

2 Cobram

2.1 Study Area

The Cobram Study Area is shown in Figure 2.1 below. It covers an area of approximately 160ha between 1 and 2km south-east of the Cobram Town Centre. It is generally bounded by the Murray Valley Highway and RACV Tourist Club to the south, River Road to the east, existing development along Cornish Street to the north, and existing development to the west. Campbell Road bisects the study area in a north-south direction.

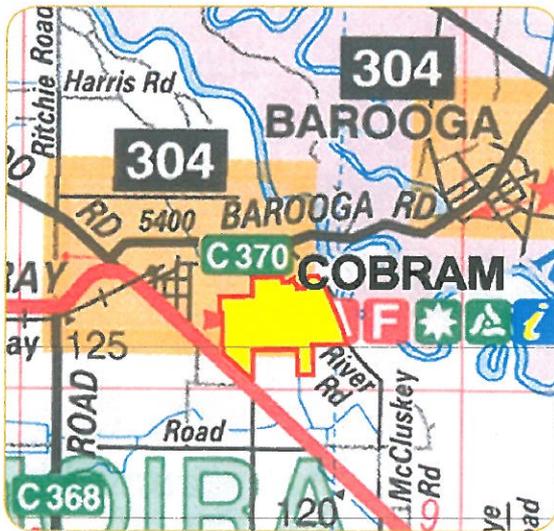


Figure 2.1 - Cobram Study Area, RACV Vicroads Ed 4.

2.2 Site Analysis

The Site Analysis Plan is included as Attachment 2.1. 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.

2.2.1 Key features & opportunities & constraints

The key features and the opportunities and constraints of the Study Area include:

- Four areas that are constructed or developed for residential purposes:
 - Campbell Road/Francis Drive/Ellen Drive – fully developed with the exception of several lots on Ellen Drive. Dwelling construction styles appear to be from the 1980s. Development includes a cluster dwelling site on Campbell Road.
 - Newly completed development on Campbell Road directly west of Christ the King School and south of the Sports Centre. This development comprises 24 residential lots and forms stage 1 of a larger subdivision.
 - Elberta Court - recently completed off Campbell Road east of the Sports Centre and south of existing development on Cornish Street.
 - Bisogni Drive/Gattuso Drive – Recent development off River Road being progressively developed.
- Three further parcels of land have approval to be subdivided into residential lots:
 - The second stage of the newly completed development west of Campbell Road, south of the Sports Centre.
 - The wedge of land north of the Murray Valley Highway and west of Campbell Road.
 - The land surrounding the recent Elberta Court subdivision.

- All other land within the Study Area is a mixture of vacant land and orchards. The orchards are progressively being removed for residential subdivision.
- The existing road network within the Study Area focuses on Campbell Road, River Road, Cornish Street, Scenic Drive and Bisogni Drive. Campbell Road is the primary connector road in the area. Its future role in the area's development is constrained by existing development along it. In general, east-west connections from the Study Area to the Town Centre are constrained due to previous development and current approvals that do not promote movement connectivity and subdivision permeability.
- Potential road connections from the current road network exist though the Study Area:
 - Two connections are possible via Wills Street – the continuation of Lawson Drive and the construction of an existing road reservation east of Waratah Court.
 - The eastern continuation of Toms Drive. It is noted this road connection is limited by the existing planning approval for the subsequent stages of the development to the east. Further discussion on this matter is provided in Sections 2.4.1 and 2.4.2.
 - Two western connections from Francis Drive and Ellen Drive.
 - Southern connection from Cornish Street.
 - Southern extension of Scenic Drive.
 - Western extension of Bisogni Drive.
 - Southern extension of Gattuso Drive.
 - Western connection from River Road.

These connections are in addition to new possible connections from Campbell Road.

- Potential open space connections from the existing open space network exist through the Study Area:
 - Local park at the end of Sturt Street.



Bisogni Drive - new stage release

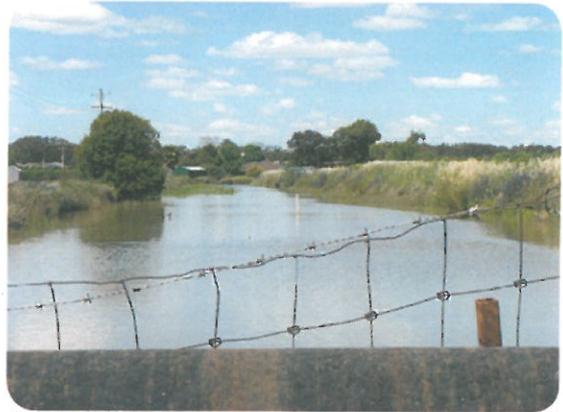
- Municipal reserve on Wills Street, adjacent to the unconstructed road reservation.
- Municipal reserve adjoining Hovell Court and Toms Drive.
- Sports Centre/sporting field/retarding basin directly north of the Study Area, west of Campbell Road.
- Linear link from the eastern end of Elberta Court.
- Public open space reserve between Murray Heights and Scenic Drive.
- Municipal reserve between Sunrise and Stephanie Court's, including a connection to the Murray River.
- Additional open space opportunities include:
 - Use of the retarding basin west of Campbell Road.
 - Use of the irrigation channel.
 - Use of the retarding basin south of Cornish Street.
 - Retention of existing scattered vegetation east of Christ the King School.
- Christ the King School exists north of the irrigation channel, east of Campbell Road. Cobram Primary School exists approximately 100m west of the Study Area.

- Significant open space areas exist to the immediate east of the Study Area along the Murray River, and north-west at the Cobram Showgrounds.
- Aged Care facilities exist approximately 50m north of the Study Area.
- Two retarding basins exist within the Study Area:
 - West of Campbell Road – a relatively shallow basin that could be utilised as part of local open space for the area. This basin is contained within a municipal reserve for drainage purposes (currently fenced).
 - South of Cornish Street – a deep basin that cannot be incorporated into accessible open space in its present form. This basin is contained within a municipal reserve for drainage purposes.
- The irrigation channel bisecting the Study Area is to be decommissioned providing development opportunities for the land it occupies and reducing the area's constraints. It is noted that part of the channel west of Campbell Road is within a municipal reserve for open space. The remainder of the channel is constructed within private property.
- Existing vegetation within the Study Area is limited with scattered trees existing only east of Christ the King School.
- A ridge line traverses the eastern portion of the Study Area in a general north-south direction.

These features, opportunities and constraints significantly influence the layout of the Development Plan. How they influence the DP is discussed further in 2.4.



Development to the north



Irrigation Channel



Possible road link to Wills Street



Southern connection from Cornish Street



Local park at the end of Sturt Street



2.2.2 Traffic issues

The Development Plan area is such that there is around 103 hectares of new development, potentially yielding around 1,000 dwellings generating around 8,000 daily vehicle movements. Most of this traffic will be moving between the Town Centre and the Development Plan area, with concentrations along Campbell Road, Punt Road and Mookarii Street.

That part of the Development Plan area west of Campbell Road has an area of 40 hectares and development potential for around 350 dwellings. This is likely to result in daily traffic generation of around 2,800 vehicle movements, mostly with trip origin or destination to the north-west of the Development Plan area. Some connections to streets to the west of the Development Plan area would be beneficial in respect of keeping total vehicle kilometres travelled to practically low levels. This outcome needs to be balanced with preservation of appropriate levels of traffic related amenity in the existing streets to the west of the site.

Existing streets to the west of the DP area have been subdivided and developed such that imposition of substantial additional traffic loadings may create either real or perceived traffic related amenity problems. There are westerly connection opportunities available to Toms Drive, Lawson Drive and Wills Drive, each of which has been developed in a way that indicates their future eastward extension has been envisaged.

Accordingly the Development Plan provides several connections to Campbell Road to encourage use by people living in the western part of the Development Plan area, and also linkages to the available streets on the western side. These have been provided as a mix of vehicular and pedestrian connections.

The linkages with the existing development to the west are not intended to carry high volumes of vehicular traffic, but should carry some vehicles to assist with :-

- Provisions of “eyes on the street” to enhance pedestrian safety and security, and

- Reduction in total vehicle kilometres travelled for conduct of the daily tasks of people living close to the western edge of the Development Plan area.

It should also be noted that these connections are likely to benefit residents living in the existing streets who wish to travel between their homes and areas east and south-east.

A reasonably even sharing of traffic between the western connections should be such that no link will carry more than about 300 daily vehicle movements.

2.2.3 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 reconducting 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.

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

Goulburn Valley Region Water Authority (GV Water) is the responsible water authority.

GV Water has existing assets in the vicinity of the study area.

GV 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 GV 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 GV Water or otherwise by agreement between GV 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 GV Water's financial forward planning, then the Developer is required to contribute to the cost of the works. GV Water have indicated that they are very interested

in negotiating with the respective landowners within the study area in an effort to maximise the overall benefit to the respective landowners and minimise the overall costs as a consequence of constructing new infrastructure.

GV Water requires Developers to enter into a "Deed of Agreement For Developer Constructed Works." Detailed conditions relating to the required "Developer constructed works" are subject to an appraisal of an investigation report to be submitted to GV Water by the Developer's accredited consultant.

Some sewer assets exist in the area south of the irrigation channel west of Campbell Road that should be incorporated into the Development Plan design.

Potable Water

Goulburn Valley Region Water Authority (GV Water) is the responsible water authority.

GV Water has existing assets in the vicinity of the study area.

GV 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. GV Water acknowledges that their trunk network may have to be upgraded to ensure adequate supply conditions are met during peak demand periods, particularly to customers located on the higher "sand hill" ground.

The cost of new works would have to be borne by either the Developer(s) or GV 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 GV Water or otherwise by agreement between GV 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 GV Water's financial forward planning, then the Developer is required to contribute to the cost of the works.

GV Water requires Developers to enter into a "Deed of Agreement For Developer Constructed Works." Detailed conditions relating to the required "Developer constructed works" are subject to an appraisal of an investigation report to be submitted by the Developer's accredited consultant.

Some water assets exist in the area south of the irrigation channel west of Campbell Road that should be incorporated into the Development Plan design.

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 the Murray River. The stormwater will discharge to the Murray River 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.

Initial engineering computations indicate that a minimum of 8 - 10% of the land area within the DP is required to retard and treat stormwater. Three retarding basins exist within the DP area, and while they can cater for some additional flows, the DP needs to provide additional area for retarding in the south-east of the DP area, and areas for water quality treatment in both the south-east and west of Campbell Road.



2.3 Planning Context

2.3.1 Zoning

The zoning of the Study Area is illustrated in Figure 2.2 below.

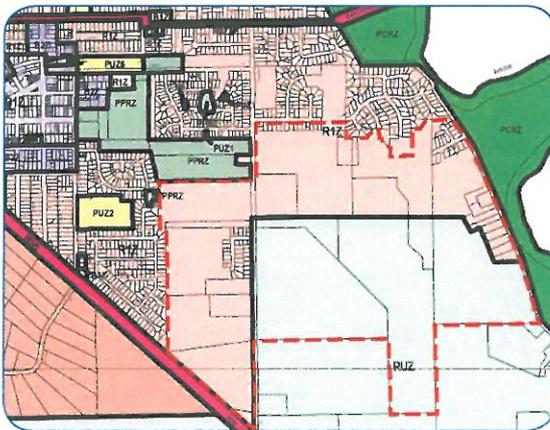


Figure 2.2 - Zones, Moira Planning Scheme

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.

The other half 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 half of the Study Area requires rezoning prior to its residential development.

2.3.2 Overlays

The Development Plan Overlay 1 (DPO1) applies to land zoned R1Z within the Study Area (refer to figure 2.3).

The DPO1 specifies that a Development Plan for this area must describe:

- The means of servicing to lots including the provision of reticulated water and sewerage to all residential lots;
- Layout of connector roads and the impact on the surrounding road system;
- The design and make up of residential lot density in a manner that reflects demand of the area;
- The need for open space and any other community infrastructure as considered necessary by the responsible authority; and
- The impact of the development on any sites of flora or fauna significance, archaeological significance or significant views that may affect the land.

It is likely that when rezoned, the DPO will also be applied to the RUZ land.



Figure 2.3 - Development Plan Overlay, Moira Planning Scheme

2.4 Development Plan

The Development Plan is included as Attachment 2.2. It provides the development, road and open space networks for the Study Area and has been developed cognisant of the issues outlined at Section 2.2. This section identifies the key influences on the development of the plan and then discusses its key features.

2.4.1 Key influences

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

- The need to provide a connected and permeable movement network.
- The need to provide useable and accessible open spaces.
- The need to provide a diversity of lot and dwelling opportunities.

A connected and permeable movement network

Cobram's population increased by approximately 18% between 1981 and 2001. Building data figures between 2000 and 2003 indicate a yearly average of 27 new dwellings approvals in Cobram. It is noted this average is less than both Yarrawonga and Numurkah and it is anticipated this relatively steady pace of growth will continue in the immediate future.

In accordance with State Planning Policy, a minimum 10 years of residential land supply should be maintained in Cobram. It is estimated Cobram currently has approximately this amount of supply, the majority of which is contained within the Study Area.

In terms of Cobram's future growth direction, it is generally constrained in all directions except the south-east (i.e. in the direction of the Study Area):

- Low density development and flooding potential constrains significant development south of the Murray Valley Highway.

- Industrial development and vacant land to the west will become a built impediment to further residential development in this direction.
- The environs of the Murray River to the north preclude further development in this area.

This implies that future residential development beyond the immediate 10 year land supply will need to be to the south-east. Part of this will be the land in the Study Area zoned RUZ.

This is a significant influence on the movement network of the Development Plan. Existing traffic issues and the lack of connections north-west to the Town Centre were significant issues raised during the initial consultation sessions. To this end it is necessary for the Development Plan to take a longer term view of the movement network in the south-east and develop a strategy that helps disperse and manage future traffic flows.

Unfortunately this is constrained by the lack of opportunities for connections through to the west. In essence, access to the Town Centre for the Study Area is via Campbell Road and either Hay Avenue or Mookarii Street. The Murray Valley Highway may provide some access to the Town Centre though is not considered the most desirable option.

West of Campbell Road, access opportunities have been identified in Wills Road and Toms Drive. Toms Drive, due to a current development permit, will only provide pedestrian connections. Links to Wills Street are easier with an unmade road reservation and the extension of Lawson Drive available.

Whilst these provide options, none of them will be more than relatively local connections. Indeed, due to the existing development west of the Study Area, no more significant connection is possible in this direction. The amenity of existing residents in these areas must be retained, and regardless, the relevant road infrastructure and reservations are not suitable for higher levels of traffic.

To this end, Campbell Road must continue to be the main connector to the Town Centre. Unfortunately the future ability of Campbell Road to provide this function is reduced due to lots having been provided with direct access to Campbell Road, and the construction of buildings at various intervals along its length negating opportunities for it's widening in some locations. These factors limit the opportunity to widen the road, and thus accommodate greater traffic volumes and provide a safe traffic environment, in the future. Minor opportunities exist in some areas and these should be reserved now.

East of Campbell Road, additional options are provided via River Road, Cornish Street and Scenic Drive, but again, the focus will be on Campbell Road. Opportunity also exists for an additional future connection to the Murray Valley Highway, and the purpose of the Development Plan is to identify and plan for this now. Unfortunately the lack of traffic and development planning in Cobram has produced the difficulties outlined above.

Whilst the Development Plan cannot provide new east-west connections to the Town Centre through existing developments, it can provide a network that disperses the traffic and thus reduces the impact of future traffic on existing development. Important in this is capitalising on the limited opportunities identified in the Site Analysis stage, and ensuring new development within the Study Area adopts a connected, permeable network.

These objectives have been discussed in Section 1, particularly in regard to Neighbourhood Linkages and Well Connected Streets. The network adopted needs to ensure new developments connect to existing neighbourhoods and infrastructure and should aim to attract a high level of use by pedestrians, cyclists and the less-abled. A connected grid street design encourages the provision of public transport and eases traffic by providing drivers with alternate routes. Generally minor changes are required to those approved developments to meet these objectives.

Useable and accessible open spaces

Section 2.2 identified numerous 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 Cobram is ad hoc, inefficient and generally does not meet the requirements of the community. The spaces identified in Section 2.2 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 undesirable 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 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 can provide for this, though requires a planning scheme amendment to be implemented. 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) 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 does not meet these, except in specific circumstances.

An example of a previous open space contribution is that for subdivision of what is referred to as 'Parcel 2' in Section 2.5 of this report, a contribution of a reserve

over the existing irrigation channel was provided. This is hardly 'public open space', as it is not land accessible to the public and does not serve any recreational needs.

With an approximate area of 160ha, the Study Area should provide approximately 8ha 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 contribution plan.

In terms of this Study Area, the opportunities for local links west of Campbell Road should be provided. This continues the theme of the previous section to integrate new development with existing. While the existing Council reserve that is currently occupied by the irrigation channel could be transferred to a linear link once the channel is decommissioned due to existing approvals and services it would be abutted by rear fences on both sides. It is considered more appropriate for this to be integrated into the development and more useable open space provided in a more central location.

The two drainage basins within the Study Area can be incorporated into larger areas of open space, particularly that west of Campbell Road with its shallow nature meaning it may be useable for some times of the year. The opportunity also exists for this space to provide for required water treatment facilities. The basin south of Cornish Street is more limited due to its depth, though redevelopment options may ultimately be available.

The unconstrained nature of the area east of Campbell Road means two good sized spaces can be provided and designed around. These areas should be of adequate size to provide for informal active recreation and a focal point for local communities, as well as catering to drainage needs.

No additional formal active recreation spaces are required in the Study Area with the existing facilities in Cobram sufficient for the community.

Traffic on Streets

The diagram below shows estimated daily traffic movements in the streets within the Development Plan, at full development of the Development Plan area.

Existing traffic volumes on key streets are taken from recent counts by Moira Shire Council, and are as follows :-

- Mookarii Street (Broadway) 8,000 vehicles per day
- Campbell Road near Murray Valley Highway 1,100 vehicles per day
- Campbell Road near Cornish Street 2,500 vehicles per day.

Total estimated traffic generation onto Campbell Road to the north of the Development Plan area is around 8,000 vehicle movements per day. That will take the volume of traffic on Campbell Road north of Bisogni Drive to around 10,000 vehicle movements per day. This is expected to be shared between Punt Road and Mookarii Street, and so there will be some diminution of traffic on Campbell Road north of Punt Road.

The 2 lane roads can accommodate 10,000 vehicle movements per day, and more, but traffic related amenity will be degraded unless appropriate traffic management strategies are imposed by Council.

Diversity of development options

With an approximate area of 160ha, the Study Area has the ability to provide approximately 1,000 new lots, depending on the ultimate density of development. As previously discussed, the R1Z component of the Study Area comprises near to the town's entire 10 year land residential supply. Given this focus, it is important that a diversity of development options are provided within the Study Area.

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 Cobram's community desires. As per most traditional subdivision development, the existing average lot size in Cobram 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.

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.

Density of development areas are generally dictated by existing interfaces and the location of infrastructure and services.

A lower density interface in the Study Area should be provided adjacent to existing low density development on River Road. This would also provide a suitable transition to the adjacent Murray River environs.

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 critical mass required to make these services viable.

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

2.4.2 Development Plan Features

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

Development Analysis

COBRAM DEVELOPMENT ANALYSIS			
			% G. D. Area
SITE AREA	156.7	Ha	
Encumbered Land	3.2	Ha	
Existing Drainage Reserves	3.2	Ha	
Gross Developable Area	153.5	Ha	
Christ the King School (Existing)	3.9	Ha	2.5%
Local Neighbourhood Centre	0.1	Ha	0.1%
Public Open Space	7.8	Ha	5.0%
Local Parks and Linear Links	3.5	Ha	2.3%
Additional Open Space for Water Treatment	4.2	Ha	2.8%
NET DEVELOPABLE AREA (UNDEVELOPED)	141.8	Ha	
Roads	35.5	Ha	23.1%
inc. Laneways and road widenings			
Net Residential Area	106.3	Ha	69.2%
Higher Density Area	6.5	Ha	
Standard Density Area	92.9	Ha	
Low Density Area	6.8	Ha	
POTENTIAL DEVELOPMENT YIELDS			
			% Total Yield
Higher Density Area (average lot size 500 sqm)	130	lots	10%
Standard Density Area (average lot size 800 sqm)	1161	lots	87%
Low Density Area (average lot size 1500 sqm)	46		3%
Estimated Total Yield	1337	lots	100%

Open Space

The Development Analysis identifies approximately 7.8ha of land for open space, including encumbered space within the three drainage reserves, with the remaining being unencumbered.

Three new major open spaces are proposed:

1. Reserve west of Campbell Road incorporating an existing retarding basin.
2. Central reserve east of Campbell Road.
3. Reserve east of Campbell Road, near to River Road.

The shallow nature of the existing retarding basin west of Campbell Road lends itself to being extended and adapted for general open space purposes. The reserve is to be extended to the west and north, and provision made for additional water quality treatment measures to also be developed within the reserve area. It is to be fronted by roads on all four sides. A pocket of medium density development is also proposed to the west and north.

Located at the intersection of two key roads the central reserve east of Campbell Road will be the focal point of the eastern precinct. It should provide facilities for informal active recreation such as suitable areas for 'kicking a football' and a playground. Interfaces with the park should be open, high quality and include a mixture of standard and medium density development.

The third major new open space is to the east of the central reserve and will cater for retardation and water treatment as well as providing for recreational pursuits.

Additional open space is generally provided as extensions of existing spaces in adjacent developments. Extending these spaces provides more suitably sized spaces, and immediate connectivity and integration with existing communities. Additional linear connections are provided where connections within road networks to other facilities are lacking.

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 (refer to section 2.5.1 for further discussion).

Local Neighbourhood Centre

A local neighbourhood centre is proposed at the intersection of Campbell Road and the new connector road for the eastern precinct. This centre will have an approximate area of 0.16ha 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 centres location capitalises on the activities associated with Campbell Road, Christ the King School, surrounding proposed medium density development and the linear open space link. These activities are essential to its viability and success. The location also capitalises on evening traffic travelling home (south) into the Study Area.

The inclusion of any community facilities in this area (ie. child care, kindergarten) should be encouraged to co-locate with the local neighbourhood centre and school, to combine to form a 'community hub'.



Movement Network

The movement network is built around Campbell Road and new east-west connections.

West of Campbell Road the four connections identified are utilised:

1. Eastern continuation of Lawson Drive
2. Construction of existing road reservation from Wills Street.
3. Western continuation of Francis Drive
4. Western continuation of Ellen Drive.

These will be local connections only due to the need to retain the amenity of existing residences and limitations of these road networks. They will, however, provide important connectivity and integration between new and old developments.

It is anticipated these connections will disperse new traffic generated, but reliance upon Campbell Road will still be significant. The future limitations of Campbell Road have been previously discussed. To assist with meeting future demand, a 5m widening is proposed on its eastern side between the RACV Tourist Club and the local neighbourhood centre site. This area should be provided as part of the development of this landholding and the landholder duly compensated.

East of Campbell Road the new street network is built around a new connector road. The local neighbourhood centre and central reserve will be constructed to front this road which will also provide access to land further south if ultimately needed. The remaining road network in this precinct is loosely based on an east-west grid network.

East of Campbell Road the five connections identified are utilised:

1. Southern connection from Cornish Street.
2. Southern extension of Scenic Drive.
3. Western extension of Bisogni Drive.
4. Southern continuation of Gattuso Drive.

5. Western connection from River Road.

The connections from Cornish Street and Scenic Drive will be relatively local though provide important connections through to existing development and services.

The extension of Bisogni Drive forms a key east-west connection through to Campbell Road north of Christ the King School. The continuation of Gattuso Drive will provide a key north-south connection through the eastern portion of the precinct. The new connection from River Road also provides a key east-west connection through to Campbell Road north of the RACV Tourist Club.

These roads are critical to the structure of the remainder of this precinct. They are 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.



Figure 2.4 - Pedestrian/Bicycle Network Plan

Traffic Management Strategies

The most important traffic related amenity outcomes are effected by the speed, volume and composition of the traffic. High speed trucks are a very poor fit with residential frontages, whereas a well behaved stream of cars travelling at 50kph may have a relatively small impact on residential amenity.

At traffic volumes above about 8,000 vehicles per day there are periods when reversing from driveways becomes difficult due to a lack of gaps in the traffic stream, and crossing of the road on foot becomes difficult and/or dangerous. Traffic signal controls at an intersection create gaps in the traffic streams which then facilitate turning movements and pedestrian crossing movements at the signal controlled junction and nearby. At busy times around a school the effect of a signal controlled pedestrian crossing can be extremely beneficial.

Accordingly we are recommending that Campbell Road be managed to keep truck traffic to an absolute minimum, and to include a signal controlled pedestrian crossing near it's intersection with Bisogni Drive and the sports centre.

We also recommend that the Campbell Road reservation be widened along the eastern side by 5 metres. This will allow for a 2.5 metre wide shared path separated from lot front boundaries by 2.5 metres. The separation is to enhance safety of users of the path. We also recommend that Council engage with the Christ the King School to negotiate around a path connection to the north, at least to connect with the possible signal controlled crossing at the sports centre.

The school path can be part of a link from the RACV resort back to the Town Centre and perhaps further to the south as well.

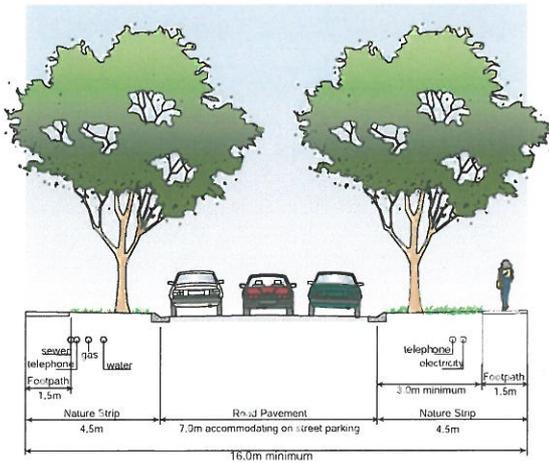
Street Form for the Development Plan

With the connectivity proposed in the Development Plan there will be no section of street that will carry more than 3,000 vehicle movements per day other than Bisogni Drive near Campbell Road.

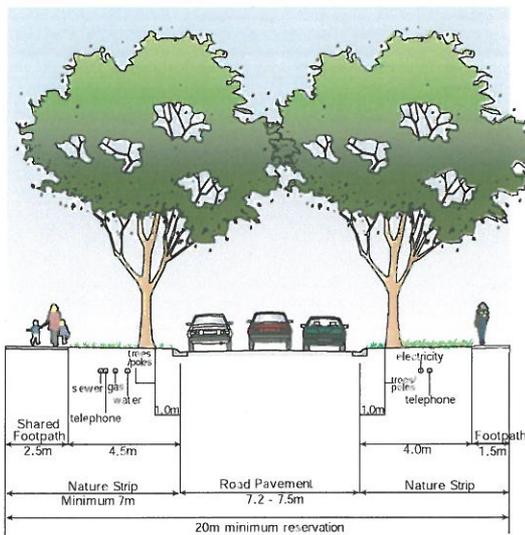
AustRoads (Part 14) Guide to Traffic Engineering Practice recommends that separate cycling facilities are indicated at daily traffic levels above 3,000 vehicles, but that below 3,000 vehicles per day it is typically appropriate for cyclists to share the roadway with other traffic.

To create a legible and well connected street network we are proposing that the major streets have landscape and pavement construction that indicates their function. Minor streets will be conventional "Access Street" form, as set out in Clause 56 of the Moira Planning Scheme.

The following diagrams indicate the typical street forms for use in the Development Plan area.



LOCAL STREET
Minimum 16m road reservation



COLLECTOR ROAD
Minimum 20m road reservation

Environmental Traffic Speed Control

The Development Plan indicatively suggests two roundabouts along the connector street network. These may be avoided by using a staggered junction, which is likely to enhance the aesthetics of the streets. Staggered junctions and ramping to create slow points in the network, and these treatments can also be used if necessary for additional environmental traffic slowing.

It is our experience that traffic management devices generally require signage and expensive drainage solutions, and that they rarely contribute positively to the streetscape. Often they are a "solution" that is far worse than the "problem" that is the target of their installation. Accordingly we recommend care with requirements on developers of land for installation of traffic management devices.

The Development Plan provides a well connected movement network that can be used for public transport should that be provided.

Residential development

Over 106ha of residential land will be provided by this Study Area. Of this, approximately 24ha is already developed.

Previous discussion in Section 2.4.1 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, to meet changing lifestyles and demand.

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.

Existing Development

A low density interface is proposed along River Road reflecting this locality's adjacent development and parklands.

Two areas of approved though not constructed development west of Campbell Road have been previously discussed.

It is proposed changes be made to the structure of both of these to provide a more connected and permeable development. It is acknowledged that these changes rely on the cooperation of the relevant landholders/developers, and with existing planning approval do not need to be made. Council is encouraged, however, to approach these developers in order to achieve an overall better outcome for development west of Campbell Road.

The first two stages of the approved development south of the Sports Centre and retarding basin and thus connections to Campbell Road are committed. It is considered the following changes can be made to the approved development however without negatively impacting on end lot yields or development costs:

- Pedestrian connection to Toms Drive and through to the sports centre site.
- Southern road connection from the site to remainder of precinct to promote connectivity and permeability. This will provide residents of this development with access to public open space and other facilities/services further south.
- Discussions with the developer indicate that these two modifications are acceptable to them. With the decommissioning of the irrigation channel, discussions with the developer and Council have suggested that the channel land, rather than being 'back fenced' should be incorporated into the development and more appropriate open space be provided/ purchased elsewhere. The developer would need to purchase the part of the channel that is Council Reserve for this to occur.

- Promotion of blocks of medium density development fronting areas of open space.

Relatively minor changes are proposed to the approved development adjacent to the Murray Valley Highway:

- Provision of a northern connection to provide residents access to public open space and other facilities/services further north.
- Extension of one of the courts into a through road to provide permeability through the development.

Irrigation channel

The decommissioning of the irrigation channel provides the opportunity for its land to be redeveloped. The DP proposes this be a mix of open space and residential. The success of these elements of the DP depends upon the timing of the channel's decommissioning and negotiations between Council, affected landholders and Goulburn Murray Water.

A part of the irrigation channel land was provided to Council as a public open space contribution for an earlier subdivision of land immediately to its south. Any funds from sale of this reserve by Council should be put towards purchase of other open space in the precinct west of Campbell Road.

Vegetation

Little vegetation exists across the Study Area and the DP does not specifically propose to retain any of that identified. However, where vegetation does exist on a particular land parcel; if suitable, its retention is encouraged preferably within road reserves or open space.

2.5 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.

2.5.1 Open Space

Approximately 5% new public open space is to be provided across the Study Area. Of this 3.5ha is to be provided as local parks (0.64 of this is already provided), and thus is considered unencumbered, and 4.2ha is to be provided for drainage and water quality treatment purposes, and thus is considered encumbered.

The public open space is distributed as follows:

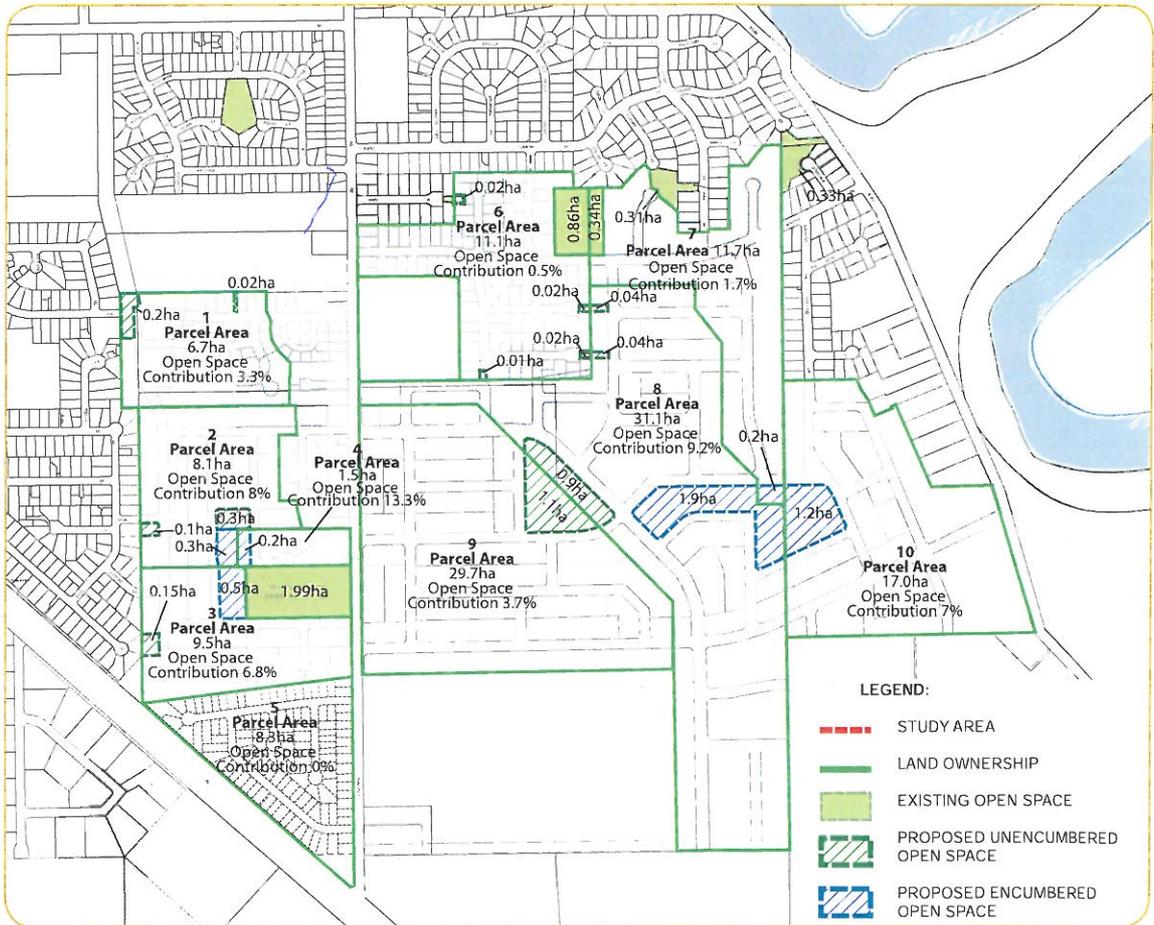


Figure 2.6 - Open Space Provision

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	6.7	0.22	0.00	0.22
2	8.1	0.40	0.30	0.70
3	9.5	0.15	0.50	0.65
4	1.5	0.00	0.20	0.20
5	8.3	0.00	0.00	0.00
6	11.1	0.07	0.00	0.07
7	11.7	0.00	0.20	0.20
8	31.1	0.90	1.90	2.80
9	29.7	1.10	0.00	1.10
10	17	0.00	1.20	1.20
	134.7	2.84	4.30	7.14

Table 2.1 - 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 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.

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 Cobram that are likely to be used by the new residents of the Study Area.

It is noted that with surrounding recent development some developers may have existing public open space agreements with Council and these will also need to be taken into consideration. Furthermore, existing open spaces and retarding basins are not included within the open space contribution and again Council may wish to take this into consideration when determining appropriate amounts.

It should be noted that Parcel 2 has already satisfied its public open space contribution as required by Planning Permit 91/480, which required the landowner to create the reserve that now exists over part of the irrigation channel (PS312120 ResA).

It is suggested in this report that this reserve be sold to allow for suitable development in this area. As such, any funds received as part of this potential sale of reserve land should be used to acquire other open space in the area west of Campbell Road, to replace this contribution.

Land Parcel No.	Parcel Area (ha)	Unencumbered POS (ha)	% of POS to be provided	POS requirement
1	6.7	0.22	3.3%	0.22ha (3.3%) POS provided, 1.7% cash in lieu
2*	8.1	0.40	4.9%	0.4ha (4.9%) POS provided, 5% reimbursement
3	9.5	0.15	1.6%	0.15ha (1.6%) POS provided, 3.4% cash in lieu
4	1.5	0.00	0.0%	5% cash in lieu
5	8.3	0.00	0.0%	5% cash in lieu
6	11.1	0.07	0.6%	0.07ha (0.6%) POS provided, 4.4% cash in lieu
7	11.7	0.00	0.0%	5% cash in lieu
8	31.1	0.90	2.9%	0.9ha (2.9%) provided, 2.1% cash in lieu
9	29.7	1.10	3.7%	1.1ha (3.7%) provided, 1.3% cash in lieu
10	17	0.00	0.0%	5% cash in lieu
	134.7	2.84	2.1%	

Table 2.2 - POS Contribution

* note: Parcel 2 has already satisfied its P.O.S contribution, therefore will need to be compensated.

2.5.2 Road Infrastructure

We recommend that development contributions be sought to fund the following :-

- Shared path along Campbell Road, including compensation for the land value in respect of the 5 metres widening of the reservations,
- Pedestrian operated traffic signal controlled pedestrian crossing at the Sports Centre entrance on Campbell Road,
- Shared path connection through the Sports Centre to Punt Road.

2.5.3 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. Some existing agreements between developers and Council will need to be taken into account when considering any contributions to drainage assets.