4 Yarrawonga East

04 Yarrawonga East

4.1 Study Area

This section considers the Yarrawonga East study area as shown in Figure 4.1 below.

The study area covers approximately 410ha and can be separated into three primary areas:

1. South of Murray Valley Highway
2. North of Murray Valley Highway
3. Hogans Road precinct

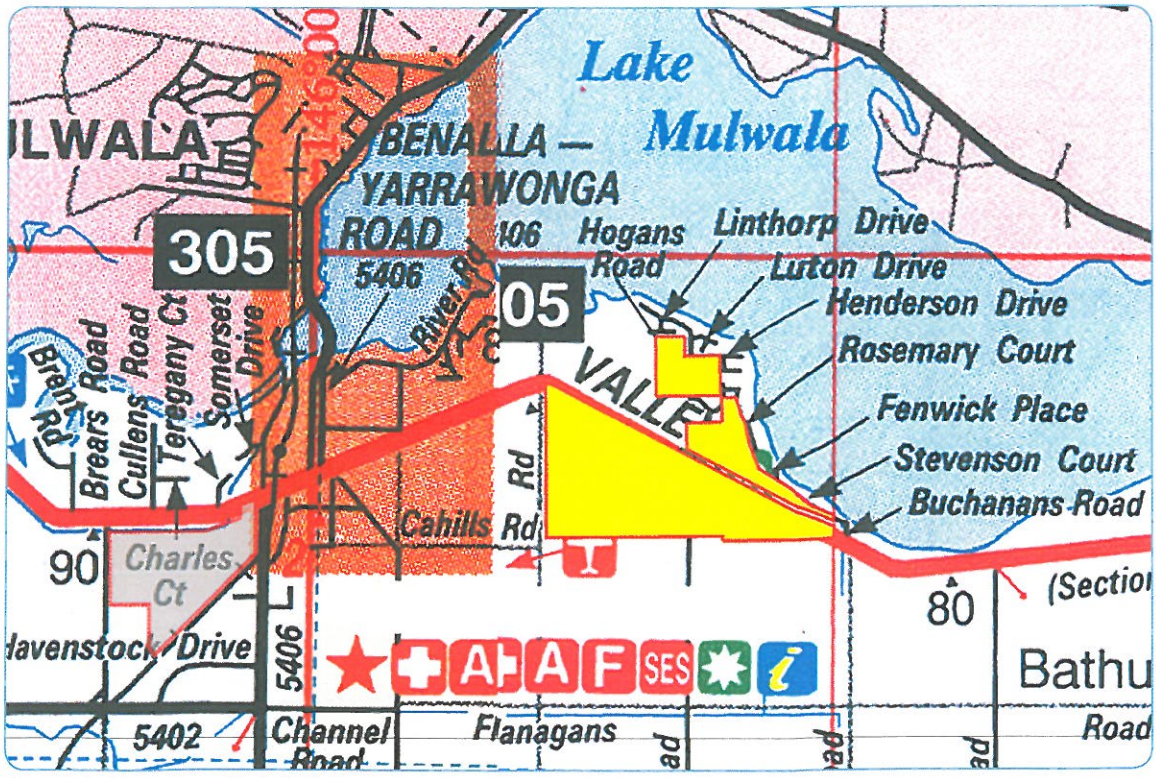

Figure 4.1 - Yarrawonga East Study Area, RACV Vicroads Ed 4.

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4.2 Site Analysis

The Site Analysis Plan is included as Attachment 4.2. An aerial photo of the Study Area is also included with this attachment. This section summarises the key features, opportunities and constraints, traffic issues, and infrastructure issues of the Study Area.

4.2.1 Key features & opportunities & constraints

Key features and the opportunities and constraints of the Study Area include:

- The study area has an approximate area of 410ha and can be separated into three primary areas as noted above. In relation to each:
  - South of Murray Valley Highway – approximately 312ha between Botts Road and Buchanans Road.
  - North of Murray Valley Highway – approximately 57ha between Rosemary Court / Stevenson Place to the north; Buchanans Road to the east; Murray Valley Highway to the south and Hogans Road to the west.
  - Hogans Road precinct – approximately 41ha held in 15 small parcels fronting onto Hogans Road and Henderson Road
- In simple land supply terms the Study Area needs to be considered in a regional context. East Yarrawonga will experience considerable change in the medium to long term and the structure adopted for the Study Area needs to take account of planned developments between it and the town. Specific considerations include:
  - Yarrawonga Town Centre approximately 7kms west of Hogans Road.
  - The proposed Silverwoods golf course development directly west of the Hogans Road precinct. It is understood this development comprises approximately 1200 dwellings, an 18 hole golf course with facilities, a convention / exhibition centre, a hotel and serviced apartments, restaurant and gaming facilities, and a marina and boat mooring facilities.

- A proposed residential and commercial development west of Botts Road known as 'Glanmire Park'. The development is proposed to include a commercial precinct along the Murray Valley Highway and residential development for the remainder of the site.

  This context is a key influence on the Development Plan and is discussed in some detail at Section 4.4.
- Whilst Lake Mulwala does not directly adjoin the Study Area it is a significant influence, particularly on any proposed public open space strategy. It is generally noted that whilst public land directly adjoins the lake foreshore, adjoining private development limits access potential. The site analysis plan identifies the following potential access points:
  - Fenwick Place between Rosemary Court and Stevenson Place.
  - Existing road reservation at the northern end of Rosemary Court.
  - Utilisation of the irrigation channel land.

- Existing surrounding open space includes small pockets:
  - A municipal reserve south of Rosemary Court.
  - A municipal reserve within the Campbellfield Drive development.
  - A recreation reserve north of Luton Drive.
  - Two recreation reserves north of Linthorpe Drive.
  - Fenwick Place.
- The topography of the Study Area is generally flat in nature. Drainage issues will need to be resolved.
- The Hogans Road precinct comprises a number of 7 acre parcels with most containing dwellings (west of Hogans Road). Vegetation in this area is generally contained to gardens with the remainder of the lots being vacant. East of Hogans Road, the land is vacant with the exception of a cluster of vegetation near Henderson Street.
- The land north of the Murray Valley Highway is vacant.
- Land south of the Murray Valley Highway is currently cropped and occupied by a number of farm dwellings and associated outbuildings. Areas of land adjacent to Botts Road are affected by the Land Subject to Inundation Overlay and the Airport Environs Overlay (refer to Section 4.3 below).
- Vegetation within the Study Area is extremely limited with minor pockets in both the Hogans Road precinct and south of the Murray Valley Highway. Vegetation within the southern Murray Valley Highway reservation may be of some significance.
- The Murray Valley Highway provides the primary access to, and through, the Study Area. Potential access from the highway will, however, be limited to several points. Within the Study Area, the site analysis plan identifies the following:
  - Connections from Rosemary Court and Stevenson Place are limited to Fenwick Place and potentially through groups of privately owned residential lots. The potential of privately owned lots to provide access is dependent upon them either being purchased or acquired by Council via agreement with particular landholders and cannot be guaranteed.
  - Southern access point from Rosemary Court east of the existing low density development.
  - Southern access point from Thornton Way via a privately owned residential lot. The potential of privately owned lots to provide access is dependent upon them either being purchased or acquired by Council via agreement with particular landholders and cannot be guaranteed.
  - New access points between the golf course development.

- Additional access points will be available from Hogans Road, Whites Road and Botts Road.
- A small irrigation channel runs east-west from Lake Mulwala across Hogans Road through to the golf course site. It is understood the future of this channel is tenuous and opportunities will shortly exist for it either to be decommissioned or piped.

These features, opportunities and constraints significantly influence the layout of the Development Plan. How they influence the DP is discussed further below in Section 4.4.1.

4.2.2 Traffic issues

Traffic issues centre around the Murray Valley Highway because of its relatively high traffic speeds, and it is therefore under VicRoads management. Connections will be limited in number and expensive to achieve with appropriate engineering standards for a State Highway.

New connections to the Highway should be located a minimum of 300 metres from existing connections to ensure that auxiliary lane development has adequate separation between intersections.

Alternative and direct access between the Development Plan area and Yarrawonga Town Centre will also be important in respect of community integration, access to services and facilities that are not located on the Highway, and for the provision of public transport. That will require connector street linkages through the Development Plan, approximately but not necessarily strictly parallel with the Highway. Integration of these connections through adjacent development plan areas to the west of Botts Road South of the Highway, and also through the Golf development site east of Botts Road, will be essential if Council is to ensure that the public transport objectives of the Moira Planning Scheme are met. The following diagram indicates a preferred strategic public transport network.

This network would be most central to the residential catchments south and north of the highway, rather than a bus route running along the highway that is not within ideal walking distances of the majority of dwellings.

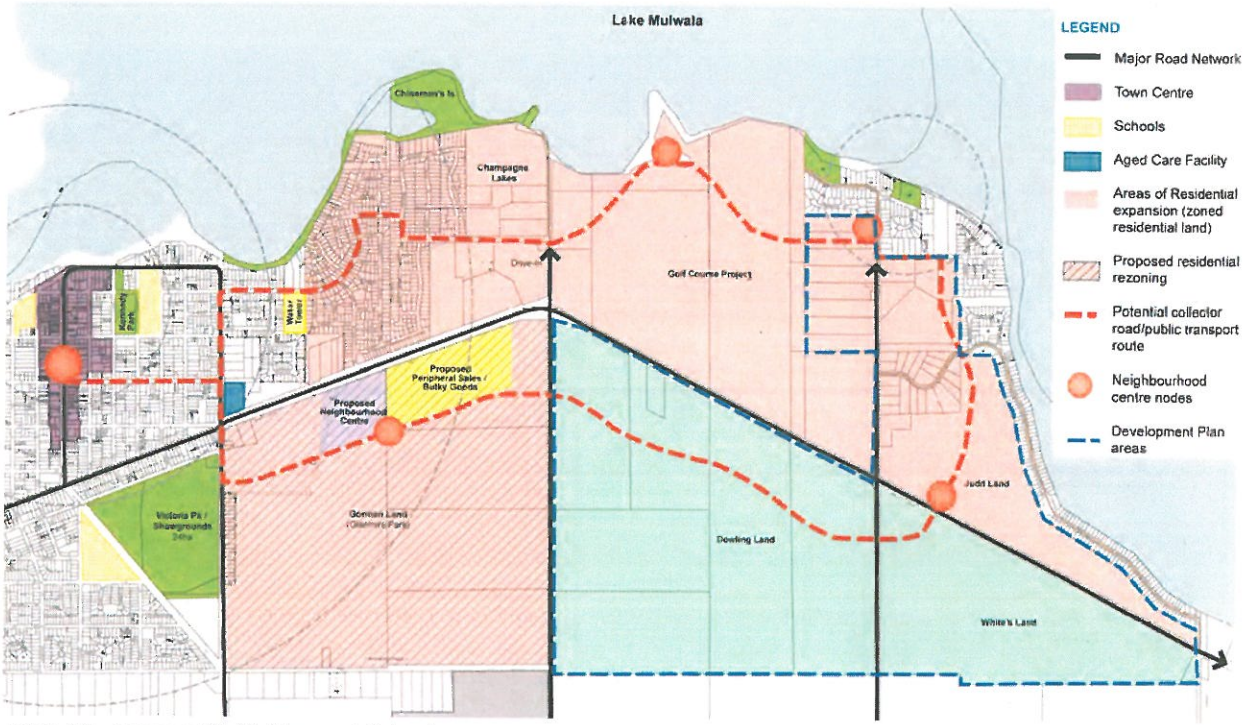

Figure 4.2 - Movement/Public Transport Network

4.2.3 Infrastructure issues

Electricity

Powercor Australia Ltd is the network service provider for the study area.

The existing overhead infrastructure in the vicinity of the study area can be utilised to supply the proposed development.

In the event that the existing high voltage lines need reconductoring or extending as a consequence of a detailed assessment of the loading demands within the study area, Powercor's current policies dictate this work generally be completed at Powercor's cost, but Developers should confirm specific requirements and conditions by formal application to Powercor.

The usual strategy of High Voltage underground cable extensions to substations sited as appropriate throughout the development with Low Voltage domestic underground cable reticulation to the lots would apply.

In relation to development costs, current policy conforms to the statutory requirement for Powercor to allow construction to be carried out comprising a mix of non-competitive works (ie works to be done by the Network service provider) and competitive works (ie works to be done by accredited contractors). Powercor will provide a fee offer and procedural conditions upon formal application.

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Telecommunications

Telstra is the network service provider and they advise that they have a statutory responsibility to provide a network service to the respective property boundaries of the sites within the study area. The usual developer shared trenching conditions would apply within the proposed development (i.e. developer to fund shared trenching).

Telstra has existing assets in the vicinity of the study area. The need or otherwise to upgrade their network assets would be investigated in detail at the time of application for a Planning Permit.

Sewerage

North East Region Water Authority (North East Water) is the responsible sewerage authority.

North East Water has existing assets in the vicinity of the study area.

North East Water advises that the study area can be fully serviced. The servicing can be achieved in part by extensions to their existing gravity sewerage reticulation mains and in part via the construction of new sewage pumping stations, rising mains and gravity reticulation mains.

The cost of new works would have to be borne by either the Developer(s) or North East Water in accordance with the statutory guidelines of the Essential Services Commission, Victoria (ESC). Generally, non-shared reticulation assets within a Developer's landholding that are 225mm or less in diameter are to be fully funded by the Developer. Larger trunk mains or shared distribution assets are to be fully funded by North East Water or otherwise by agreement between North East Water and the Developer(s) with ESC consent. There are formulae that apply to the funding of shared distribution assets whereby in the event that the said asset is not reasonably expected to be funded within North East Water's financial forward planning, then the Developer is required to contribute to the cost of the works.

Detailed conditions relating to the required development works can be obtained upon formal application to North East Water.

Potable Water

North East Region Water Authority (North East Water) is the responsible water authority.

North East Water has existing assets in the vicinity of the study area.

North East Water advises that the study area can be fully serviced. The servicing can be achieved by the construction of water reticulation main extensions throughout the study area and connecting to the existing nearby assets. North East Water acknowledges that some of their nearby assets may have to be augmented to provide adequate supply and that their water storage facility will have to be upsized to provide the necessary security of supply during periods of peak demand.

The cost of new works would have to be borne by either the Developer(s) or North East Water in accordance with the statutory guidelines of the Essential Services Commission, Victoria (ESC). Generally, non-shared reticulation water mains within a Developer's landholding that are 150mm or less in diameter are to be fully funded by the Developer. Larger trunk mains or shared distribution assets are to be fully funded by North East Water or otherwise by agreement between North East Water and the Developer(s) with ESC consent. There are formulae that apply to the funding of shared distribution assets whereby in the event that the said asset is not reasonably expected to be funded within North East Water's financial forward planning, then the Developer is required to contribute to the cost of the works.

Detailed conditions relating to the required development works can be obtained upon formal application to North East Water.

Drainage

Moira Shire Council is the responsible drainage authority for the study area and the receiving water of the stormwater runoff from the study area is Lake Mulwala on the Murray River. The stormwater will discharge to Lake Mulwala via a series of existing and proposed retarding basins, wetlands, pumping stations, rising mains, underground piped and open stormwater outfall drains.

Moira Shire is desirous of the stormwater drainage works within the study area being designed to accord with the current best practice principles contained in "Urban Stormwater Best Practice Environmental Guidelines, CSRIO 1999".

As such, the post construction performance objective of the drainage system is to achieve 80% retention of the typical urban load of suspended solids, 45% retention of the typical urban load of total phosphorus, 45% retention of the typical urban load of total nitrogen and 70% retention of the typical urban load of litter. Furthermore, flows from the study area need to be retarded such that they do not exceed the pre-development discharge that would result from a storm having an average recurrence interval of once every 1.5 years. Moira Shire will also require retardation to cater for the 1 in 100 year event.

Development will also have to accord with the construction phase performance objectives of limiting and preventing sediment, litter and other pollutants from entering the receiving waters.

Consequently, Development within the study area will have to accord with the "Best Practice Guidelines" and Developers will have to consider the adoption of "Water Sensitive Urban Design (WSUD)" principles.

Costs for drainage works including water quality improvement and retardation will be borne by the Developers.

The principle used in determining areas for drainage retardation and water quality improvements has been to allow approximately 8 - 10% of land area (in low points within the DP area) for retardation basins and wetlands. Exact areas for these will need to be determined at the detailed subdivision design stage.

4.3 Planning Context

4.3.2 Zoning

The zoning of the Study Area is illustrated in Figure 4.3 below.

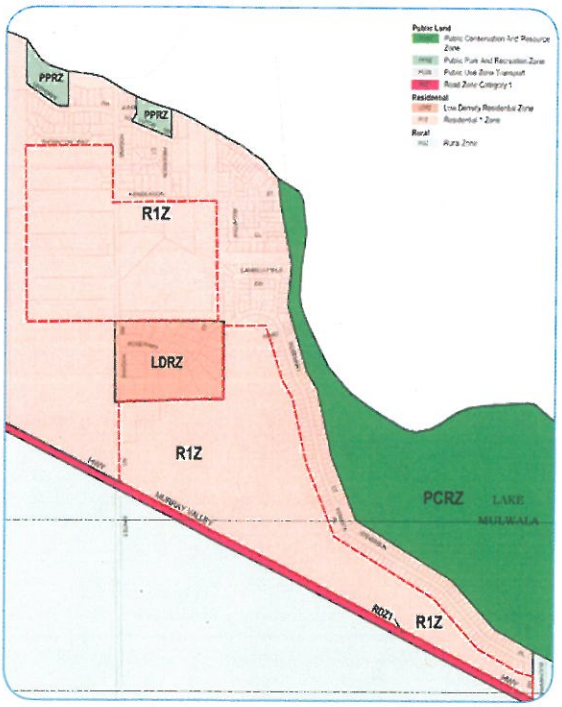

Figure 4.3 - Zones, Moira Planning Scheme

Approximately half the Study Area is included within the Residential 1 Zone (R1Z). The purposes of the R1Z are:

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To provide for residential development at a range of densities with a variety of dwellings to meet the housing needs of all households.

- To encourage residential development that respects the neighbourhood character.
- In appropriate locations, to allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs.

A planning permit is required to subdivide land. The subdivision must be in accordance with Clause 56 of the Moira Planning Scheme.

Part of the Study Area is included within the Rural Zone (RUZ). The purposes of the RUZ are:

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To provide for the sustainable use of land for Extensive animal husbandry (including dairying and grazing) and Crop raising (including Horticulture and Timber production).
- To encourage:
  - An integrated approach to land management.
  - Protection and creation of an effective rural infrastructure and land resource.
  - Improvement of existing agricultural techniques.
  - Protection and enhancement of the bio-diversity of the area.
  - Value adding to agricultural products at source.
  - Promotion of economic development compatible with rural activities.
  - Development of new sustainable rural enterprises.
- To ensure that subdivision promotes effective land management practices and infrastructure provision.

Land within the RUZ cannot be subdivided for residential purposes. To this end this part of the Study Area requires rezoning prior to its residential development.

4.3.3 Overlays

The overlays of the Study Area are illustrated in Figure 4.4 below.

The majority of the Study Area is included within the Development Plan Overlay Schedule 6 (DPO6). A development plan must describe:

- The proposed development of each part of the land.
- The relationship of the land to the adjoining land.
- The layout of the subdivision and development of the land including roads, lot boundaries and areas of open space.
- Provision of public open space that:
  - has an area no less than 5% of the land to be used for residential, industrial or commercial purposes.
  - Provides appropriate interfaces between residential areas and surrounding areas.
  - Provides for connectivity both internally and externally.
  - Incorporates low-lying areas.
  - Recognises important landscape views and vistas.
  - Is landscaped and planted out with lawn areas, native grass areas and trees and shrubs of local provenance.
  - Ensures that where land adjoins the Murray Valley Highway and where no service or access road exists immediately adjoining the Highway road reserve, it is provided with a landscape buffer treatment a minimum of 10 metres wide.
  - Provision is made for the watering of existing and proposed vegetation.
  - Is based on a landscape design prepared by a suitably qualified person.
- Areas for any recreational uses including a golf course with associated tennis, gymnasium, walking and cycling tracks and internal water features.

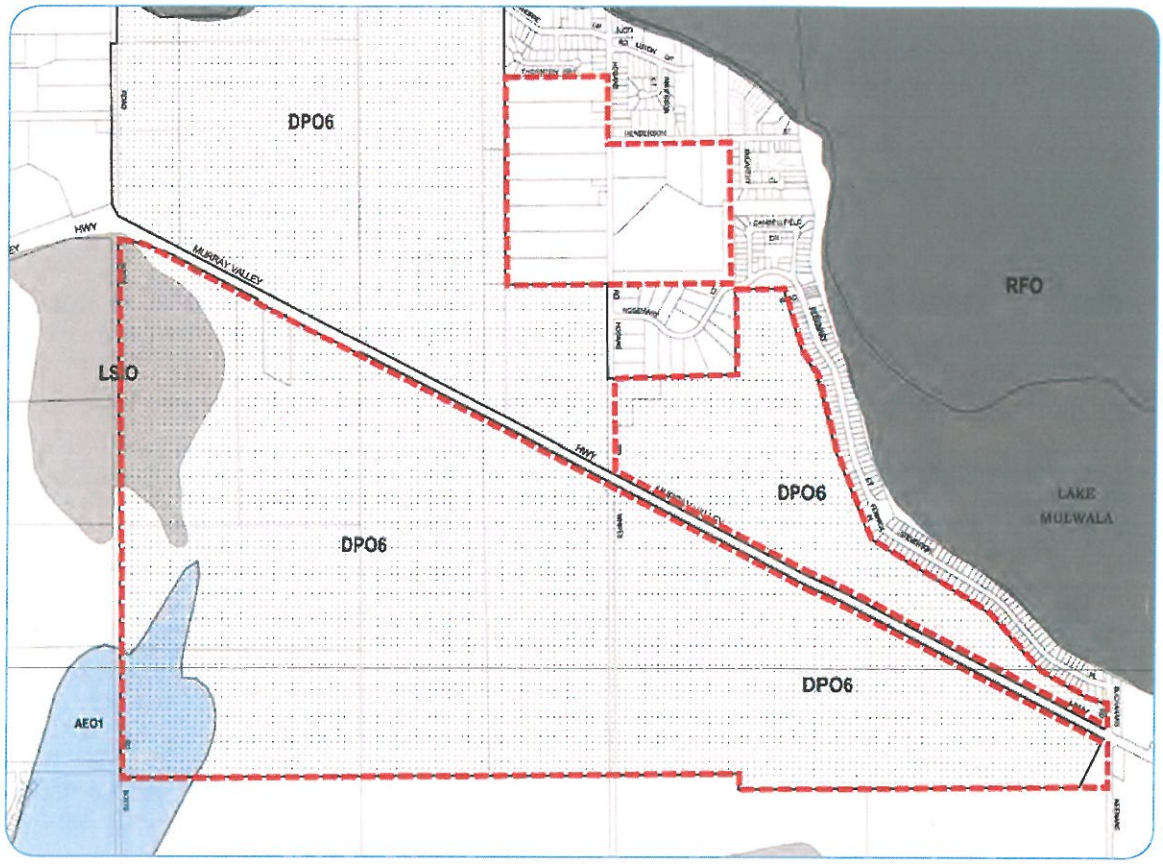

Figure 4.4 - Overlays, Moira Planning Scheme

- The provision of safe and efficient vehicle and pedestrian access to and from the land.
- Provision for public transport throughout the neighbourhood with appropriately located and designed bus stops.
- How the proposed development addresses any flood or inundation impacts on the land.
- Underground infrastructure provision including sewerage, water, drainage, telecommunications and other utility services.
- The location and connectivity of constructed footpaths along proposed streets.
- The proposed street tree and planting regime with preference given to vegetation of local provenance.
- Any intended contributions to community facilities and services.
- Identify suitable locations for community, commercial and recreational facilities that are required to meet the needs of the general area.
- An environmental assessment of the flora, fauna and habitat significance of the land which includes recommended actions for management, revegetation and restoration of conservation and vegetation protection areas and the links between such areas.

- Retention and integration of individual and stands of mature trees, particularly indigenous trees. An arboricultural survey of all existing trees on the land and their condition, health and integrity including appropriate measures for the long term preservation of the tree(s) having regard to their proposed open space or development context.
- A "Net Gain" assessment of any native vegetation to be removed having regard to Victoria's Native Vegetation Management – A Framework For Action including the location of any off-sets.
- An archaeological survey and heritage assessment which includes recommendations for the protection, restoration and interpretation of significant individual sites and, where appropriate, design measures to sensitively integrate sites into the proposed open space network.
- The use of water sensitive urban design providing for the protection of natural systems, integration of stormwater treatment into the landscape, protection of water quality and reduction of run-off and peak flows.
- The location of any detention tanks, drainage retardation basins or other utility infrastructure required to service the neighbourhood.
- Opportunities for a diverse range of allotment densities and dwelling types. A statement of housing outcomes, population and lot yield targets must be submitted.
- An environmental assessment identifying any environmental hazards or contamination on the land and proposed treatments, if any; or a qualified statement indicating the absence of such hazards or contamination.
- Where land abuts a road in a road zone, new street access to the road is to be minimized and/or managed in line with the requirements of VicRoads.
- Appropriate transitional arrangements are required at the interface of land zoned for Low Density Residential and Residential 1 being either a graduated decrease in lot size from the larger lots to the smaller lots or the provision of public open space at the interface.

Land south of the Murray Valley Highway around Botts Road is affected by a Land Subject to Inundation Overlay (LSIO). The purpose of the LSIO is:

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.
- To identify land in a flood storage or flood fringe area affected by the 1 in 100 year flood or any other area determined by the floodplain management authority.
- To ensure that development maintains the free passage and temporary storage of floodwaters, minimises flood damage, is compatible with the flood hazard and local drainage conditions and will not cause any significant rise in flood level or flow velocity.
- To reflect any declaration under Division 4 of Part 10 of the Water Act, 1989 where a declaration has been made.
- To protect water quality in accordance with the provisions of relevant State Environment Protection Policies, particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

All subdivision and works applications must be referred to the relevant floodplain authority.

Land further south along Botts Road is affected by a Airport Environs Overlay - Schedule 1 (AEO1). The purpose of the AEO1 is:

- To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.

- To identify areas which are or will be subject to high levels of aircraft noise, including areas where the use of land for uses sensitive to aircraft noise will need to be restricted.
- To ensure that land use and development are compatible with the operation of airports in accordance with the appropriate airport strategy or master plan and with safe air navigation for aircraft approaching and departing the airfield.
- To assist in shielding people from the impact of aircraft noise by requiring appropriate noise attenuation measures in new dwellings and other noise sensitive buildings.
- To limit the number of people residing in the area or likely to be subject to significant levels of aircraft noise.

The following uses are not permitted under the AEO1:

- Accommodation (other than Backpackers lodge, Dwelling, Dependent persons unit, Host farm and Residential hotel).
- Child care centre.
- Drive-in theatre.
- Education centre.
- Hospital.

Any new building must be constructed so as to comply with any noise attenuation measures required by Section 3 of Australian Standard AS 2021-2000, Acoustics - Aircraft Noise Intrusion - Building Siting and Construction, issued by Standards Australia International Ltd, and all applications to subdivide land must be referred to the airport owner unless in the opinion of the responsible authority the proposal satisfies requirements or conditions previously agreed in writing between the responsible authority and the airport owner.

4.4 Development Plan

The Development Plan is included as Attachment 4.5. It provides the development, road and open space networks for the Study Area and has been developed cognisant of the issues outlined at Section 4.2. This section identifies the key influences on the development of the plan and then discusses its key features.

4.4.2 Key influences

The following issues have significantly influenced the preparation of the Development Plan:

- The Study Areas regional context and the need to consider surrounding planned developments and population growth.
- The need to provide an integrated and useable public open space network.
- The need to provide an integrated movement network, including public transport.
- The need to provide appropriate water quality treatment.
- The need to provide a diversity of lot and dwelling opportunities.

Regional context

The Yarrawonga Strategy (Moira Shire Council, 2004) estimates Yarrawonga's population in 2003 to be approximately 4,500, up from 4000 in 2001[1]. This rapid growth is mirrored by the surge of building permits issued in these years. The strategy notes that as a consequence, Yarrawonga now finds itself with only a four to five year supply of land zoned residential, vacant and capable of being developed. This is well below the State Planning Policy recommendation of 10 to 15 years. It is noted, however, that the approval of Amendment C24, Part 1 now increases the amount of R1Z land supply. Approximately half of this will be provided in the golf course development which is a particular type of product aimed at a specific market.

Depending upon the percentage increase, the Strategy estimates Yarrawonga's population will grow to between 6,000 (1% growth rate) and 28,500 (7% growth rate) persons by 2030[2]. This is a large range that significantly impacts upon the amount of land and facilities/services needed.

In terms of future growth areas, the Strategy assumes the vacant residential land west of Botts Road will be consumed by 2007-2008, leaving the town with virtually no residential land supply. The following directions are relevant to the Study Area:

- The golf course development (Silverwoods) – comprising between 1,000 and 1,200 residential lots. This development is unique and will attract a certain sector of the market. The Strategy concludes that as much of this land will be unattainable by the existing community it should be excluded from the supply estimates[3].
- Approximately 440 lots west of Botts Road (Gormans land - Glanmire Park).
- Approximately 1,160 lots east of Botts Road.
- Land north of the Murray Valley Highway is in one ownership and has good access and is appropriate for residential development.

1. Yarrawonga Strategy, Moira Shire Council, 2004, page 7.
2. Yarrawonga Strategy, Moira Shire Council, 2004, page 17.
3. Yarrawonga Strategy, Moira Shire Council, 2004, page 33.

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As the Strategy rightly acknowledges, one of the most important developments in Yarrawonga is the Silverwoods golf course to the direct west of the Study Area. This is a significant and exclusive development that will attract a particular high end market and not necessarily cater for the local residential market. It is to be a wholly private development meaning that internal roads will be privately owned and maintained.

The golf course's location means it has a significant impact upon the future development structure of the Study Area, particularly the land north of the Murray Valley Highway. Significantly, the development does not propose any connection to surrounding development and will be accessed solely from a new intersection to the Murray Valley Highway. Whilst the development is permitted to do this it is considered that several key planning policies are not able to be met as a consequence. State Planning Policy strongly encourages connectivity and integrated neighbourhoods/communities. The proposed development will not allow movement between it and surrounding developments, despite ample opportunities to do so. Those opportunities to the west have been identified in the site analysis plan and are considered to provide critical networks that encourage not only a cohesive community, but the use of other forms of transport.

Should the town's population continue to grow at a high rate, the integration of its residential areas and the facilitation of public transport is considered critical. With regards to public transport, local bus service providers have indicated their future desire for a service through the Study Area. To be viable, such a service needs to directly access commuters/residents and integrate local activity centres in its route. The Silverwoods development will have both of these, with the proposed activity centre at its northern tip and over 1,200 dwellings. Its current design means that without agreement, the local bus service will not be permitted to provide a direct service to these, and that instead it must travel along the Murray Valley Highway where there will not be a directly accessible residential market.

A local bus service could still work in the Study Area without access to this development, though several minor changes to the Silverwoods layout could be made to facilitate it. It is understood the developers of Silverwoods do not wish to consider any such changes, though the potential for such a service should still be considered in the Development Plan.

The future provision of a local bus route has influenced the structure of the Development Plan and this is discussed in further detail below.

The activity centre in Silverwoods and the proposed highway focused retail on the Murray Valley Highway west of Botts Road have also heavily influenced the DP's structure. On average, a relatively local activity centre (i.e. bus stop, several local shops) has a potential catchment of 500m. Taking into account the existing local store in Hogans Road, there is an identified need for a further local activity centre within the Study Area. This centre should be located on a public transport route and on the pm peak hour route home (i.e. for traffic travelling from Yarrawonga). To provide critical mass, medium density development should be located adjacent to the centre, together with open space to provide the vital activity needed to provide additional clientele.

The proposed residential development west of Botts Road does not significantly impact upon the structure for the Study Area, other than needing to consider the location of the activity centre and open space. Significant open space will be required within the Study Area and this is further discussed below, however, there is a specific need to consider the location of formal active open space within a broader area.

Approximately 7-8ha of formal active open space should be provide per 5,000 to 7,000 people, in addition to informal and other open space. Active open space should be located on the key road network and a public transport route. There is clearly provision available within the Study Area, but also a need within the development west of Botts Road.

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Useable and accessible open spaces

Section 4.2 identified a number of open spaces adjacent to the Study Area, and opportunities for them to be further developed to create useable, accessible spaces.

The provision of open space in Yarrawonga, and indeed all towns studied during this project, has been ad hoc, inefficient and generally does not meet the requirements of the community. The spaces identified in Section 4.2 are generally small 'left over' pockets of land that the subdivision developer has reluctantly provided to meet their obligations of the Subdivision Act 1988. This is not an acceptable outcome and has left the town with useless spaces that are infrequently used and often unsafe.

The Subdivision Act 1988 requires developments to provide a maximum of 5% of the developable land for open space. This may be provided in land or the cash equivalent. It is understood that it has been the historic practice of the Shire to accept a cash contribution. Whilst this may be well intended, with the contribution to go towards the provision of more meaningful open spaces, this also appears to have not occurred.

Many metropolitan Councils, particularly those in growth areas, require a higher minimum percentage of open space for new developments. Clause 52.01 of the Moira Planning Scheme provides for this, though requires a planning scheme amendment to be enforced. This in turn requires an open space strategy to be produced and justification for a higher contribution provided.

In addition, many of these Councils do not accept encumbered open space as part of the 5% contribution. Encumbered open space is that space used for another purpose (e.g. required for drainage purposes, is subject to inundation) and thus may not be useable at all times. Clauses 12 and 56 of the Moira Planning Scheme provide specific objectives for open space and the provision of encumbered land generally does not meet these.

With an approximate area of 410ha, the Study Area should provide approximately 20.5ha of open space. An advantage of a Development Plan is that this space can be equitably distributed across the area. Equity in this sense refers to the need to take account of land ownership patterns and ensure that one landholder does not provide all the open space with no compensation from others. This requires consideration by a development contributions plan.

In terms of this Study Area there should be two key focuses for the provision of open space:

1. Provide linkages to Lake Mulwala and integrate existing open spaces (all land north of the highway).
2. Provide active open space and a new open space network for land south of the highway.

Informal links to Lake Mulwala

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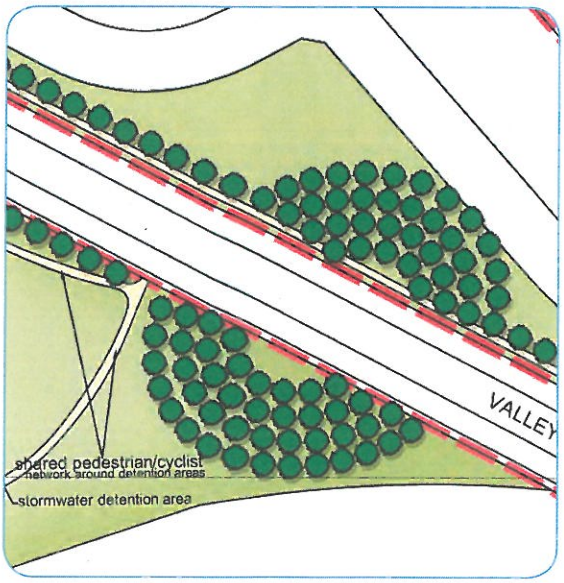
The opportunities identified in the site analysis plan north of the highway can be linked through the provision of wider road reservations for key roads and the provision of the links identified. A good north-south link can be created essentially from the reserves on Linthorpe Drive and Luton Drive all the way through to the Murray Valley Highway by incorporating the following new spaces:

- Wider north-south road reserve between Henderson Street and Rosemary Court to incorporate an off-road shared path and additional tree planting.
- Rehabilitation of east-west section of the irrigation channel through to Lake Mulwala as a pedestrian link.
- Extension of existing municipal reserve south of Rosemary Court to provide a more useable space fronted by road.
- East-west extension of Fenwick Place open space to provide a major linear reserve connecting new development to the lake.
- Wider north-south road reserves between the extended Rosemary Court space and the new major reserve to incorporate an off-road shared path and additional tree planting.

Additional local spaces should be provided west of Hogans Road to provide open space within 400m of all new development.

South of the highway the open space strategy is much more 'traditional' in nature and should be developed as follows:

- Provision of combined open space, drainage and water quality treatment areas along the highway.
- Provision of active open space central within the southern Study Area and on a public transport route.
- Provision of local open spaces within 400/500m walking distance of new development.



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Integrated movement network

The movement network will be heavily influenced by the following:

- The desire for a public transport route through the Study Area, the golf course development and any development west of Botts Road.
- The access limitations and environs of the Murray Valley Highway.
- The existing road network, being Hogans Road, Rosemary Court, Whites Road and Botts Road.

The justification for a local bus route has been previously discussed. Whilst the DP does not propose any changes to the Silverwoods development it should still provide the relevant connections for an integrated road network should this be possible in the future. Linthorpe Drive provides an existing option, whilst an additional connection should be possible from Hogans Road.

The remainder of the key road network has been developed cognisant of a future local bus route connecting the following 'landmarks':

- Hogans Road.
- Existing local store in Hogans Road.
- New open spaces between Henderson Street and the highway.
- New local activity centre north of the highway.
- New formal active open space south of the highway.
- Proposed commercial area west of Botts Road.
- Within 400/500m of the majority of new residential development.

Linking these 'landmarks' will link active spaces and environments and help ensure a viable and used local bus route.

New access to the Murray Valley Highway will be limited to a couple of key new connection points. Taking this approach and using existing and proposed infrastructure, logically the new points should be:

- Access to the Silverwoods development access point, possibly to create a controlled intersection.
- At the proposed local activity centre, and linked with the proposed bus route. The distance of this intersection from the existing Hogans Road intersection needs to be a minimum of 300 metres. While the preferred location for this intersection is 300m from Hogans Road, which will capture more of the traffic heading to Yarrawonga (the predominant direction of vehicle movements), alternative proposals with links to views to Lake Mulwala have been put forward. While it is preferable to allow both these access points, at the time of subdivision the intersection location will need to be designed and approved by Council and VicRoads.

The existing intersection at Hogans Road/Whites Road is likely to require upgrading as development progresses, particularly as it is not at right angles to the highway.

Interfaces to the highway should address it, and thus the use of internally accessed service roads is likely to be warranted along most of its length. To retain areas of vegetation within the Murray Valley Highway reservation open space interfaces combined with drainage and water treatment measures would be appropriate. An open space interface provides the added benefit of providing an additional 'buffer' between the highway traffic and residences. Where service roads are not provided, a tree reserve of 10m width should be included between any development and the highway. No lots are to back onto the highway.

The existing road network is the third significant influence on the DP's movement structure, particularly Hogans Road and Rosemary Court.

Hogans Road currently provides a key connector road function and should continue to do so. New east-west connections west of Hogans Road cannot be provided for each individual land holding as this would result in an unintegrated development of courts. Opportunities

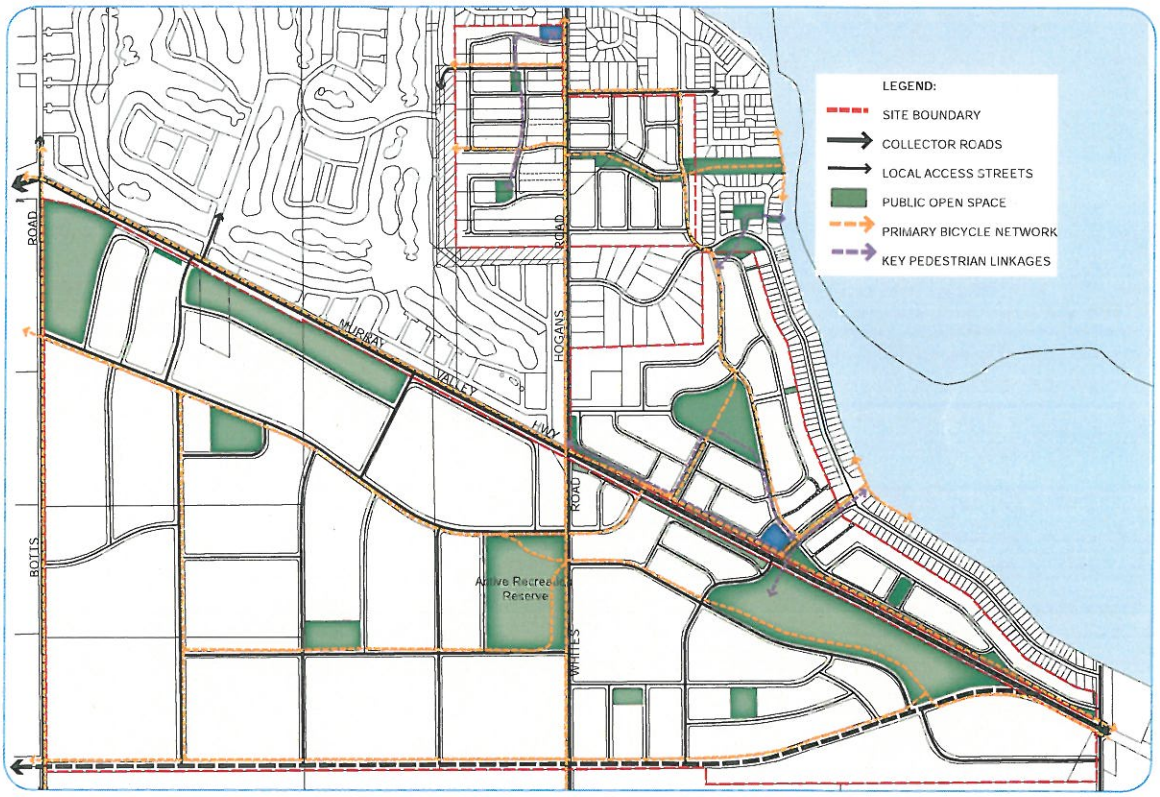


Figure 4.5 - Pedestrian/Bicycle Network Plan

between existing houses, and vegetation where possible, should be utilised and a further north-south network developed. If possible, the development structure of this area should provide the opportunity for any of the landholders to develop at any time (i.e. not have to wait until someone else develops first), though it may be best for several landholders to develop at once.

The development plan for this area allows flexibility for the landowners, depending on "who develops first". Flexibility of the road access points from Hogans Road allows any landowner to develop first (ie. if lot 6 subdivides before lot 7, they provide the road access and 7 can access form that later). See diagram on following page.

As outlined in the site analysis section, Rosemary Court provides the few opportunities to link new development with Lake Mulwala. Given several of these opportunities are private landholdings it may be best to not utilise these in the DP but merely show them as potential additional connections. To this end the two key opportunities Rosemary Court provides is a link between the existing reserve and low density development through to Fenwick Place. Both of these links are critical in the open space network described above.

Access from Whites Road and Botts Road is not considered to be an issue and facilitates a 'traditional' grid development structure south of the highway.

The potential exists for an east-west arterial road south of the Study Area to provide alternative access to the town from the east. This should be considered in the longer term as an optional key access route for Yarrawonga.

04

Water quality

Drainage issues exist across the study area and require a minimum of 8 - 10% of the study area to manage these issues. The 8 - 10% includes both the 'water' component plus surrounding land. The 'water' component is not useable open space, and thus cannot be included in the open space contribution. Depending on the surrounding land's usability as result of detailed design, it may be included in the open space contribution.

As a general principle the design outcomes achieved by older retarding basins (i.e. a hole in the ground where it is necessary to fence the entire area and consequently there is no integration with surrounds) are to be avoided.

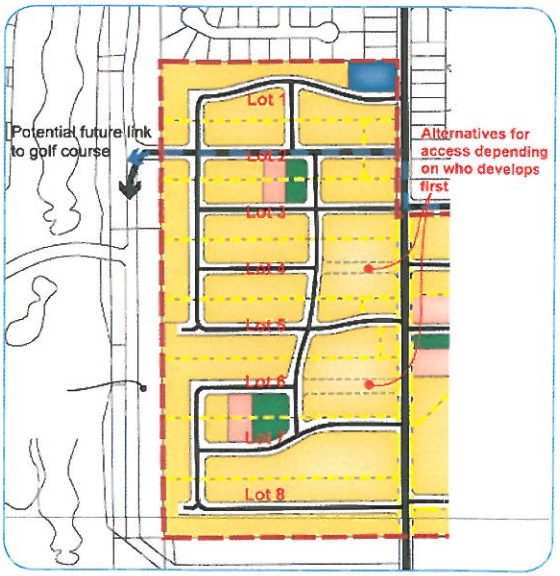
Water quality controls are now such that deep water bodies will not deliver adequate quality of discharge to other waterbodies. Where practical, open space has been combined with the drainage retardation and water quality control measures, to ensure that an integrated approach to water treatment is undertaken, and that the area surrounding these functions is usable open space.

Virtually all drainage and open space areas have street frontage on all sides. This is to ensure that passive surveillance is always present, and will also generate amenity benefits for land that is proximate to the open space.

Diversity of development options

With an approximate area of 410ha, the Study Area has the ability to provide approximately 3,000 new lots, depending on the ultimate density of development. It is important that a diversity of development options are provided within the Study Area to ensure lot choice and options are available.

As is the trend across Australia, though particularly in regional areas, our population is ageing. The number of dwellings required to accommodate this



ageing population is in excess of the population growth. This is primarily attributed to the strong growth in single people households and the general decline in household size. These factors support the argument to generally reduce lot sizes, or increase development densities. In addition, this strategy in theory should capitalise on existing infrastructure and limit the growth of our urban footprints. State Planning Policy strongly encourages a better utilisation of our infrastructure and is a strong advocate for increased development densities across the State.

What an increased development density means is particular to a town, suburb or region. Certainly the development densities being targeted in Melbourne would not be relevant to or reflective of Yarrawonga's community desires. As per most traditional subdivision development, the existing average lot size in Yarrawonga is likely to be 800 to 1200sqm. Newer developments are likely to be less than this, and the newer unit developments are likely to have an average lot size of around 400 to 500sqm.

04

The Development Plan does not provide a lot layout though will specify areas of development density – 'standard', 'low' and 'medium' - and average lot sizes. The lot layout detail is to be provided at the subdivision application level. A key purpose of the Development Plan is, however, to provide a flexible movement and open space network that will provide for a range of lot layouts and general development densities. A grid based network is most efficient in this regard, and also encourages a lot layout which promotes a high level of solar efficiency.

More densely developed areas are generally dictated by existing interfaces and the location of infrastructure and services.

Within the Study Area lower density interfaces should be provided:

- Adjacent to the existing low density residential development at the western end of Rosemary Court.
- Within the area affected by the Airport Environs Overlay. Whilst dwellings are a permit required use within the AEO, a lower density should be sought to generally reduce the number of persons within this area.

It is considered preferable that the rear of lots are 'backed' onto, rather than an open space buffer being provided, to transition between densities.

The location of medium density development should be dictated by the location of open space and good access to potential public transport routes. Medium density lots should achieve an average size of 500sqm. Being located adjacent to public parkland provides these lots with added amenity and space that the lot is otherwise not able to provide. Importantly, these lots should 'front onto' the space to provide the added benefit of passive surveillance. Being located adjacent to main roads and potential public transport routes increases the potential usage of such services and provides the much needed net effect required to make these services viable.

Standard density lots should achieve an average lot size of 800sqm, though their design and end density will depend upon particular site constraints.

4.4.3 Development Plan features

This section provides detail of the key elements of the Development Plan.

Development Analysis

YARRAWONGA EAST DEVELOPMENT ANALYSIS NORTH OF MURRAY VALLEY Highway			
			% G. D. Area
SITE AREA	**56.8**	**Ha**	
Gross Developable Area	**56.8**	**Ha**	
Public Open Space	**8.2**	**Ha**	**14.4%**
Local Parks & Linear Links	4.7	Ha	8.3%
Open Space for Drainage & Water Treatment	3.5	Ha	6.2%
Neighbourhood Centre	0.5	Ha	
Net Developable Area	**48.1**	**Ha**	
Roads	**13.2**	**Ha**	**23.2%**
inc. Laneways			
Net Residential Area	**34.9**	**Ha**	**61.4%**
Higher Density Area	3.4	Ha	
Standard Density Area	27.7	Ha	
Low Density Area	3.8	Ha	
Potential Development Yields			% Total Yield
Higher Density Area (average lot size 500 sqm)	68	lots	15%
Standard Density Area (average lot size 800 sqm)	346	lots	80%
Low Density Area (average lot size 1500 sqm)	25	lots	6%
Estimated Total Yield	**440**	**lots**	**101%**

YARRAWONGA EAST DEVELOPMENT ANALYSIS HOGANS ROAD PRECINCT			
			% G. D. Area
SITE AREA	**42.1**	**Ha**	
Gross Developable Area	**42.1**	**Ha**	
Public Open Space	**2.9**	**Ha**	**6.9%**
Open Space for Drainage & Water Treatment	1.5	Ha	3.6%
Local Parks and Linear Links	1.4	Ha	3.3%
Neighbourhood Centre	0.3	ha	
Net Developable Area	**38.9**	**Ha**	
Roads	**10.0**	**Ha**	**23.8%**
inc. Laneways			
Net Residential Area	**28.9**	**Ha**	**68.6%**
Higher Density Area	1.2	Ha	
Standard Density Area	27.7	Ha	
Potential Development Yields			
Higher Density Area (average lot size 500 sqm)	24	lots	6%
Standard Density Area (average lot size 800 sqm)	346	lots	94%
Estimated Total Yield	**370**	**lots**	**100%**

YARRAWONGA EAST DEVELOPMENT ANALYSIS SOUTH OF MURRAY VALLEY Highway			
			% G. D. Area
SITE AREA	**312.1**	**Ha**	
Gross Developable Area	**312.1**	**Ha**	
Public Open Space	**39.8**	**Ha**	**12.7%**
Active Recreation Reserve	8.5	Ha	2.7%
Open Space	5.5	Ha	1.8%
Open Space for Drainage & Water Treatment	25.8	Ha	8.3%
Net Developable Area	**272.4**	**Ha**	
Roads	**74.4**	**Ha**	**23.8%**
inc. Laneways and widenings for tree protection			
Net Residential Area	**198.0**	**Ha**	**63.4%**
Higher Density Area	4.0	Ha	
Standard Density Area	169.1	Ha	
Low Density Area (2000m² - 4000m²)	22.3	Ha	
Low Density Zone Area (4000m² min. lot size)	2.6	Ha	
Potential Development Yields			
Higher Density Area (average lot size 500 sqm)	79	lots	4%
Standard Density Area (average lot size 800 sqm)	2114	lots	96%
Low Density Area (average lot size 1500 sqm)	17		1%
Estimated Total Yield	**2210**	**lots**	**100%**

Open Space

The Development Analysis identifies approximately 50.7ha of land for open space, including both unencumbered and encumbered spaces. Some of this space may ultimately be considered unencumbered and thus contribute towards the provision of open space.

Four 'types' of open spaces are proposed in the Study Area:

1. Active recreation (south of the highway)
2. Key open space (north of the highway)
3. Local parks
4. Drainage and water quality retention.

Interfaces with all open spaces should be open, high quality and include a mixture of standard and medium density development. Development should face all spaces and ideally a road should be provided in between (park-road-development). These measures promote an active interface for the park thus encourage its passive surveillance, increased safety, and increased use.

Approximately 8.5ha of active open space is proposed south of the highway on Whites Road and a new east-west connector road which also provides for a local bus service. This space will ultimately provide new active recreation facilities (i.e. oval, sports club) and whilst the land can be provided via an open space contribution its development costs will need to be alternatively sourced. This space will provide vital facilities for the new population of the Study Area though needs to be complemented by a similar space west of Botts Road.

A key linear linkage comprising traditional open spaces and wider road reserves is proposed from Henderson Street through to the highway via a new east-west connector road. Key features include:

- A north-south connector road with a wider road reservation to incorporate an off-road shared path and significant tree plantings.
- A new east-west linear reserve partly utilising the existing irrigation channel connection to Lake

Mulwala. It is acknowledged this reserve requires the decommissioning or piping of the channel and provision for the funding of this requires further consideration. The reserve has the potential to connect west to the Silverwoods development.

- Expansion of the existing municipal reserve on Rosemary Court.
- A new east-west open space extending west from Fenwick Place to the new north-south connector road and local activity centre.

Local parks are provided throughout the Study Area to ensure all new residents are generally within a maximum 400/500m walking distance. These parks may be smaller, as shown west of Hogans Road, or larger as shown south of the highway. It is noted that generally areas of low density development do not require the provision of open space at the same ratio as more 'standard' residential development due to their increased lot sizes.

Three drainage/water quality treatment spaces are proposed along the southern Murray Valley Highway interface. These spaces have an approximate area of 25.8ha, approximately 8% of the Study Area south of the highway. Currently these spaces are included as 'Encumbered Open Space' in the Development Analysis as they are required for drainage and water quality treatment and will not be attributed to the 5% open space contribution. The general objectives for the drainage measures required are outlined further below but specific detail and areas will need to be determined at the subdivision application stage. This will need to consider what land is encumbered and unencumbered and thus what can be attributed towards the open space contribution (i.e. additional land may ultimately be unencumbered).

These three spaces should provide a mixture of environments for residents and travellers along the highway. Opportunities exist for existing vegetation to be integrated, together with any other buildings etc.

It is noted that not all landholdings within the DP area will provide land for open space, and some provide in excess of their statutory 5% requirement. The provision of open space therefore requires an equalisation scheme to ensure all landholders/ developers contribute equally.

Local Neighbourhood Centre

A local neighbourhood centre is proposed at the intersection of the Murray Valley Highway and the new north-south connector road north of the highway. This centre will have an approximate area of 0.5ha and will provide local shopping facilities for the surrounding community. Such facilities may include a milkbar, café, video shop etc, but should not entail any higher order shopping facility (e.g. supermarket).

The centre's location capitalises on the activities associated with the highway, surrounding proposed medium density development and the linear open space link. These activities are essential to the centres viability and success. The centre's location also capitalises on evening traffic travelling home (west) into and away from the Study Area.

Road network

The road network is essentially built around the following proposed bus route:

- Henderson Street (connection to Henderson Street either via Hogans Road or the Silverwoods development).
- New north-south connector road essentially running parallel to Hogans Road.
- New east-west connector road essentially running parallel to the highway.

The road network is designed to capitalise on existing infrastructure and provide the grid network required to promote a connected and permeable neighbourhood. The local road network focuses on through connections between the key roads to promote walkability and alternative means of movement. They are also designed to provide lots with regular shapes and appropriate solar lot orientation.

The use of courts is minimised to where a through connection is not possible. It is generally argued that versus a through road, a court provides a quiet residential environment. To the contrary, a through road provides two points of ingress/egress, whilst a court only provides one, and the surrounding permeable road network, as proposed, assists in dispersing traffic.

The local road network west of Hogans Road proposes six new local connections from Hogans Road to form a basic grid network. Potential connections west to Silverwoods are included. The connection points reflect spaces between existing houses of sufficient width to accommodate a standard road reservation. The connection to Thornton Way is not proposed though a developer may wish to utilise this potential in the future. The central east-west connection to this area is located approximately adjacent to the linear reserve providing direct access to Lake Mulwala. This road reservation should be slightly wider to reflect its importance in providing this link and an off-road shared path and alternative tree planting may be appropriate.

East of Hogans Road, the road network is influenced by the linear reserve to Lake Mulwala. This reserve forms the focus of this area and should be appropriately landscaped. The ability of the north-south connector road to connect to Rosemary Court is limited via sight lines on the street. The location of this intersection needs to be designed cognisant of this.

The local road network in the north of the highway precinct is formed around the north-south connector road and the linear open space. The latter in particular is the focus for the local network with many streets running north-south to take advantage of the 'down the street' views. Additional opportunities to link into Rosemary Court have not been capitalised on at this point though a developer may wish to in the future. To this end the key access to the lake is via Fenwick Place which requires appropriate redevelopment that recognises its 'landmark' features and location as an access point to Lake Mulwala.

As well as this, it will be a critical point for boat access to the lake and therefore trailer parking. Detailed design of this area should ensure adequate parking and access opportunities for vehicles with boats is provided.

The eastern end of this precinct is difficult as the land narrows considerably. It is proposed to address the highway as much as possible via a mixture of internally accessed service roads and open space. This land forms the eastern entry to Yarrawonga and thus requires specific design and landscaping consideration.

South of the highway the local road network forms a more traditional grid network, and indeed, the DP does not illustrate all the local roads that will ultimately need to be developed in this area. Instead the network shown allows for a flexibility in lot sizes and it is intended this detail be provided at the subdivision application stage.

The well connected network will allow for all streets to have under 3,000 vehicle movements per day. Street form in accordance with Clause 56 of the Moira Planning Scheme is recommended.

Residential development

Over 260ha of residential land will be provided by this Study Area. Of this, approximately 200ha is located south of the highway. It is considered the land north of the highway will be developed first due to its proximity to the lake and connections to existing development. Development south of the highway is considered to be a future long term proposition, though the DP provides a sound framework now should this timeframe be brought forward.

Previous discussion in Section 4.4.1 refers to the need to provide a diversity of development options. This is achieved in this Study Area by identifying areas of 'standard', 'medium' and 'low' densities. The vast majority is 'standard' and it is anticipated these areas will achieve a lot size of between 700sqm and 1000sqm, and an average of 800sqm. The road network provides the flexibility, however, for alternative averages to be achieved if so desired.

04

Pockets of medium density development are identified throughout the Study Area. These are all either located adjacent to open space or the local neighbourhood centre to provide either added lot amenity or critical mass. It is anticipated these areas will achieve an average lot size of 500sqm, though flexibility in the road network provides for alternative averages to be achieved if so desired.

Low density areas are provided in two places where such an interface is warranted. A standard to lower density development produce may also be appropriate in the southern areas of the southern precinct. This may provide for a 1000-2000sqm product that may be required by the market. The flexible road network will provide for this.

Irrigation channel

The decommissioning or piping of the irrigation channel will provide for a significant open space link through to Lake Mulwala. This link will be approximately 50m wide and will require landscaping to lessen the visual impact of the back fences that currently line the area. Other areas of the channel will be reclaimed for development purposes. The success of this proposal depends upon the confirmation of decommissioning or piping the channel.

Vegetation

Little vegetation exists across the Study Area though those within the southern reservation of the highway are able to be integrated into adjacent open spaces. Where vegetation does exist on a particular land parcel, if suitable, its retention is encouraged preferably within road reserves or open space.

4.5 Development Contributions

In a Study Area with many separate landholdings it is important that the cost of providing open space and key infrastructure items is equitably distributed. Ideally these matters would be considered as part of a Development Contributions Plan (DCP), though a DP can provide the same level of guidance without the statutory requirements of the DCP.

4.5.1 Open Space

Approximately 50.7ha of public open space is to be provided across the Study Area. Of this, 19.9ha is to be provided as local parks, and thus is considered unencumbered, and 30.8ha is to be provided for drainage and water quality treatment purposes, and thus is considered encumbered.

The public open space is distributed as follows:

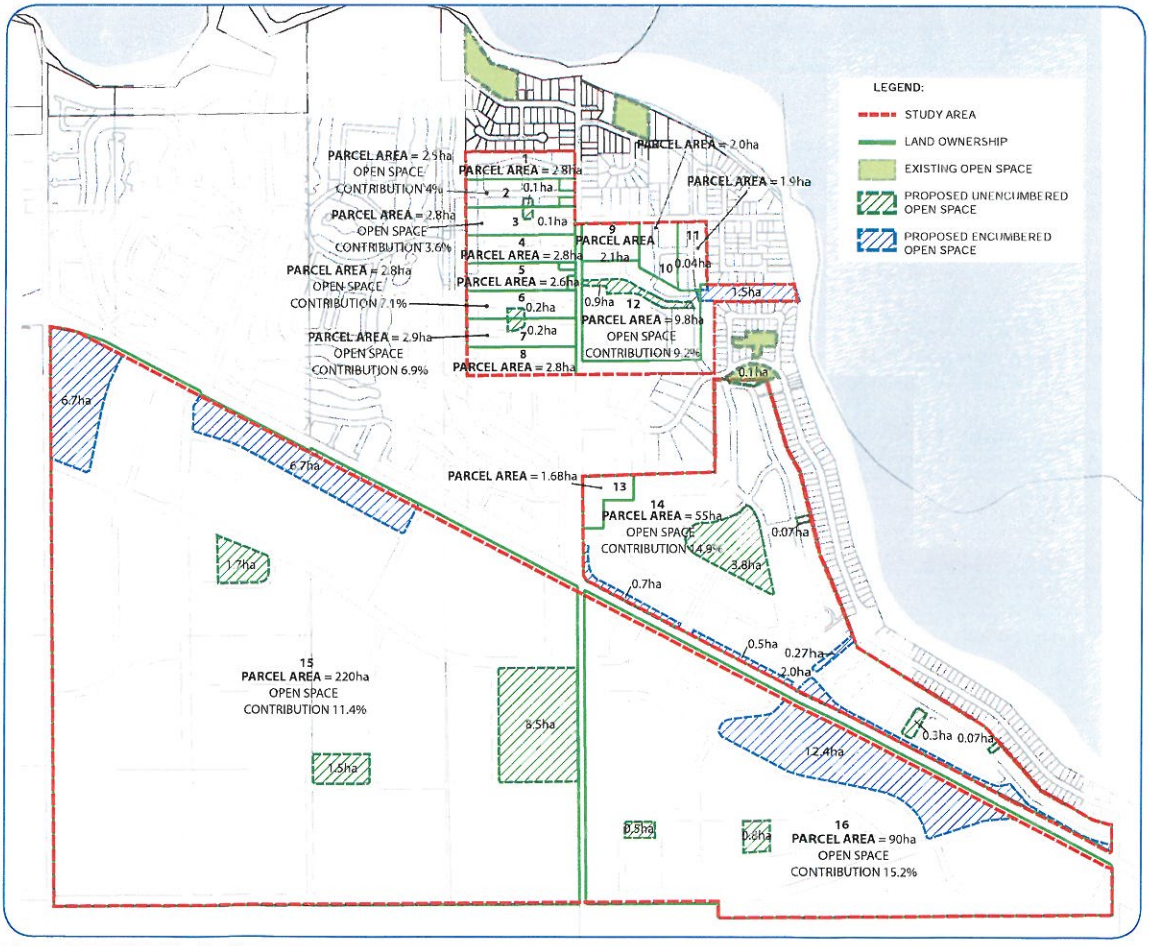


Figure 4.6 - POS Distribution

04

The following table provides a more detailed breakdown of open space in the Study Area:

Land Parcel No.	Parcel Area (ha)	Unencumbered POS (ha)	Encumbered POS (ha)	Total land to be provided (ha)
1	2.8	0.00	0.00	0.00
2	2.5	0.10	0.00	0.10
3	2.8	0.10	0.00	0.10
4	2.8	0.00	0.00	0.00
5	2.6	0.00	0.00	0.00
6	2.8	0.20	0.00	0.20
7	2.9	0.20	0.00	0.20
8	2.80	0.00	0.00	0.00
9	2.1	0.00	0.00	0.00
10	2	0.00	0.00	0.00
11	1.9	0.00	0.00	0.00
12	9.8	0.90	0.00	0.90
13	1.7	0.00	0.00	0.00
14	55	4.24	3.47	7.71
15	220	11.70	13.40	25.10
16	90	1.30	12.4	13.70
	404.5	**18.74**	**29.27**	**48.01**

Table 4.1 - POS Distribution

The location of unencumbered open space has been determined via a thorough design process and meets the requirements of the Moira Planning Scheme (including ResCode). It should generally be provided in accordance with the size and location shown in the DP.

The encumbered open space relates to land primarily required for drainage and water quality treatment purposes. As this is its primary use, and will be developed as such, it is not considered to be useable open space and thus does not count towards a lots public open space contribution. The figures provided in the table above for the encumbered public open space are indicative only. They may increase or decrease depending upon the specific drainage strategy proposed. Clearly if the land area required for drainage and water quality treatment purposes decreases then the developable area of the site increases.

The Subdivision Act 1988 requires a 5% public open space contribution when the land is subdivided.

The table below notes that several land parcels (numbers 6, 7, 10 and 14) provide more than this contribution, whilst others are providing less or no unencumbered land to be credited towards their open space contribution.

All landholdings should provide 5% public open space, either via a land or cash in lieu contribution. This table outlines the public open space requirements for each landholding.

The cash in lieu contribution should firstly be used to reimburse those landholdings that are providing in excess of the 5% unencumbered land contribution. Alternative uses for the contribution should be in accordance with the requirements of the Subdivision Act and Moira Planning Scheme though may be put towards the development/ improvement of other spaces within Yarrawonga East that are likely to be used by the new residents of the Study Area.

Land Parcel No.	Parcel Area (ha)	Unencumbered POS (ha)	% of POS to be provided	POS requirement
1	2.8	0.00	0.0%	5% cash in lieu
2	2.5	0.10	4.0%	0.1ha (4%) POS provided, 1% cash in lieu
3	2.8	0.10	3.6%	0.1ha (3.6%) POS provided, 1.4% cash in lieu
4	2.8	0.00	0.0%	5% cash in lieu
5	2.6	0.00	0.0%	5% cash in lieu
6	2.8	0.20	7.1%	0.2ha (7.1%) POS provided, 2.1% cash reimbursement
7	2.9	0.20	6.9%	0.2ha (6.9%) POS provided, 1.9% cash reimbursement
8	2.8	0.00	0.0%	5% cash in lieu
9	2.1	0.00	0.0%	5% cash in lieu
10	2	0.00	0.0%	5% cash in lieu
11	1.9	0.00	0.0%	5% cash in lieu
12	9.8	0.90	9.2%	0.9ha (9.2%) POS provided, 4.2% cash reimbursement
13	1.7	0.00	0.0%	5% cash in lieu
14	55	4.24	7.7%	4.24ha (7.7%) POS provided, 2.2% cash reimbursement
15	220	11.70	5.3%	11.7ha (5.3%) POS provided, 0.3% cash reimbursement
16	90	1.30	1.4%	1.20ha (1.4%) POS provided, 3.6% cash in lieu
	404.5	**18.74**	**4.6%**	

Table 4.2 - POS Contribution

4.5.3 Utility Infrastructure

Funding of Water and Sewerage "Shared Distribution Assets" is to accord with the statutory guidelines of the Essential Services Commission, Victoria.

Developer contributions for the shared drainage assets including shared underground drainage pipes , land compensation, retardation basins, pumps, rising mains, wetlands and outfall infrastructure is yet to be determined.