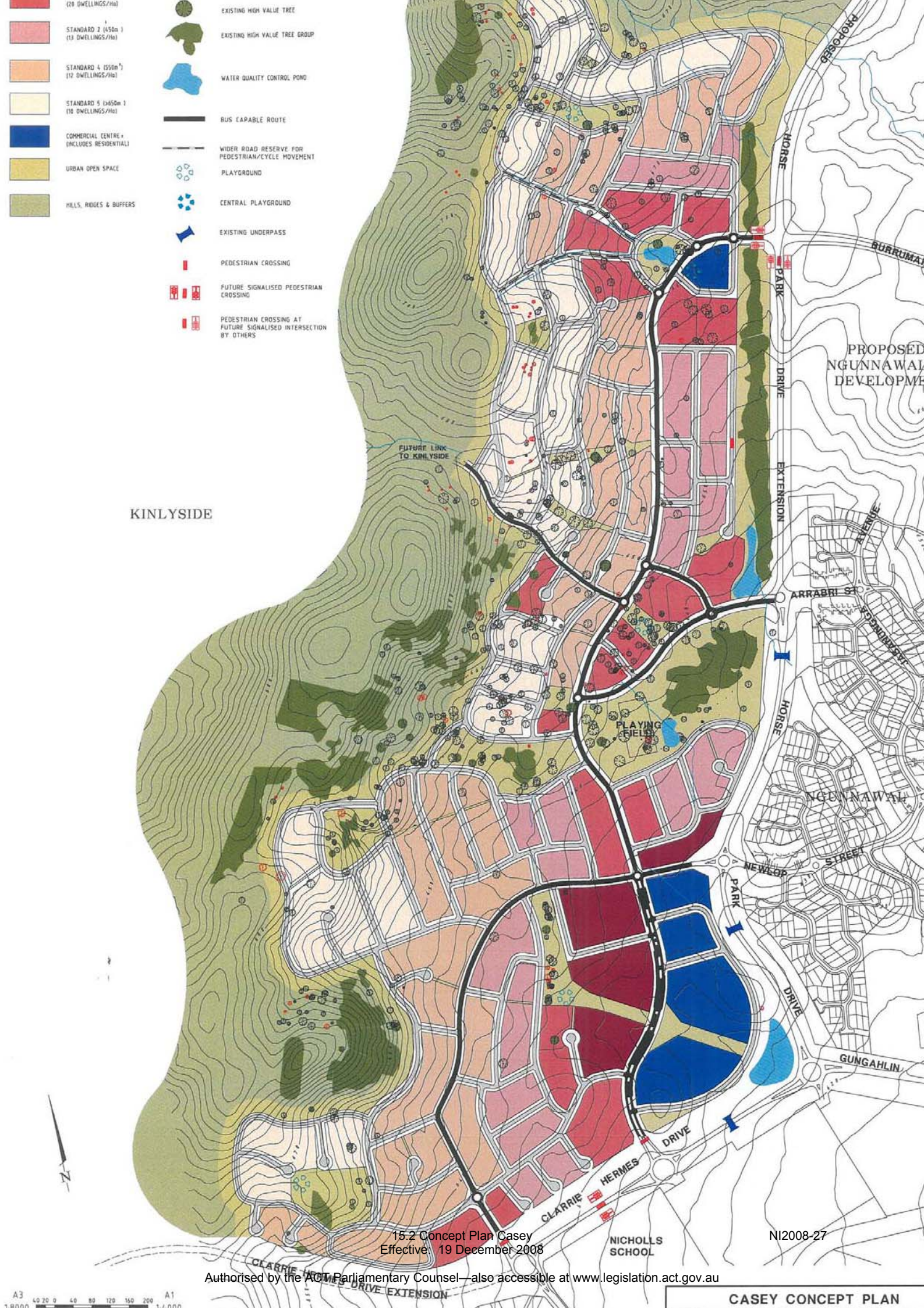


NI2008-27

15.2 Concept Plan Case
Effective: 19 December 2008

Authorised by the ACT Parliamentary Counsel—also accessible at www.legislation.act.gov.au

NICHOLLS SCHOOL



15:2 Concept Plan Casey
Effective: 19 December 2008

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The indicative housing mix by block size and housing type is shown in Table 3.

In summary, about two-thirds of housing comprises individual blocks ranging from an average of 345m² to over 700m². Medium density housing is shown in several forms including terraces with rear lanes, multi-unit single and 2 storey dwellings, and 3 storey apartments. "Shop-top" housing is also envisaged in the commercial centres.

Table 3: Casey Housing Mix

Dwelling Type	Av. Block Size	Number	%
Terraces, multi-units, apartments (incl. Group Centre & Local Centre)*	*Note	722	37%
Individual small blocks	450m ²	373	19%
Individual medium blocks	550m ²	536	28%
Individual large blocks	Over 650m ²	310	16%
TOTAL		1,940	100%

*Note: Site area: Terraces - 210m², multi units - 400m², Apartments - 100m² per unit GFA, @50% plot ratio.

The Indicative Subdivision Plan shows one of many combinations of block mix in response to a combination of planning, environmental and economic objectives. The precise mix of medium density type accommodation to individual land/dwelling packages would depend on the next stage in the detailed design process as well as market conditions at time of release.

There are a number of sites within the Concept Plan for aged care accommodation, particularly within a 400m radius of both commercial centres, and within the Group Centre. An indicative site has been identified to enable market demand to dictate appropriate outcomes closer to the time of land release.

2.7 Commercial Areas

The Casey Concept Plan makes provision for two commercial centres that will serve both local retail needs and the western part of Gungahlin.

In each case, the commercial areas are seen as mixed use areas with a complement of medium density residential accommodation (including aged care housing) in a variety of formats to ensure housing choice. Community facilities are also intended to be located in these centres although individual sites have not been specified at this stage pending further detailed user requirement studies beyond the current Concept Plan stage.

2.7.1 Group Centre

The Casey Group Centre is located in the south-east corner of the site, with access/egress to existing roundabouts on Horse Park Drive and Clarrie Hermes Drive.

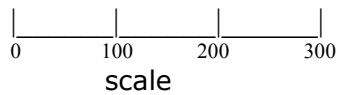
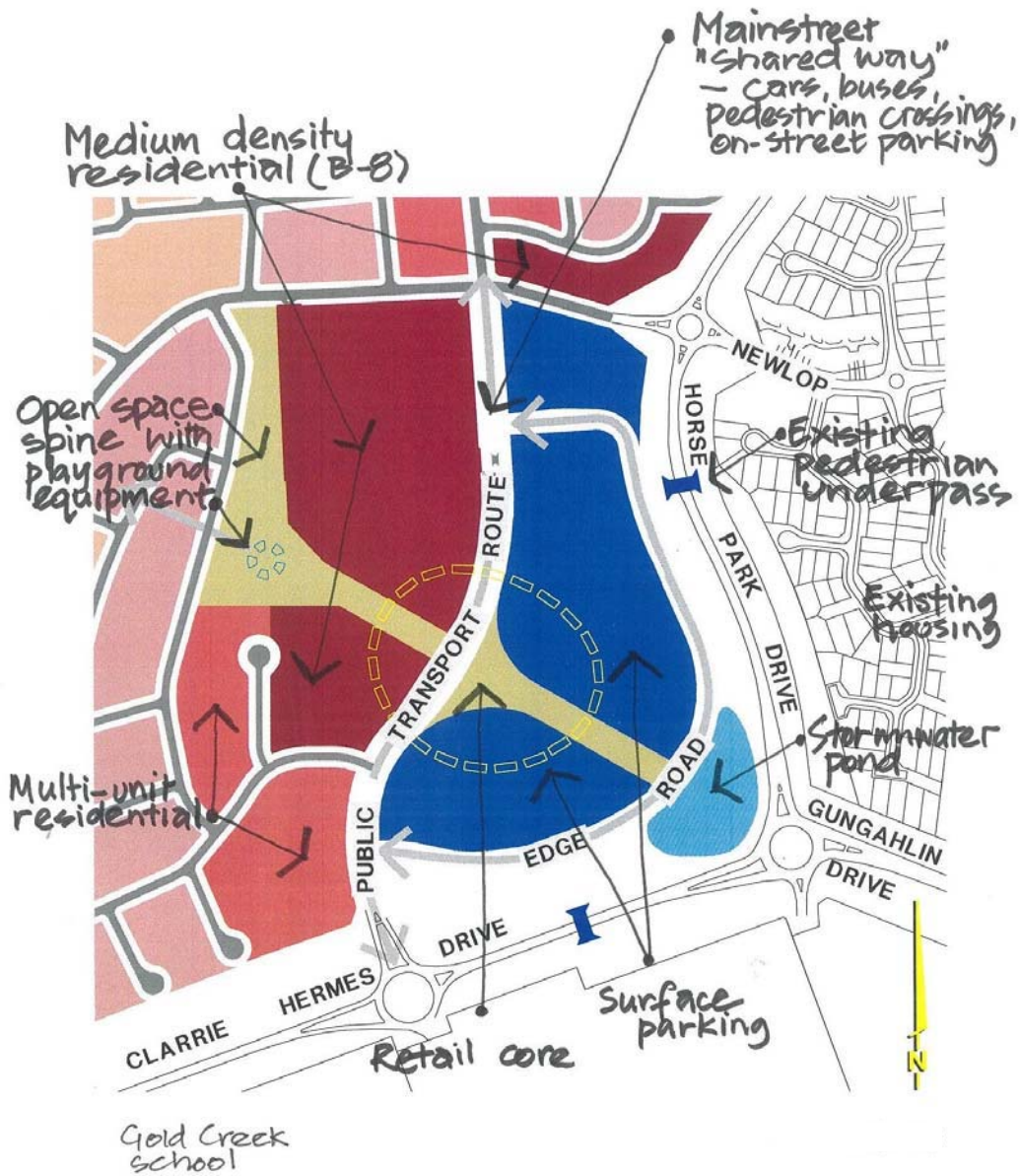
The Group Centre Plan (Figure 9) makes provision for an approximate total site area of 7ha to including a range of land uses including commercial and community space, surface car parks, open space, and other activities.

To maximise the commercial viability and accessibility of the Group Centre, it is recommended that Clarrie Hermes Drive be extended to the Barton Highway as a priority capital works item, prior to or concurrent with the initial release of Casey and the Group Centre.

The main elements in urban design of the Group Centre are as follows:

- eastern and southern gateways from the urban arterials to offer broad vistas of the nearby western ridge
- a "mainstreet" shared-way as the central movement corridor between the Group Centre and adjacent medium density residential precinct that incorporates a bus route as well as kerbside and central island parking to maximise convenience for customer traffic
- street front and arcade shopping, with a retail core clustered around a "central green-node" that could be similar to Green Square in Kingston
- a mixture of enclosed and active street frontage shopping spaces
- creation of an urban open space corridor incorporating an existing group of mature native trees to the west of the Group Centre
- a central landscaped open space pedestrian spine which has a multi-purpose role including:
 - extension of a vista from Gungahlin Drive
 - incorporation of the central "green node"
 - water sensitive design including swale and permanent retarding basin (including water harvesting from hardstand and rooftops)
- accessible off-street surface parking areas
- themed street tree plantings with deciduous species.

The Concept Plan for the Group Centre envisages a number of land use precincts as shown on Figure 9.



CASEY CONCEPT PLAN
Casey Group Centre
Figure 9

Commercial and community space, as well as public parking, is located east of the “mainstreet”, with a medium density residential precinct and urban open space (not part of the Group Centre) on the western side. Whilst this arrangement provides partial separation of land uses, both sides of the street are closely linked in several ways:

- visual proximity
- ease and safety of pedestrian movement
- potential for elements of commercial and community space to be located on the western side, subject to detailed Group Centre design
- a uniting open space corridor running at right angles to the street.

Table 4 shows an indicative land use mix for Casey Group Centre. It should be noted that the total gross floor area at ground level of approximately 5.8ha (including surface parking and open space) is considerably less than the area shown in blue on Figure 9 (approx 7.3ha). The additional space could be taken up by any combination of extra retail space, surface parking and or other land uses including residential.

Table 4: Casey Group Centre Land Use Mix (indicative)

Land use	Area (m ² gfa)	Storeys	Approximate parking spaces required
Retail	10,000 m ²	Ground	500
Commercial	4,000 m ²	Ground; first	150
Community	2,200 m ²	Ground	50
Entertainment	5,000 m ²	Ground; first	300
Open Space	7,000 m ²	Ground	

Note: areas exclude roads and surface car parking

The retail space makes provision for a large supermarket and specialty shops, with the possibility of expansion of this retail space for a minor discount department store if market demand warrants.

A club within a Group Centre is consistent with the Territory Plan. There is provision for a large social club/indoor recreation centre in the core area of the Group Centre sited outside noise limits for adjacent housing in Ngunnawal. New medium density housing adjacent to the Group Centre would be established after the club was developed and would be designed to minimise external noise levels generated by commercial development.

A service station and fast food site is envisaged near the eastern gateway to Horse Park Drive, providing easy access and visibility for this type of use.

The eastern ring road provides access to large surface car parks adjacent to the retail core, as well as making provision for large service vehicles and avoiding the need to use the mainstreet (and adjoining residential areas) for this type of vehicle.

A detailed design for the Group Centre has not been undertaken as part of the Concept Plan but preliminary urban design studies have indicated that the layout shown in Figure 9 is workable, providing direct vehicular access for non-Casey shoppers, as well as an integrated mix of land uses.

Provision for public car parking (on and off street), plus private on-site parking in residential areas, will meet the Authority guidelines and provide a high level of convenience for customers and the proposed land use mix.

All public parking would require street lighting and shade trees designed to Territory specifications as part of the final design.

The precise mix of retail activity would be determined by the market at the time of land release but should include a large supermarket (4,000m²) as well as a range of specialty retailing and services.

The “central green-node” offers a good opportunity for alfresco eating and entertainment. There is ample provision for clubs, places of worship and other community facilities (eg. library; childcare; meeting rooms; scout hall etc.) within the Group Centre.

Development of the Group Centre could be staged over several years. It is expected that a substantial part of the Group Centre could be released for commercial development in the early stages on the overall Casey land release program because of the availability of existing infrastructure and adjacent residential population base within the catchment. The main release should include a major retail outlet (supermarket and specialties) as well as housing and the “mainstreet” infrastructure.

2.7.2 Local Retail Centre

The second and minor commercial centre planned for Casey has been located in the northern part of the suburb.

When developed, the Casey Local Centre would service the convenience retail needs of the immediate area of Casey and Ngunnawal (within, say, a 400m radius). It will also attract some vehicle-based customers travelling along Horse Park Drive due to its location adjacent to the intersection with Burrumarra Avenue, Ngunnawal.

The range of proposed uses for this local centre could include a small supermarket, take-away food, personal services, newsagent, community facilities, gymnasium etc. Total retail space would be limited to about 500m² GFA.

2.8 Infrastructure

2.8.1 Water Supply

The future suburb of Casey will lie within two water supply pressure zones. These zones are:

- The Intermediate Zone fed from the existing Nicholls Reservoir (TWL 685m). This zone can supply land within Casey up to the 655m contour level.
- The High Zone fed from the future Kinlyside Reservoir (TWL 715m). This zone can supply water to land below the 690m contour level.

Water supply can currently be provided to the estate for areas that are within the intermediate water supply zone. In order for development to proceed beyond the 655m contour level further major infrastructure will be required. This factor will help to determine the basic staging arrangement for the estate (Refer to Section 2.13).

In order to supply water to the entire suburb the following infrastructure upgrades would be required:

- Kinlyside Reservoir. This reservoir will supply the high water supply zone area within Casey. The infrastructure proposed consists of two 5ML reservoirs with a TWL of 720m. This will mean increasing the height of the proposed TWL by 10m in order to supply land within Casey up to the 690m contour level. ActewAGL has agreed to this in principle.
- Pump Station. This will be located adjacent to Horse Park Drive and will assist in servicing the Kinlyside Reservoir.

- **Water Supply Mains.** Mains will include an extension of the existing 450mm diameter main located adjacent to Horse Park Drive, to the proposed Pump Station site. From here a 450mm diameter main will branch off to the Kinlyside Reservoir to act as the primary supply main. All other supply mains to the estate will be 225mm diameter.

The water supply network is to include a water main along the entire length of edge roads within the estate. This main will supply the adjacent residents and also supply emergency services vehicles during fire events. The main will need to be sized in order to supply sufficient pressure in a fire event to meet Emergency Services Authority requirements and ActewAGL standards.

2.8.2 Sewer

There will be four main sewer connection points for Casey. These include a 300mm diameter connection at the south-east corner of the site, a 225mm diameter connection to the south of the Horse Park Drive and Newlop Street intersection, and a 300mm diameter connection point at the intersection of Horse Park Drive and Arrabri Street. The fourth connection will service the small area to the north of Casey and will require the construction of a 225mm diameter main that will extend from the existing developed areas of Ngunnawal, and will be positioned within the open space area adjacent to the Ginninderra Creek tributary.

All proposed connection points are of adequate size and have sufficient capacity to service the anticipated peak wet weather flows. No pump stations will be required to service Casey.

2.8.3 Stormwater

Major stormwater infrastructure downstream of the Casey site is currently in place. This includes two major floodways along Horse Park Drive and also Clarrie Hermes Drive. Both these floodways connect to the major floodway along Gungahlin Drive.

The stormwater concept planning for Casey has aimed to introduce a number of large scale Water Sensitive Urban Design initiatives. These range from the introduction of on block initiatives such as rain water tanks to larger catchment details including water quality control ponds and flood attenuation basins.

Water quality control ponds (WQCPs) are proposed at four locations within Casey (as shown on the Casey Concept Plan at Figure 7). These ponds will also be used to attenuate stormwater runoff flows. The sizing and operation of ponds will depend on other stormwater initiatives utilised at the site including on-site rainwater tanks. Preliminary sizing of the ponds has been carried out in accordance with the ACT Design Standards for Urban Infrastructure. In addition to this the actual operating conditions of the ponds have been analysed using XP-Storm. This will be further developed during detailed design at which stage the water quality parameters will also be analysed. Gross Pollutant Traps are provided at the inlet to all WQCPs. The Gross Pollutant Traps will need to treat the Q3 month stormwater runoff event.

A retarding basin is proposed for the future playing field site located within the band of open space towards the centre of the estate. The purpose of this facility is to attenuate runoff from large storm events. The final sizing of the retardation basin will be determined from the future use and siting of the playing field at the detailed design stage.

There is potential for a number of other minor stormwater attenuation basins throughout the estate and the location and sizing of these will depend on the final subdivision layout at the detailed design stage.

Swales are proposed to convey runoff within all open space networks. Where possible it is desirable to provide swales to capture runoff from roads and adjacent properties. Swales will

be provided along the majority of edge roads with the exception of the western edge of the site. This will provide an efficient method of conveying runoff to the existing engineered flood ways along Horse Park Drive and Clarrie Hermes Drive.

The following WSUD initiatives are proposed for the future estate of Casey:

- Gross Pollutant Traps (GPTs) and Water Quality Control Ponds (WQCPs). GPTs and WQCPs improve water quality by reducing the level of nutrients, rubbish and sediment in stormwater runoff.
- Grassed swales. Along with grassed buffer zones these provide significant performance in maintaining water balance and controlling stormwater pollution as well as increasing the efficiency of downstream treatment techniques.
- Runoff from roads to be directed to grassed open spaces where possible.
- Rain water tanks on blocks. Rainwater tanks conserve water and provide significant performance in maintaining water balance as well as reduce stormwater flows.
- Irrigation of public open spaces using water detained in WQCPs. These reduce the requirement for potable water to be used as a source of irrigation.

The estate has potential for Greywater Reuse schemes to be implemented following the release of the ACT's Greywater Reuse Guidelines expected in October 2005.

2.8.4 Other Infrastructure

Provision of the normal utility services including electricity, gas, and telecommunications would be installed within Casey in accordance with agency specifications and design standards. Telstra will be able to provide services to the suburb of Casey. This will be for voice and broad band (ADSL).

At present there is a Telstra network conduit on Clarrie Hermes Drive and part of Horse Park Drive adjacent to Casey. Services may be supplied from the Crace exchange via CMUX units, or a decision made to provide services from an unused building between Hall and Casey. This building was constructed in 1973 as new Hall exchange, but was never used for its intended purpose. This building will be used for services to the suburb of Kinlyside. The Gungahlin exchange will not supply services to Casey as the exchange is not within standard copper transmission limits for voice or ADSL services.

All residential streets will have street lighting to DUS/ActewAGL standard specifications in accordance with the road hierarchy. All internal electricity will be supplied via an underground reticulation network.

Lighting in the commercial centres should be "special" to give character to these areas, and would be subject to detailed design and agreement with relevant agencies.

2.8.5 Road Network

The road network in Casey is planned to address local topographic conditions as well as existing entry/exit points to adjacent urban arterials. The traffic assessment undertaken for the Casey Concept Plan confirms the ability of the road network to accommodate projected residential and commercial traffic flow to and from the suburb and to the Group Centre. The road network in the vicinity of the Group Centre is highly robust for serving a range of future travel demands. Refer Attachment 6.

Figure 13 shows the road hierarchy for the Casey Concept Plan. Figure 14 shows typical edge road sections.

The main features of the road layout are as follows:

- Urban arterial roads forming the eastern and western boundaries of Casey (Horse Park Drive and Clarrie Hermes drive respectively).

- A central collector road running north-south parallel to Horse Park Drive. This would also serve as a bus-capable route and is located to enable nearly all housing to be located within 400m of the bus route. This road reservation should be 27m wide, and include footpaths and street planting on both sides. The road width and projected traffic flows would generally permit direct access/egress to residential properties.

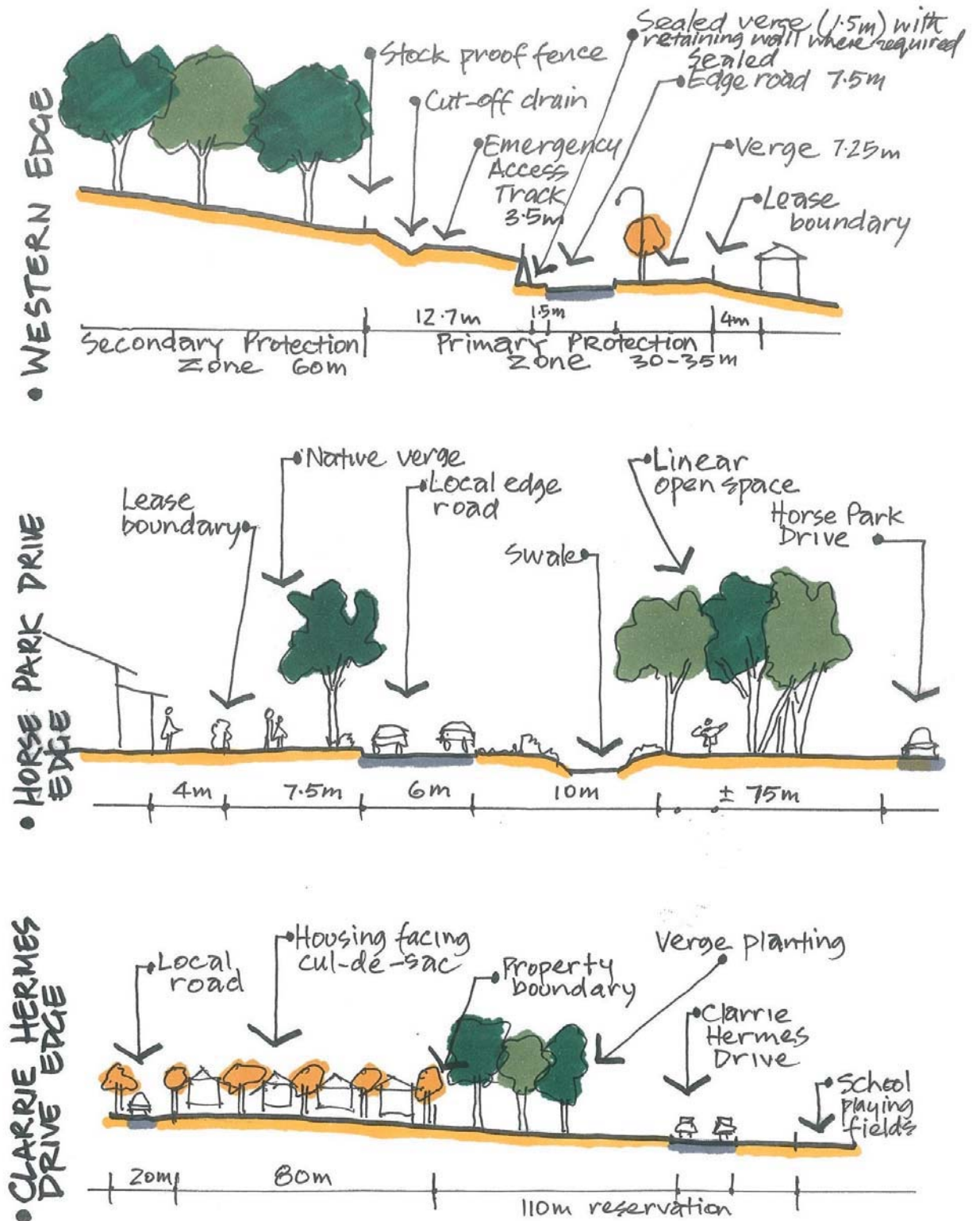
A range of intersection and mid-block treatments are likely to be required to discourage speed and enhance amenity along the central collector road, such as slow points and mini roundabouts. These will need to be designed in detail at the Estate Development Plan stage to suit bus and bicycle movements. In producing a suitable alignment and traffic management features on this road there is a trade-off between increasing bus service efficiencies and discouraging speed. Speed/safety issues are more important on streets on which people live than marginal savings in bus travel times.

- A "mainstreet" in the Group Centre with 30m reservation width to act as a "slow-way" for pedestrians and vehicles, including extensive on-street parking. This road would also accommodate a bus route, street trees and generous paving adjacent to lease boundaries. The amount and speed of traffic in the mainstreet adjacent to the Group Centre will be contained to ensure a pedestrian-friendly environment.
- Edge roads of varying specifications to the western, northern, eastern and southern boundaries of the suburb. These serve different purposes, with the western and northern edges being the most susceptible to bushfire impact. The eastern edge is designed to protect the elongated row of trees facing Horse Park Drive.

The requirements for edge roads have been derived from several sources. These include an independent bushfire risk assessment by Conacher Travers (refer Attachment 1 of the background report), as well as discussions between the Authority and relevant government agencies.

Consistent with the Bushfire Risk Assessment, the appropriate edge road width has been adopted as 7.5m which will allow sufficient room for two emergency services vehicles to pass. The edge road will form part of the necessary Primary Bushfire Protection Zone. Additional requirements include hard standing areas at fire hydrants that will allow emergency services vehicles to park. These will be provided in the form of vehicle parking bays.





CASEY CONCEPT PLAN
 Typical Edge Road Sections
 Figure 14

Traffic analysis

Traffic forecasts based on the Indicative Subdivision Layout for a suburb of approximately 2,000 dwellings are detailed in a traffic report prepared for Casey. The results show that all major intersections would operate at acceptable Levels of Service.

The analysis of the major road network elements and the above traffic forecasts is set out below:

- Clarrie Hermes Drive

Traffic capacity analyses indicate that Clarrie Hermes Drive will need to be designed as a four-lane dual carriageway roadway. The first carriageway connection to Barton Highway should coincide with the opening of the Group Centre. Duplication should follow when justified and capital funds permit.

- Horse Park Drive

Horse Park Drive can generally operate satisfactorily as a two-lane single carriageway road, with the exception of the southern leg between Newlop Street and Clarrie Hermes Drive. The latter section of road will need to be a four-lane dual carriageway roadway to satisfactorily cater for forecast traffic flows. This will be required to cater for 2016 traffic forecasts.

- Central Collector Road

A range of intersection treatments is likely to be required to discourage speed and enhance amenity along the central collector road, such as slow points and mini roundabouts. These will need to be designed to suit bus and bicycle movements. In producing a suitable alignment and traffic management features on this road there is a trade-off between increasing bus service efficiencies and discouraging speed. Speed/safety issues are more important on streets on which people live than marginal savings in bus travel times.

- Kinlyside Access Road

The access road connecting Kinlyside to the western edge of Casey will operate satisfactorily as a two lane road based on the forecast peak hour traffic volumes. At its southern end it is forecast to attract about 470 veh/hr and 590 veh/hr two way peak hour traffic flow in 2016 and 2041 respectively.

Analyses of existing intersections indicated that the Casey access intersections will have adequate capacity to operate satisfactorily as roundabouts with single-lane entries from the local accesses. Two-lane entries are justified on the Clarrie Hermes Drive approaches and the southern section of Horse Park Drive. The existing roundabouts on Clarrie Hermes Drive have been designed to accommodate a four-lane dual carriageway.

The existing roundabout at Arrabri Street/Horse Park Drive will operate satisfactorily in its current configuration. However, the roundabout at Newlop Street/Horse Park Drive will require reconstruction in the longer-term, probably at about the time Horse Park Drive is completed and the Casey Group Centre is opened. The final form of this intersection (signals or roundabout) will depend on the design adopted for the duplication of the southern section of Horse Park Drive. Modification of the existing roundabout is possible if the road is widened on its existing alignment.

For pedestrian and bicycle access to the Casey Group Centre, the future (longer-term) conversion of the roundabout to traffic signals adjacent to the Nicholls playing fields should be considered. A significant proportion of pedestrian/cyclists/traffic will cross at-grade, even though there are nearby underpasses. It will serve users of the playing fields, the nearby high school and local residents.

The proposed future intersection at the junction of Burrumarra Avenue and Horse Park Drive could operate as either a one-lane roundabout or traffic signals. The latter operation would assist pedestrian/cyclist travel to the Casey Local Centre and Ngunnawal Primary School.

2.8.6 Pedestrian and Bicycle Network

Figure 15 shows the main elements of the proposed off-road bicycle and pedestrian network.

Footpaths in all streets (with the exception of culs-de-sac) represent the basic element of the proposed pedestrian/bicycle network. In the case of nominated bus-capable roads, footpaths on both sides of the street are proposed to facilitate convenient and safe access to bus stops.

The internal suburban pedestrian network provides safe access to all urban open spaces, as well as providing easy linkages to the western ridge.

The Concept Plan proposes a dedicated pathway parallel to the road reserve on Horsepark Drive and Clarrie Hermes Drive. This provides for safe travel off-road, and connects with existing underpasses to Ngunnawal and Nicholls, as well as the Group Centre and proposed signalised intersection on Clarrie Hermes Drive to service the Gold Creek School.

In addition to the underpass on Clarrie Hermes Drive, a new signalised pedestrian crossing is proposed as an important facility on Clarrie Hermes Drive between the two existing estate entry roads to facilitate safe road crossing for children walking/cycling from Casey to Gold Creek School.

Pedestrian movement into/from Casey is supported by three existing underpasses (Horse Park Drive and Clarrie Hermes Drive). These connections have been integrated into the Concept Plan street layout and pedestrian/open space network.

To minimise the incidence of random pedestrian movement across Horse Park Drive and improve pedestrian safety, pedestrian refuges are proposed at the main roundabout, to complement the existing pedestrian underpass.

The proposed signalised intersection near the intersection with the Casey Local Centre and Burrumarra Avenue would facilitate safe east-west pedestrian access in this area. There would also be another pedestrian access under the proposed bridge on Horse Park Drive at the northern end of Casey.

2.8.7 Public Transport

The Casey Concept Plan makes provision for a central bus route through the suburb, generally meeting the 400m walking distance criteria for over 95% of all housing in the suburb. Figure 13 refers.

The proposed bus routes through Casey would provide an efficient service via a relatively direct route through the suburb, with a high percentage of all dwellings being located within 400m of a bus stop, and would directly link to the commercial and community facilities at the Group Centre and Local Centre.



2.9 Open Space

The Casey Concept Plan contains a hierarchy of open spaces serving different purposes. Figure 16 refers.

The main elements in the open space network include:

- Non-urban land (hills ridges and buffers) on the western ridge and northern creek line that provide habitat and visual backdrop to Casey. This may in time be available for public recreation as part of a regional open space network in Gungahlin, subject to resolution of land management and tenure.
- Urban open spaces include the central east-west habitat corridor as well as a local playing field and pocket parks.

The total open space network in and adjacent to Casey acts as part of the WSUD Strategy.

Urban Open Space will have a different management regime to the adjacent non-urban land.

The largest areas of Urban Open Space in the Concept Plan are proposed along the northern section of Horse Park Drive and in an east-west central green belt opposite Arrabri Street in Ngunnawal. The rationale for the former is to protect a stand of significant vegetation and to provide a visual screen between housing in Casey and Ngunnawal. This land will also provide opportunities for a important cycle/walking trail and a stormwater swale.

The central greenbelt would retain a large number of high and medium value trees, provides a recreation link between Ngunnawal and the western ridge, and creates an important visual landscape break between urban areas in north and south Casey. Whilst the central greenbelt would be of restricted ecological value as part of the urban area, it would serve as a wildlife corridor. It also provides opportunities for the creation of residential blocks with high amenity value.

The central greenbelt is potentially a bushfire hazard, but the Concept Plan proposes a number of design and management features to substantially reduce the level of risk including: edge roads; road crossings; understorey vegetation management. Section 2.12 refers.

Smaller areas of UOS are also located adjacent to both commercial centres and in other parts of the residential area, based on the objectives of protecting significant tree groups and or creation of pedestrian paths.

Figure 7 shows the location of the Inner Asset Protection Zone (IAPZ) which comprises a 40m band extending from house fronts into the urban open space or adjacent rural land. This IAPZ contains a number of elements that could be used as recreation facilities for walking, cycling, and equestrian activity including:

- footpath
- road
- access trail.



2.10 Trees

A detailed tree survey and assessment was undertaken for the site and identified individual trees and tree groups. Refer Figure 24 below and Attachment 7 of the background report.

Significant Trees classified under the *Tree Protection (Interim Scheme) Act 2001* have been mapped and assessed by value classification, as nominated by Environment ACT.

The urban area of Casey (including the Inner Asset Protection Zone) contains approximately 2,900 trees (as individual specimens and in nominated groups) that qualify under the Tree Protection legislation and which have been identified using EACT criteria as exceptional, high, medium or poor value.

Table 5 shows the distribution of Significant trees in Casey, as classified under *Tree Protection (Interim Scheme) Act 2001*, and the percentage of trees in each category proposed to be retained under the Casey Indicative Subdivision Layout.

Table 5: Casey Tree Survey & Retention

Tree classification	Existing Trees (%)	% Retention in each classification
Exceptional	Less than 0.2%	100% (in UOS or road reserves)
High	55%	99%
Medium	29%	51%
Poor	16%	34%
Total	100%	75%

The Casey Concept Plan and Indicative Subdivision Plan have endeavoured to maximise the number of trees to be retained on site, commensurate with the need to meet residential block yields and other government planning objectives including an efficient pattern of urban development. In particular, it was essential to retain all exceptional trees on public land (in urban open space or road reserves).

The Indicative Subdivision Plan for Casey retains approximately 75% of Significant Trees within the defined Casey urban area (including IAPZ). Figure 24 shows the location of trees to be retained and the trees proposed for removal.

The primary approach to maximise tree retention is to generally place higher value individual trees and medium to high value dense tree groups into open space where appropriate. Development blocks within the estate have generally been planned in areas of sparse tree cover or where poorer trees are located, although some exceptions exist. The net effect is that high percentages of existing trees are retained overall throughout the proposed suburb.

Larger blocks (+650m²) are generally located on the relatively steeper slopes which contain more trees, and there is a greater chance that more medium value trees can be maintained on these blocks because of the greater siting options available.

Most of the medium density residential sites have been located in areas without trees, although one large site on the southern side of the central playing field contains a number of medium value trees that should be retained if possible.

2.11 Indicative Landscape Plan

Figure 17 shows the Casey Indicative Landscape Plan, the main elements of which are discussed below. This plan varies marginally from the Indicative Subdivision Plan (Figure 8) but shows the broad landscape intentions.

The Indicative Landscape Plan for Casey responds to the existing landscape character of the site, natural site features, landform, hydrology, aspect and its context within the city plus the requirements for a new suburb. It seeks to create a place where the landscape will add to the quality of life, is sustainable and will provide habitat for native plants and animals.

The key features of the Indicative Landscape Plan are outlined below.

2.11.1 Open Space and general landscape character

- Retention of the “hills ridges and buffer” land to the west and north of Casey
- Protection of the significant tree cover over much of the site, mainly in urban open spaces and along the upper slopes
- A pattern of street trees recognises and individually characterises elements of the road hierarchy
- Street tree plantings that differentiate the lower slopes from the elevated land by use of exotics at the lower levels and native trees at the higher elevations
- Native street trees along the house side of fire edge roads
- The use of vegetation adjacent to storm water control ponds that facilitates water quality as well as providing attractive but low maintenance landscape features
- Use of the open space corridors and pocket parks as landscape features, as well as pedestrian and bicycle movement corridors.
- Additional tree planting is to be added to open space areas where required to enhance their visual and environmental character. Plantings are to be primarily native with deciduous trees provided in areas that require higher solar access.
- Open space areas are used to utilise natural drainage patterns and to incorporate water features such as wetlands and retention basins. The natural drainage patterns on site have provided opportunities to create attractive landscape features such as the creation of the pond next to the Arrabri Street entrance.
- The network of open spaces, including the western access track in the IFAZ would be available for equestrian activity and will link to other parts of the Gungahlin equestrian network.

2.11.2 Landscaping of Roads, Entries and Intersections

The site has several main entry points, and a road hierarchy that has been accentuated in the indicative landscape plan.

Horse Park Drive and Clarrie Hermes Drive

- Landscaping adjacent to the two key arterial roads along the site boundary is to be primarily native to reflect the overall eucalypt character of the site.
- Additional eucalypt plantings are to be used along the northern end of Horse Park Drive between the Local Centre and proposed bridge to strengthen the existing buffer zone.
- Plantings along Clarrie Hermes Drive are to be native to provide a visual buffer and to enhance the habitat values of this part of the site but will incorporate exotic plantings to the estate entries.

Key Estate entries

- Exotic plantings are to be used at key entry points at the south of the site to act as visual statements to announce the entry to the Casey Estate.

- Eucalypts and other native plants are to be used at the Estate entries towards the northern end of Horse Park Drive in order to reinforce the eucalypt character along that road and the immediate landscape character to these entries.
- Exotic trees are to be used at key nodes to announce major entries and intersections. Trees with straight and clean trunks should be used at intersections to allow clearer visual sightlines.

Major internal roads

- Major internal roads (generally along bus routes) are to have predominantly exotic street trees.
- Natives are to be primarily used adjacent to open space areas, upper slopes and prominent ridgelines.
- Exotics are to be used in more 'urbanised' areas near the Group Centre where solar access, surveillance and colourful deciduous tree changes are more desirable.
- Exotic street trees are to generally be used in the lower parts of the estate.

Minor internal roads

- Minor internal roads are to be a mixture of native and exotic tree species. In narrow roads, tree species will be determined by ACT Design Standards and solar access requirements. The overriding concept is to use native trees adjacent to open space and in the more elevated parts of the estate.

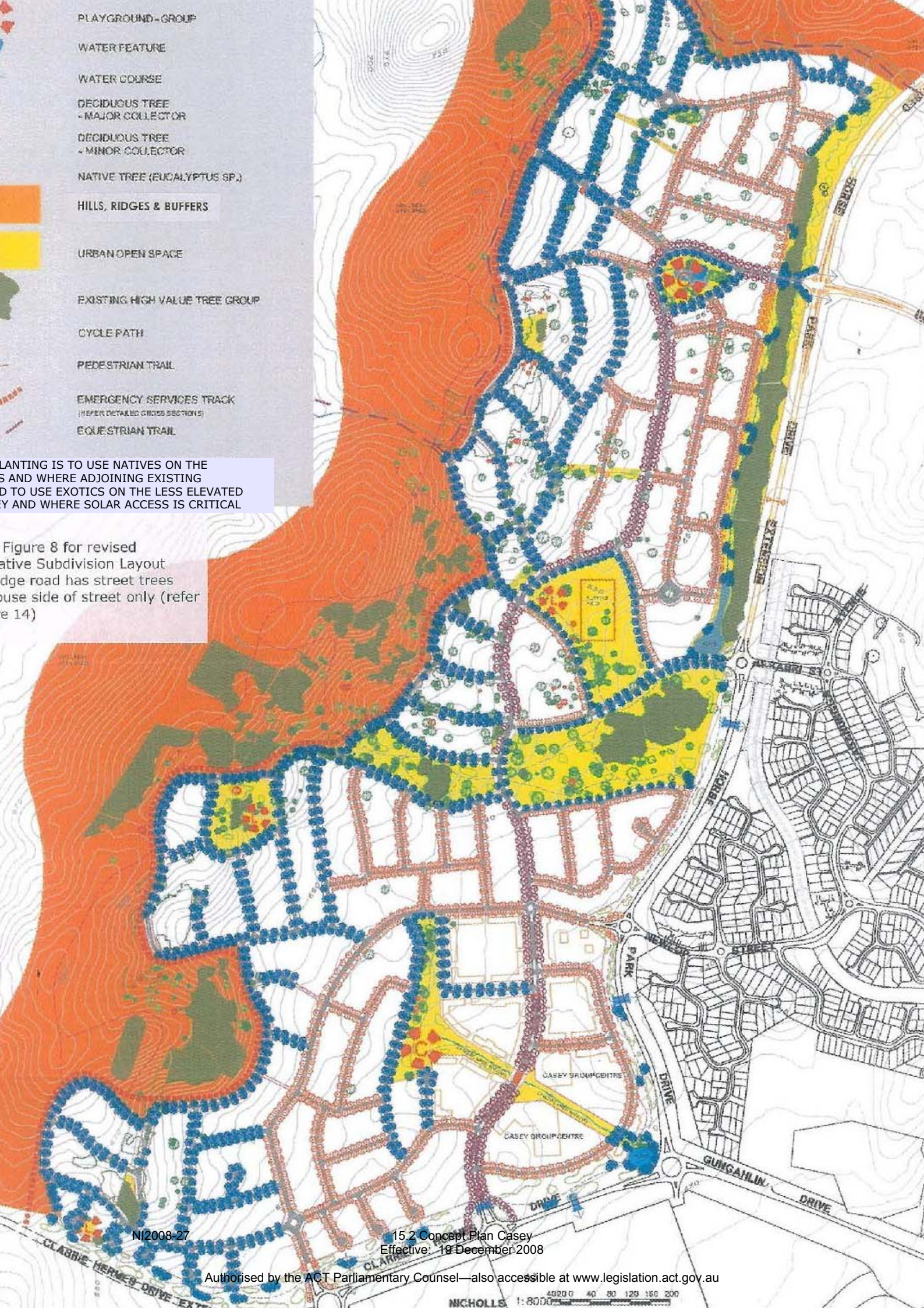
Walkways and Cyclepaths

- A network of pathways is proposed along the perimeter and throughout Casey, providing safe and attractive pedestrian and cycle circulation routes.
- General pedestrian pathways would be provided on all internal streets with larger connections to the Group Centre and recreation areas through landscaped open space corridors.
- It is intended that all minor streets have a footpath along one side of the road except cul-de-sac which will not have a footpath due to less traffic volume. All major roads are to have a footpath on both sides of the road.
- Open space pathways are to be well-lit with tree species selected for their clean, straight trunks and high foliage. Shrubs and mallee species are not recommended. Pathways will be designed for safety with clear sightlines and passive surveillance opportunities.
- Smaller pedestrian corridors will link with large open space and recreation areas. Path networks will extend east and west across the Estate and connect to the walking tracks running north-south along the upper slopes of the site.
- Possible future walking tracks (subject to rural lease tenure) on the upper slopes would provide longer walks along the entire western perimeter and allow for extensive views to surrounding suburbs, and to Mount Majura in the east and Black Mountain in the south.
- A cycle path network will extend through the open space areas of the Estate with a direct north-south route along the eastern Estate perimeter adjacent to Horse Park Drive. The cycleway route allows for a range of views including the existing eucalypt buffer, the Group Centre, grassland and eucalypt open space and the stormwater retention basin recreation area. It will also link to existing networks in Ngunnawal, Nicholls and along Gungahlin Drive.

2.11.3 Group Centre Landscape

Landscaping at the Group Centre is to be primarily exotic with some native species to provide a variety of visual character:

- A strong palette of plants should be chosen to provide visual continuity around the Group Centre, whilst still allowing for variety and flair.



- PLAYGROUND - GROUP
- WATER FEATURE
- WATER COURSE
- DECIDUOUS TREE - MAJOR COLLECTOR
- DECIDUOUS TREE - MINOR COLLECTOR
- NATIVE TREE (EUCALYPTUS SP.)
- HILLS, RIDGES & BUFFERS
- URBAN OPEN SPACE
- EXISTING HIGH VALUE TREE GROUP
- CYCLE PATH
- PEDESTRIAN TRAIL
- EMERGENCY SERVICES TRACK (REFER DETAILED CROSS SECTIONS)
- EQUESTRIAN TRAIL

PLANTING IS TO USE NATIVES ON THE HILLS AND WHERE ADJOINING EXISTING HIGH VALUE TREE GROUPS AND TO USE EXOTICS ON THE LESS ELEVATED URBAN OPEN SPACE AND WHERE SOLAR ACCESS IS CRITICAL

Figure 8 for revised Subdivision Layout. Edge road has street trees house side of street only (refer to page 14)

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- Landscaping, lighting and pathways are to provide attractive and safe access to commercial buildings and carparks during the day and night.
- Accent planting can be used at entrances to commercial buildings, bus routes and parks.
- Trees in carparks are to be consistently placed, clean-stemmed trees with good shade foliage that allow clean sightlines for safety and surveillance.
- Water harvesting of the rainwater collected by the roofs of the commercial buildings in the Group Centre will be used to create an attractive landscape feature linking through to the proposed wetland/pond at the Gungahlin Drive corner of the site.

2.12 Bushfire Risk Assessment

Casey has a perimeter of approximately 7,750m comprising:

- Northern Boundary 500m
- Eastern Boundary 2,000m
- Southern Boundary 1,500m
- Western Boundary 3,750m

An independent Bushfire Risk Assessment (BRA) was carried out on the final Concept Plan and Indicative Subdivision Layout for Casey.

The BRA recommends that urban development proceed within the study area in accordance with specific controls relating to design and land management regimes set out in the BRA, the key elements of which are contained in the Important Planning Requirements at Section 2.14 below.

2.13 Indicative Development Staging

Figure 18 shows the proposed stages for land release in the development of Casey.

These stages are based on the availability of infrastructure and its efficient utilisation. The key factor affecting staging is the provision of water supply, with a two-staged program of delivery. The current extent of development is limited to the 650m contour. In terms of development this will require further water supply infrastructure prior to the commencement of Stage 3. Water supply to the whole of Casey requires construction of the Kinlyside Reservoir and associated bulk supply mains and pumping stations.

Land within Casey that could be developed immediately with regard to available infrastructure includes all areas within Stages 1 and 2. All necessary infrastructure currently exists within close proximity to these areas. Therefore there is potential for areas of land within Casey to be released in the near future while the infrastructure required for further stages is being constructed.

The main Group Centre retail release is proposed at an early stage in the release program because of existing population in the catchment area, but is conditional upon the extension of Clarrie Hermes Drive to the Barton Highway. It is envisaged that the first stage of the Group Centre would include provision of key infrastructure elements including mainstreet, part of the landscaped zone, and some of the surface parking.

The progression of Stages 5 and 6 is also dependent on the extension of Horse Park Drive, as it will provide the major access point for residents within this stage.



Stage 1



Stage 2



Stage 3



Stage 4



Stage 5

 Water supply line

**CASEY CONCEPT PLAN
Indicative Development Staging
Figure 18**

2.14 Important Planning Requirements

This section outlines the important planning requirements derived from the Casey Concept Plan Background Report that shall be used as the framework for subsequent development by the public and or private sector, or incorporated in the auction release documents if the project is to be developed by the private sector.

The Casey Concept Plan presents an overall vision for the development of the new suburb.

Figure 19 shows the Important Planning Requirements for the Casey Concept Plan, and should be read in conjunction with the list of Important Planning Requirements in Table 6.

The Casey Concept Plan Background Report contains further information and details of the concept planning and considerations, and should be referred to for detailed analysis of any requirements of the Concept Plan.

-  Main Entrance to Casey
-  Bus Capable Roads
-  Off-Road Bicycle/Walking path
-  "Mainstreet" Shared Way Road in Group Centre
-  Urban Open Space
-  Edge of Inner Fire Abatement Zone including Urban Open Space & Bicycle/Walking path
-  New Signalled Pedestrian Crossing
-  Group Centre
-  Local Centre
-  Opportunity for Local Playing Field
-  Children's Playground Equipment
-  Stormwater Control Pond
-  Medium Density Housing
-  Residential Care Accommodation Sites



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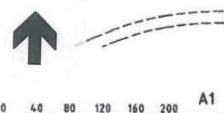
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CASEY CONCEPT









Important Planning Requirements



-  EXISTING HIGH VALUE TREE
-  EXISTING HIGH VALUE TREE GROUP
-  WATER QUALITY CONTROL POND
-  BUS ROUTE
-  PLAYGROUND
-  CENTRAL PLAYGROUND
-  EXISTING UNDERPASS
-  PEDESTRIAN CROSSING
-  FUTURE SIGNALISED PEDESTRIAN CROSSING
-  PEDESTRIAN CROSSING AT FUTURE SIGNALISED INTERSECTION BY OTHERS

 URBAN OPEN SPACE



- LEGEND**
-  TREE ACT TREE - WITH VALUE RANK OF EX, HIGH, MEDIUM OR POOR.
 -  INDIVIDUAL TREE OR TREE GROUP CANOPY
 -  EXCEPTIONAL VALUE TREE (TREE ACT SIZE)
 -  HIGH VALUE TREE (TREE ACT SIZE)
 -  MEDIUM VALUE TREE (TREE ACT SIZE)
 -  POOR VALUE TREE (TREE ACT SIZE)
 -  NON TREE ACT TREE - LOW VALUE TREE (TREE ACT SIZE)
 -  EXISTING TREE TO BE REMOVED

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CASEY CONCEPT PLAN
TREE RETENTION PLAN

FIGURE 24

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11/11/08

Table 6: Important Planning Requirements for Casey Residential Areas

<p>1. Bushfire Risk Assessment</p>	<p>Based on the initial Bushfire Risk Assessment (BRA) carried out as part of the concept plan (refer Attachment 1 of the background report), the following requirements are recommended to be applied to the development of Casey.</p> <ul style="list-style-type: none"> • An Inner Asset Protection Zone (IPAZ) of 30m minimum width measured from the front building setback on blocks abutting the fire edge road to the edge of the urban land use area where shown in the BRA. This zone is to contain the fire edge road, possible fire trail, cut-off drains, rural type fence to delineate the edge of the zone, vegetation and landscaping to specified minimum design and management standards. • An Outer Asset Protection Zone (OAPZ) of 60m minimum width measured from the outer edge of the IPAZ where shown in the BRA. This zone is to contain an alternative position for a possible fire trail and vegetation to specified minimum design and management standards. • Level 1 Building Code of Australia building requirement for the first 100m measured from the front building setback on blocks abutting the fire edge road into the suburb where shown in the BRA. <p>A further independent Bushfire Risk Assessment shall be undertaken at the preparation of the Estate Development Plan/Implementation Plan or detail design stage and the outcomes incorporated into the design to the satisfaction of the ACT Planning and Land Authority, the Fire Management Unit of DUS and the Emergency Services Authority and shall incorporate any new policies prepared by the Territory for fire management of new estates.</p>
<p>2. Road Network</p>	<p>Road Hierarchy All roads in the following categories must be provided and their horizontal alignments shall be as located on Figure 13:</p> <ul style="list-style-type: none"> ▪ Arterial Roads (Horse Park Drive, Clarrie Hermes Drive) ▪ Main Collector Roads (major road link through the estate will run from Horse Park Drive as an extension of Burrumarra Avenue and extend to Clarrie Hermes Drive at the southern end of Casey) ▪ Minor Collector for south-western portion from Clarrie Hermes Drive/Kelleway Avenue intersection to main collector <p>Road connections</p> <ul style="list-style-type: none"> ▪ connections to Horse Park Drive shall be made only at the three locations shown on Figure 13 ▪ connections to Clarrie Hermes Drive shall be made only at the two locations shown on Figure 13

	<ul style="list-style-type: none"> ▪ connection to Kinlyside across the western ridgeline shall be allowed for generally in the location shown on Figure 7 ▪ A further access point is required at the intersection between the future extension of Horse Park Drive and Burrumarra Avenue in Ngunnawal. This access point will involve a signalised intersection, and is to be located to minimise disturbance to an existing stand of significant trees. <p>Edge Roads Bushfire Edge Roads within the IAPZ shall be designed to accommodate emergency services vehicles for fire fighting purposes, and meet the following Emergency Services Authority criteria:</p> <ul style="list-style-type: none"> ▪ a minimum un-obstructed sealed road width of 7.5m to allow for passing of two fire trucks ▪ 7.5m verge adjacent to housing, with street planting on the house side only ▪ a concrete edge incorporating gutter with minimum 2m width on the fire edge of the road ▪ any areas to be travelled by fire truck shall be of sufficient strength to accommodate a 15 tonne load and allow for turning circles of a 12.5m truck ▪ access to hydrants, including parking of emergency services vehicles, shall be provided and may include suitable access points to emergency services tracks, lay-by parking, and hardstand or reinforced ground areas for tanker filling at hydrants.
<p>3. Public Transport</p>	<p>Designated bus routes shall be provided within Casey such that 90% of all dwellings are within 400 metres walking distance of a bus stop. Bus routes shall:</p> <ul style="list-style-type: none"> ▪ use Collector Roads only ▪ provide access to the Local Centre and Group Centre in Casey and commuter routes to Gungahlin Town Centre and Civic ▪ provide access for school children to schools in Ngunnawal and Nicholls and other education facilities <p>The Group Centre shall make provision for public transport services to provide convenient and safe access to group centre facilities, including an adequate number of bus stops in accordance with ACTION specifications.</p>
<p>4. Pedestrian and Cycle Network</p>	<p>An off-road pedestrian/bicycle path network shall be provided as part of the Casey estate generally consistent with the Casey Concept Plan and Figure 15. This network shall provide safe connection to all urban open spaces within Casey and the adjacent non-urban open space where achievable.</p> <p>Appropriate pedestrian paths shall be provided on all streets except for lower order culs-de-sac and access lanes.</p> <p>The pedestrian network shall also connect to existing underpasses across Horse Park Drive and Clarrie Hermes Drive.</p> <p>A new signalised intersection shall be provided at the intersection of Horse Park drive/Burrammurra Street (Ngunnawal) that allows for safe</p>

	<p>pedestrian access. A signalised pedestrian crossing shall be provided on Clarrie Hermes Drive, between the intersection with Kelleway Avenue and the entry to the playing fields, to create safe access between suburbs including access to Gold Creek High School.</p> <p>To assist safe access to schools and other recreation networks, provision shall be made for an additional pedestrian underpass under Horse Park Drive extension at Ginninderra Creek Tributary crossing to the north of Casey.</p>												
<p>5. Residential Dwelling Yields</p>	<p>Housing types and indicative dwelling numbers:</p> <table border="1" data-bbox="587 589 1353 1028"> <thead> <tr> <th>Housing Type</th> <th>Block Size</th> <th>Minimum total dwelling type</th> </tr> </thead> <tbody> <tr> <td>Detached (low density)</td> <td>Min 600m²; Av 650m²</td> <td>310</td> </tr> <tr> <td>Detached (low density)</td> <td>Min 350m² Av 450m²</td> <td>375</td> </tr> <tr> <td>Medium density sites: ▪ Terraces ▪ Multi-units ▪ Group Centre apartments</td> <td>210m² 400m²</td> <td>720</td> </tr> </tbody> </table> <p>Residential development within and surrounding the Group Centre and Local Centre precincts shall be of a higher density with provision for a range of housing comprising two and three storey apartments, townhouses and/or terraces. These areas are to be in a Residential Land Use Policy with a B8 or B9 Area Specific Policy under the Territory Plan, permitting two-, three- and four-storey development for intensive residential uses with some small scale mixed-use commercial development.</p>	Housing Type	Block Size	Minimum total dwelling type	Detached (low density)	Min 600m ² ; Av 650m ²	310	Detached (low density)	Min 350m ² Av 450m ²	375	Medium density sites: ▪ Terraces ▪ Multi-units ▪ Group Centre apartments	210m ² 400m ²	720
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<p>6. Urban Open Space</p>	<p>Public urban open spaces shall be provided within Casey in the locations and amounts as generally shown in Figure 17, and include:</p> <ul style="list-style-type: none"> ▪ Two large playground sites ▪ Three small playground sites ▪ A central open space area capable of containing sufficient space to accommodate a formal rugby/soccer playing field ▪ Visually important groups of agreed significant trees identified for retention, and single existing trees assessed as being exceptional or high as identified on the draft Tree Management Plan <p>The Group Centre shall make provision for the following types of public open space:</p> <ul style="list-style-type: none"> ▪ A public open space node within the core of the commercial area. ▪ An open landscaped corridor forming a visual axis from Gungahlin Drive into the Group centre, and connecting with the public open space node. The extension of this corridor should visually continue to the mature woodland open space on the western side of the Group Centre. 												

	<ul style="list-style-type: none"> ▪ A zone of urban open space along the outer (fire) side of the northern and western edge road that is included in the Inner Fire Abatement Zone
7. Significant Trees	<p>All trees nominated for retention in the draft Tree Management Plan (TMP) included in the Tree Assessment attached to the Background Report shall be retained in urban open space, road reserves or within large blocks. Specifically, trees that are of High or Exceptional value shall be retained within urban open space or road reserves, and trees that are of medium quality may be retained within large blocks.</p>
8. Landscape Treatments	<p>Tree plantings on arterial roads shall be native species. Street trees on collector and local streets in the lower part of the site shall be predominantly exotic species generally arranged in a formal manner (equi-distant from kerbs and equally spaced).</p> <p>Street trees on edge roads and streets in elevated slopes (western side) shall be predominantly native species, preferably endemic and generally arranged in an informal manner.</p>
9. Prominent Vistas	<p>The location and height of all development shall be reviewed in the Estate Development Plan to ensure that no buildings shall intrude above the ridge top skyline as seen from Horse Park Drive and Clarrie Hermes Drive.</p> <p>The Group Centre shall maintain a view-line from Gungahlin Drive through the Group Centre, to the group of mature trees to be retained on the eastern side of the Group Centre, as shown on the Concept Plan.</p>
10. Stormwater Management	<p>The suburb shall be developed in accordance with the ACT Government Water policy. One of the key objectives is to facilitate the incorporation of water sensitive urban design (WSUD) principles into urban, commercial and industrial development. Interim Guidelines for the implementation of WSUD are currently being developed. These guidelines will provide more detailed requirements for new developments. Until these guidelines are published, the following requirements are to be met in line with the "Think water act water" strategy:</p> <ul style="list-style-type: none"> ▪ A reduction in mains water usage per capita of at least 25% compared with 2003 levels. The 2003 level shall be taken as 174 kilolitres per person per year ▪ The level of nutrients and sediments discharged from the site is no greater than from a well managed rural landscape. The use of 'at source' water quality control measures such as road verge swale drains shall be used to the maximum ▪ The intensity and volume of stormwater runoff from the estate for a runoff event that occurs once every 3 months is no more than if the site were in an undeveloped rural state ▪ Peak stormwater flows from urbanised catchments shall be retarded back to predevelopment conditions.

	<p>Within residential blocks the plumbing shall require:</p> <ul style="list-style-type: none"> ▪ Separation of greywater and blackwater drainage to the building edge for all ground floor single residential dwellings. ▪ Separation of water supply to toilets and washing machine cold water taps to enable future supply to these from a rainwater tank or other alternative water supply.
11. Fencing	<p>Standard "S" type agricultural fencing shall be provided to the western and northern edge road for Casey, with provision for future pedestrian styles or equivalent pedestrian access points at regular intervals.</p> <p>Each development stage of Casey shall include provision of agricultural fencing in an agreed appropriate location as an interim measure for stock and bushfire management.</p>
12. Incremental Urban Edge	<p>During the of gradual development of Casey, each stage shall ensure that the boundaries provide a suitable temporary urban edge that reflects a primary asset protection zone, including provision of access for emergency service vehicles, removal of obstructions, and reduction of fire fuel loads within 40m of the stage boundary.</p>
13. Off-site/ Capital Works	<p>The following capital works are required to provide the necessary services and infrastructure to the development of Casey:</p> <ul style="list-style-type: none"> ▪ extension of Horse Park Drive to Burrumurra Avenue including a new signalised intersection ▪ extension of Clarrie Hermes Drive to the Barton Highway ▪ construction of the Kinlyside Reservoir to provide water supply to areas within Casey above the 650m contour level.
14. Group Centre	<p>The Group Centre when fully developed shall contain a mixture of land uses including: retail; commercial office space; personal and business services; community facilities; open space; entertainment; places of worship; public carparking.</p> <p>Residential development adjacent to the Group Centre precinct shall be of a higher density and make provision for a range of housing comprising two and three storey units, townhouses and/or terraces.</p> <p>The Group Centre shall make provision for public transport services to provide convenient and safe access to group centre facilities, including an adequate number of bus stops in accordance with ACTION specifications.</p>
15. Local Centre	<p>A local commercial centre shall be constructed in the location shown on the Casey Concept Plan, making provision for local retail services and community facilities. The local centre shall make provision for a local supermarket / convenience retailing tenancy to serve the needs of the local community and other small-scale retail, office and personal service tenancies, as well as allowing for community facilities, and may include residential development at the upper floor level, containing about 500m² of commercial floor space.</p>

<p>16. Aged Care Requirements for Greenfield areas</p>	<p>To meet the future needs of an aging population in Gungahlin, Casey has been identified for a Residential Care Accommodation (RCA) facility. An RCA facility is defined by the Territory Plan as the use of land by an agency or organisation that exists for the purposes of providing accommodation and services such as the provision of meals; domestic services and personal care for persons requiring support. Although services must be delivered on site, management and preparation may be carried out on site or elsewhere.</p> <p>To ensure that an appropriate site is identified and reserved for the RCA facility, the following requirements apply:</p> <ul style="list-style-type: none"> ▪ Be located within a Residential Land Use Policy Area, as defined by the Territory Plan; ▪ Be within 400m from a Group Centre; ▪ Be approximately 5 hectares in site area; ▪ Development has a maximum plot ratio of 0.35:1 (35%); ▪ Be located adjacent to or near Urban Open Space and parks; ▪ Be located close to public transport; ▪ Be located adjacent to a pedestrian path network to access open space, the group centre and public transport; ▪ Be located to minimise crossing major roads with high traffic volumes to reach retail facilities and other services or a safe pedestrian crossing be provided; and ▪ Be located not to have a significant adverse impact on surrounding residential development. <p>Clarification and assessment of the specific demand/need for Residential Care Accommodation facilities within Casey will be undertaken closer to the date of land release. If all or part of the identified sites are not required for aged care, the land may be released for residential purposes only.</p>
<p>17. Further Investigation</p>	<p>Prior to development of the site, further detail investigations are required that are beyond the scope of the Concept Plan. The following studies shall be undertaken:</p> <p>Heritage:</p> <ul style="list-style-type: none"> ▪ An archaeological investigation of Casey to determine the location and conservation value of any unregistered aboriginal sites and PADs at the Estate Development Plan stage. In order to undertake these investigations, an archaeologist will be required to submit a methodology for investigating these PADs to the Heritage Council who, in consultation with the relevant Aboriginal Organisations, will need to endorse the proposal prior to giving approval for the archaeological work to begin. ▪ Further archival and oral history research on the 'stockyards', identified as H2, to establish their date of construction and any significant association with the Gold Creek Homestead complex. <p>Contaminated Sites:</p> <ul style="list-style-type: none"> ▪ Detailed assessment of the two sets of stockyards within the site to determine the existence of any soil contamination, and identify any

	<p>necessary remediation measures to the satisfaction of Environment ACT.</p> <p>Geotechnical:</p> <ul style="list-style-type: none">▪ A detailed geotechnical investigation, once road and block layouts are finalised, to ensure that subsurface conditions will not adversely affect the construction of infrastructure within the estate. <p>Stormwater:</p> <ul style="list-style-type: none">▪ Water Sensitive Urban Design measures adopted within the site to determine that the sizes proposed do not adversely affect any other infrastructure or private property, prior to finalisation of the road and block layout for incorporating into the Estate Development Plan.
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