

# Shepparton Northeast Growth Corridor PSP Open Space Review

## About this document

This document is the Shepparton Northeast Growth Corridor PSP Open Space Review.

It outlines key issues established through a review of documentation provided by the City of Greater Shepparton and supporting consultants relating to the provision and layout of open space, roadways and stormwater management in the PSP area. Plans are included as attachments to show the progression made in the project and to support the content in this document.

This document builds on the Shepparton Northeast Growth Corridor Open Space Peer Review, produced for Council in 2010.

## Acknowledgements

@leisure would like to thank Jeremy Addison (Principal Strategic Planner, Major Projects) for his contribution to, information provided and enthusiasm for this project.

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Rear 534 Mt Alexander Rd  
Ascot Vale Vic 3032  
P: 03 9326 1662  
E: [info@atleisure.com.au](mailto:info@atleisure.com.au)  
[www.atleisure.com.au](http://www.atleisure.com.au)

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## 1. Introduction

### 1.1 Project purpose

The City of Greater Shepparton has engaged @leisure to review open space provision to guide the future development of the Shepparton Northeast Growth Corridor.

The plan recognises the importance of the Shepparton Northeast Growth Corridor to Greater Shepparton while addressing environmental, social, economic, sustainability, cultural and open space objectives.

#### ***Project Evolution***

In 2010 @leisure was engaged by Greater Shepparton Council to conduct a peer review of a Social Infrastructure Assessment as part of the Shepparton Northeast Growth Area Outline Development Plan and Development Contribution Plan, and the Shepparton Northeast Growth Areas PSP, prepared by Nordic. The brief specifically required these documents to be assessed for their compliance with the Greater Shepparton Planning Scheme and the GAA's PSP Guidelines.

In 2012 Council prepared additional work on this structure plan and sought further assistance in developing the concept and to prepare this document.

### 1.2 Site description

The precinct is 168ha in area and is located four kilometres northeast of the Shepparton CBD. It is bordered by Ford Road, Verney Road, and Grahamvale Road, and existing residential housing in the northwest and southwest, and industry in the south.

The Northern Neighbourhood Centre on the Goulburn Valley Highway is in the adjacent precinct, approximately 1km from western boundary of the PSP area. An additional Neighbourhood Activity Centre (NAC) is proposed for Shepparton East.

#### ***Natural and environmental features***

The PSP area is bisected with artificial irrigation channels, which run both in a north-south and east-west direction. A stormwater channel is located at the southern boundary of the site. The site is predominantly flat terrain with an absence of topographical features.

#### ***Cultural heritage***

A Cultural Heritage Assessment has indicated that there are currently no registered Aboriginal sites or places located within or near the PSP area. Aboriginal sites of high significance are unlikely to be found in the area due to the uniform flatness and absence of areas of cultural sensitivity such as rises, ridges dunes, semi-permanent rivers, creeks or billabongs. Previous land clearing activities have heavily disturbed the site also reducing the likelihood of Aboriginal site occurrence.

The Assessment also indicates that there are no registered examples of significant post settlement heritage sites or places within or near the site. However, a small weatherboard cottage, located on Lot 65 off Grahamvale Road may warrant further investigation. This will not provide any potential for any public recreation.

### ***Irrigation channels and drains***

Drainage and irrigation channels are a feature within and around the PSP area. There is an existing drain along the southern boundary of the site managed by Goulburn Murray Water. This drain has the capacity to accept increased stormwater directed to it. A number of irrigation channels bisect the site.

### ***Biodiversity***

A Flora and Fauna Assessment concluded that the vegetation of the PSP area is highly modified and dominated by exotic and non-indigenous flora. The PSP area contains only isolated occurrences of indigenous understorey vegetation. The PSP area's past and existing land use activities are unlikely to provide habitat to threatened species.

### ***Transport and movement***

There are no formal internal roads in the precinct at present. There are a number of unsealed access and driveways that service the few residential and school properties.

## 2. Context

### 2.1 Review of supporting documents

The following documents have been reviewed.

#### **Greater Shepparton Planning Scheme - Clause 56.05**

Clause 56.05 of the Greater Shepparton Planning Scheme provides Council with policy objectives and standards for urban landscapes and public open space. In particular this clause provides both qualitative and quantitative standards for the provision of local-level open space, sport open space, and trails (see *Attachment 1: Clause 56.05 of the City of Greater Shepparton Planning Scheme* for greater detail).

#### **Growth Area Authority Precinct Structure Plan Guidelines**

The GAA PSP guidelines standardise the format and process for preparing a precinct structure plan for growth areas.

A number of elements in the guidelines touch on open space issues. Element 5. Open space and natural systems is the most relevant.

*Attachment 2: GAA PSP Guidelines – Element 5* outlines the key issues, standards and design responses from the Precinct Structure Plan Guidelines that concern open space.

The key open space design principles outlined in the guidelines are as follows:

Planning the provision of open space in a precinct structure plan is about quality and quantity.

The quantitative assessment is to determine the amount and type of open space to be provided by analysing such factors as:

1. the function of parks within the open space network;
2. appropriate distribution and proximity to the precinct's population;
3. community needs for open space in the anticipated population;
4. the amount of existing or planned open space in areas in the vicinity of the precinct.

The qualitative assessment involves taking into account:

- the precinct's physical features such as topography, extent of native vegetation, cultural heritage and drainage reserves and considering how these can be integrated and shared with the open space network;
- the quality of other existing or planned open space in areas in the vicinity of the precinct.

@leisure has addressed these issues in its assessment of plans to date.

These guidelines lend weight to some of the key issues identified by @leisure, especially those related to quality of open space, and the market potential of the site's physical characteristics.

### **Draft Infrastructure Design Manual 2011<sup>1</sup>**

The Draft Infrastructure Design Manual 2011 is a joint Council initiative that documents Council requirements for the design and development of infrastructure, standardised development submissions, and ensures minimum design criteria are met.

An Outline Development Plan (ODP) was produced for this development. The Infrastructure Manual suggests the ODP should have considered the following:

- Existing features, adjoining property features that may impact upon the engineering design including the type and standard of trees, historical aspects, topographical features, abnormal or significant features. See Chapter 5.4 Cultural heritage and character.
- Location and approximate size of public open space. Parks shall comprise a minimum area of 0.75ha. See Chapter 5.1 Location, distribution and size of open space.
- If there is an approved strategy or plan for a particular urban area the provision for public open space shall be in accordance with the provision of that strategy. This may include, but not be limited to Council's cycling strategies, playground strategies or spatial network plans.
- Open space areas and facilities should be provided in locations that maximise accessibility for all users, including people with poor mobility, such as older adults and people with a physical disability, and parents with prams and strollers. See Chapter 5.3 Off-road trail space.
- Local open space should not be located on major roads, however there should be good sight lines into an open area from neighbouring streets, house, schools or other buildings. Isolated pockets of land within a park (i.e. dead spaces) or those areas, which cannot be overlooked, should be avoided. See Chapter 5.1: Location, distribution and size of open space.
- Local parks and playgrounds should have active frontages on at least three sides to provide surveillance, and should avoid bordering rear yards See Chapter 5.5: Relationship between open space and adjacent land uses.
- Drainage and flooding provisions, including location and size of drainage reserves, and drainage retardation and treatment systems.
- Interconnectivity of road, cycle, and pedestrian networks, internal and external to the subject area. See Chapter 5.3 Off-road trail space.

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<sup>1</sup>Draft Infrastructure Design Manual Version 3.1, City of Greater Shepparton, 2011

The Manual states that developers must satisfy the requirements of clause 52.01 and 52.05 of the Planning Scheme. Developers must also provide a public open space plan as part of the application for planning permit or development plan that includes the following:

- The location of existing public open space within 2km of the proposed development and the area of such public open space. See *Table 5: Open space and recreation facilities within 2km of the PSP area*.
- How the proposed public open space and any existing public open space are linked. See Chapter 5.3 Off-road trail space.
- Identify any drainage basins or reserves that are to be assessed as satisfying the requirements for the provision of public open space. See Chapter 5.6 Encumbered open space.
- Show how the distance requirements of Clause 56. for large and local parks are satisfied for properties to be developed. See Chapter 5.1 Location, distribution and size of open space.
- Details of landscaping

### **Social Infrastructure Assessment 2008<sup>2</sup>**

An Outline Development Plan (ODP) and Development Contributions Plan (DCP) were produced to support the development of the Shepparton Northeast Growth Area.

This report contains justification for social infrastructure requirements in the PSP area. The following table summarises these requirements and Council / @leisure comments.

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<sup>2</sup> Shepparton North-east Growth Area ODP and DCP  
Social Infrastructure Assessment, Nordic Pty Ltd, 2008



**Table 1. Key requirements of the Social Infrastructure Assessment 2008**

Social Infrastructure Assessment 2008	Council / @leisure comments
A community hub/centre is built at the Shepparton Northeast Growth Area.	A NAC and community centre will be established at the northwest of the PSP area to support the development.
1,680 square metres is provided for the community hub.	Council have not finalised design and layout details of the NAC, however they have indicated a convenience supermarket, specialty retail shops and a community centre will total some 1,950 square metres.
The community hub/centre to provide facilities for Maternal and Child Health sessions, a Preschool/kindergarten, occasional day care service and community services.	Council have not provided details of specific retail / community uses of this floor space since this document.
Grahamvale Primary School is relocated and expanded to accommodate the population growth of school-aged children in the Shepparton Northeast Growth Area and to become part of a neighbourhood centre.	Council have not proposed the relocation of Grahamvale Primary School, however some expansion has been indicated. An assumption has been made that this will be the case, and that this will include additional grassed playing area
The preferred location of the community hub is Option Three if Grahamvale Primary School relocates; otherwise the recommended location is Option Two, which is near Shepparton Christian Community School on Verney Road, just north of Hawkins Street.	An assumption has been made that the school will not be relocated; therefore design of the PSP area has been based on the NAC being located in the northwest portion.
The City of Greater Shepparton and the Department of Education and Early Child Development support existing schools in Shepparton to attract local children. This would encourage more sustainable neighbourhoods as well as preventing social exclusion of these schools.	Supported.
Medium density housing using quality Urban Design principles is located on the site in proximity to the community hub and retail area in order to maximise the community benefits.	Supported. However the interface between any such housing and public open space should be subject to approval on submission of the subdivision plan.

### **Draft Shepparton North East Growth Area Precinct Structure Plan 2008<sup>3</sup>**

@leisure provided a peer review of this plan as part of the 2010 assignment.

*Attachment 3: Open Space Peer Review  
Concept Plan (2010)* provides the annotated plan submitted as part of this assignment.

This plan illustrates the areas of the precinct that were considered as “underserved” by local open space.

The structure plan did not conform to the Precinct PSP Guidelines in a number of ways specifically stemming from functions of open space not being clearly marked. Shared paths were largely along roads and the park sizes were identified as being too small in most instances, especially to be surrounded by roads. All parks had similar forms, and a considerable component was encumbered land.

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<sup>3</sup> Draft Shepparton North East Growth Corridor Precinct Structure Plan, AECOM Australia Pty Ltd, 2010

### 3. Demand for recreation and open space in the Northeast Corridor

#### 3.1 Population projections and demographic influences

The following summarises key population and demographic characteristics relevant to the PSP area<sup>4</sup>.

- Greater Shepparton had an estimated population of 63,800 in 2011.
- The PSP forms part of the Shepparton Northeast community profile area. The area is characterised by the following (and compared to the City of Greater Shepparton in brackets)<sup>5</sup>:
  - A higher percentage of home ownership / mortgage holders 84.3% (67.0%)

- A higher weekly individual income. 17.3% earning in excess of \$1,000 a week (12.1%)
- Lower density of private dwellings. 3.2% of medium density dwellings (11.8%)
- A percentage of households with couples with children under 15 years, 42.7% (32.1%)

An additional population of 4,140 residents and 1,836 dwellings is forecast for the PSP area by 2021.

The profile of this population is likely to be young, however as in other developing communities leisure participation may be constrained by less disposable income, rather than other demographic influences.

#### 3.2 Likely demand for recreation facilities

Based on current Victorian participation rates in recreation and sporting activities and projected population figures for the growth area there may be considerable demand in the PSP for off-road trails, gym and fitness facilities (although most likely indoor), outdoor playing fields, space for dog exercising and sports courts. See *Table 2*.

Whilst some of these facilities are typically provided on a district basis, there will be some demand at the local levels (e.g. outdoor sports courts and space for outdoor field sports e.g. football / cricket in the PSP area. These may be provided in conjunction with the NAC, and the Grahamvale Primary School. See *Attachment 4: Preferred locations of open space* (@leisure April 2012). The impact of demand from within the PSP area needs to be considered on outside facilities, as district sports facilities cannot be provided in the PSP area.

<sup>4</sup> Shepparton North-east Growth Area ODP and DCP Social Infrastructure Assessment, Nordic Pty Ltd, 2008

<sup>5</sup> Shepparton Profile ID, .id Consulting Pty Ltd, 2012

**Table 2. Likely number of participants to use facilities for sport and physical activity, in Shepparton Northeast Growth Area<sup>6</sup>**

Facility type and projected number of participants			
Off-road trails	2,567	Swimming pool	640
Gym / group fitness	1,251	Outdoor sport courts	543
Outdoor playing fields	1,067	Indoor sports courts	513
Dog exercise/ socialisation area <sup>7</sup>	743	Skate parks	391

The table highlights the importance of providing dedicated off-road trails throughout the precinct – not just for transport, but also for exercise and social activity.

<sup>6</sup> These figures are based on current participation rates and projected population for 2023.

<sup>7</sup> Based on the minimum number of dogs per household. Source: Pet Ownerships Statistics, PetNet 2007

It also illustrates the likely demand for indoor/ outdoor fitness related activities that could either be provided in conjunction with the NAC or may impact on demand at existing leisure centres in Shepparton.

The top ten outdoor recreation activities likely to be undertaken in the precinct are: walking, cycling, running, roller sports / skateboarding, tennis, (golf), Australian Rules football, football (outdoor), netball, and cricket (outdoor).

Table 3 indicates the potential number of participants in outdoor sport and physical activities that have the highest numbers of participants.

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**Table 3. Projected number of people likely to participate in selective outdoor activities in Shepparton Northeast Growth Area**

Activity	No.	Activity	No.
Walking*	1,238	Fishing*	54
Cycling	888	Athletics / track and field	42
Running / cross country	434	Hockey (outdoor)	40
Roller sports / Skateboarding	392	Rugby league	37
Tennis	290	Horse riding / equestrian activities	37
Golf	252	Touch football	27
Australian Rules football	248	Canoeing / kayaking*	27
Football (soccer outdoor)	218	Other organised sports	18
Netball	193	Softball	18
Cricket (outdoor)	157	Rugby union	18
Walking (bush)*	156	Orienteering*	17
Lawn bowls*	61	Baseball	10

#### Sources and Notes:

Children's Participation in Cultural and Leisure Activities, ABS 2010.

Note: Motor sports, snow sports and some water-based activities have been excluded.

Sources: Exercise, Recreation and Sport Survey (ERASS), SCORS 2010

Draft Shepparton North East Growth Area Precinct Structure Plan, AECOM Australia Pty Ltd 2010 4.

\* Figures not available for children 0-14 years

## 4. Open Space Provision

### 4.1 Open space classifications

The provision of open space should be based on an assessment of demand for activities and types of open space, as well as the supply of adjacent open space and the potential for the site to provide open space benefits. This qualitative and quantitative assessment is recommended in the Growth Area Authority Precinct Structure Plan Guidelines.

Key considerations in addition to the number, size and distribution of spaces include: the type of **settlement** open spaces are to serve, the **function** of the space within the network, the **catchment** they serve, and their **character / setting**, particularly as influenced by the nature of vegetation and infrastructure provided.

- The **settlement type** is the nature and density of residential settlement. It determines the user's context and access to private open space, and will assist in determining future models of open space provision.

- The **catchment**, or sphere of influence, of existing and future spaces reflects the origins of users and how long they may stay. Catchment is determined by scale, uniqueness, the quality and complexity of facilities and support services, and its location.
- The **primary function** is the primary purpose or role of the open space within the network. Typically a range of open spaces of different function types needs to be present across a residential area. This is to ensure a range of benefits typically sought from open space is provided, and a diversity of needs can be met, both now and in the future. The most important functions of open space to be provided in close proximity to new residences are:
  - Social / family recreation
  - Off-road trails (shared paths)
  - Sport
  - Relaxation / contemplation

- The **landscape setting** is influenced by the physical, biological and social conditions and characteristics of existing and potential spaces.
- These influence a user's experience, and can be varied to provide a diversity of opportunities available.

A range of open space function types provided across an area promotes equity, as well as ensuring that specific needs are serviced. *Table 4* shows the primary function, landscape setting type, and catchment proposed for open spaces within the PSP area. It also provides additional options for Council to consider ensuring diversity in the local open space network.

**Table 4. Open Space Classifications**

	Primary function type	Landscape setting type	Catchment
<b>Proposed in the PSP area</b>	<ul style="list-style-type: none"> <li>• Social / family recreation</li> <li>• Off-road trail</li> <li>• Sport</li> </ul>	<ul style="list-style-type: none"> <li>• Plaza</li> <li>• Ornamental garden</li> <li>• Bushland</li> <li>• Open grassy area</li> <li>• Treed parkland</li> <li>• Lawn / managed turf</li> <li>• Community horticulture</li> </ul>	<ul style="list-style-type: none"> <li>• Local</li> <li>• District</li> </ul>
<b>Additional Classifications theoretically possible</b>	<ul style="list-style-type: none"> <li>• Relaxation / contemplation</li> <li>• Water-based recreation</li> <li>• Civic gathering / forecourt</li> <li>• Visual amenity</li> </ul>	<ul style="list-style-type: none"> <li>• Rough natural area</li> <li>• Waterbody / waterway corridor</li> <li>• Specialised sports surface</li> <li>• Native grassland / wetland</li> </ul>	<ul style="list-style-type: none"> <li>• Regional</li> </ul>

## 4.2 Core service levels

Core service levels should be established for each open space function type. These can be used to ensure new open space will be fit-for-purpose and as assessment criteria to evaluate existing spaces.

For each key recreational function of open space, core service levels are required to address the following aspects. These help determine spaces of the same function will differ for those with different catchments (local, district and regional).

- Location/ distribution / size / accessibility
- Quality / complexity / any viability indicator
- Standard of infrastructure / and maintenance

These criteria can be used to: determine the compliance of the plan; dictate where and how facilities are provided; and whether the function can be provided on encumbered land.

They can also assist with the development of asset management plans, planning provision, and maintenance regimes.

Criteria to identify the standard of infrastructure / and maintenance are beyond the scope of this plan.

The essence of the criteria for each proposed open space function is shown in *Attachment 5: Open space matrix*. Further fit-for-purpose criteria should develop as the details of the road network drainage system and other elements in the structure plan are developed.

## 4.3 Surrounding open space and recreation facilities

In accordance with The City of Greater Shepparton Infrastructure Design Manual the nature of open space within 2kms of the development areas is shown in Table 5.

There is limited diversity of open space function and landscape setting types among these open spaces. They principally provide for local play functions. There is no social / family recreation open space nearby.

No open space in this immediate area is larger than 0.5ha. This means the diversity of opportunities they can provide is limited both individually and through the wider local open space network.

The adjacent area to the west is not served by spaces for local or district social / family recreation or off-road trail functions, that can add to those provided in the PSP area.

There is a regional sporting complex approximately 1.5km west of the PSP area. This includes the John McEwan Reserve and the Mercury Drive Sports Complex. The sports complex is 65ha in area and supports a wide range of competitive sports, including netball, tennis, hockey, athletics, soccer, BMX, equestrian, badminton, and table tennis.

**Table 5. Open space and recreation facilities within 2km of the Precinct**

Name / location	Facilities	Within 400m <sup>8</sup>	Size	Catchment	1ha and within 400m
Alfred Kleinhart Park, Reid St	Basketball ring, play equipment, seating	No	0.4ha	Local	No
Bailey Park, Maple St	Play equipment, seating	No	0.1ha	Local	No
Botany Crescent	Playground	No	0.3ha	Local	No
Bourchier Street* Primary School	School oval	No	3.5ha	District	No
Centennial Park, Endeavour Court	Basketball ring, play equipment, seating	No	0.2ha	Local	No
Chevrolet Avenue	Open space	Yes	0.4ha	Local	No
Christian Community School*	School synthetic tennis court, basketball court	Yes (on site)	0.7ha	District	No
Deakin Reserve	Playground, cricket, football, netball	No	3.8ha	District	No
Fairley Park	Lawn Bowls,	No	1.4ha	Local	No
Ford Garden	School	No	1.4ha	Local	No
Gorr / Young Court	Playground	No	0.2ha	Local	No
Grahamvale Primary School*	School synthetic mini pitch	Yes (on site)	0.1ha	District	Yes
Halpin Crescent	Playground	No	0.5ha	Local	No
Hereford Drive	Playground	Yes	0.1ha	Local	No
Hicken Crescent	Playground	No	0.4ha	Local	No
Ivanhoe Park, King Richard Dr	Basketball ring, play equipment, seating	Yes	0.2ha	Local	No
John McEwen Reserve Sports Complex	Football, cricket, netball, soccer, equestrian	No	65ha	Regional	No
Leembruggen Park	Playground	No	0.4ha	Local	No
Notre Dame College*	Oval, sports courts	No	1.6ha	Local	No
Orchard Circuit	Open space	No	0.8ha	Local	No

<sup>8</sup> Without having to cross a major road



Name / location	Facilities	Within 400m <sup>8</sup>	Size	Catchment	1ha and within 400m
Ryeland Drive	Open space	Yes	0.2ha	Local	No
Sabri Drive	Playground	No	0.3ha	Local	No
Sarsfield Street	Playground	No	0.3ha	Local	No
Shepparton High School*	School ovals	No	2.4ha	Local	No
Sherbourne Park	Open space	No	2.7ha	Local	No
WS James Park	Playground	No	0.1ha	Local	No

\*School site: community access may not be provided or may be limited

## 5. Key open space issues

@leisure has been working closely with the City of Greater Shepparton to prepare a revised structure plan as other elements of the proposal which influence the provision open space develop. The key open space issues arising during this process are documented in this chapter.

For each issue, key principles have also been prepared that can inform other open space planning projects.

### 5.1 Location, distribution and size of open space

#### Principles:

1. The distribution of open spaces is important to provide green space in close proximity to all residents and visitors to the precinct to provide restorative values and opportunities for social and physical activity.
2. The Greater Shepparton Planning Scheme requires local parks within 400m of 95% of all dwellings, and active open space within 1km of 95% of all dwellings.

3. Due to the restorative value of open space, and employees, visitors, students and residents need for social and physical activity; open space should be provided in association with residences, hospitals, employment areas, education institutions and shopping centres.
4. The size of a parcel of public open space impacts on the ability to provide a range of opportunities, ability to make them sustainable, and the diversity of activities and age groups that can be catered for.
5. The larger the space generally the greater range of opportunities, activities, age groups and environmental stimuli that can be provided, and the greater the sphere of influence the space will have.
6. The minimum size for a social / family recreation open space with a local catchment should be 1ha (consistent with Clause 56.05 of the Greater Shepparton Planning Scheme). Those with a district catchment should be a minimum of 2ha.
7. Open space to serve all recreation functions with the exception of off-road trails should be a minimum dimension of 70m in any direction.
8. The minimum width for an open space corridor containing an off-road shared path should be 15 metres.
9. The catchment of a public open space should be shown on any structure plan. This catchment should complement that of any adjacent community facilities. Two district<sup>9</sup> spaces should be provided in the precinct in association with the district commercial / educational facilities (the NAC and the public school) as these facilities will serve a district catchment.
10. Spaces with a district catchment may be located on a collector road, as long as they are central to the catchment they are designed to serve, as they will be larger than spaces serving a local catchment and they need to be in prominent locations.
11. Spaces with a local catchment should not be located on a collector road, and should be central to the catchment they serve.

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<sup>9</sup> District in this document has the meaning "greater than the immediate walkable distance" of 400m, which is described here as being a local catchment.

## Discussion

The location of all spaces in the precinct based on the proposed catchment and function of each space, the principles provided and feedback from Council, are shown in *Attachment 4: Preferred locations of public open space (@leisure April 2012)*

Council has advised that open spaces in this precinct must be colocated with retarding basins, which need to be central to a drainage catchment identified by Reeds. See *Attachment 6: Drainage Catchment Plan and Basin Location*.

@leisure's initial assessment indicated that in order to provide an open space within 400m of all dwellings and without crossing a major road, 6 open space spaces are desirable. The location of those preferred are shown in *Attachment 4: Preferred locations of public open space (@leisure April 2012)*.

Council have advised that they would prefer only five parks. The revised concept shows: Five public open spaces for social / family recreation and sport. These are unencumbered and total 7ha in area. These adjoin five retarding basins also totalling approximately 7ha (as determined by others).

The areas within walkable distance of all residents are shown on *Attachment 4: Preferred locations of public open space (@leisure April 2012)*.

Council have indicated however that two controlled road crossings will be located on Verney Road. Road crossings elsewhere will be pedestrian crossings. These will be necessary to allow for the safe passage of children to parks and to increase the accessibility of community facilities and the rest of the precinct by off-road trail and areas beyond the 400m distance threshold. Crossing points are marked on *Attachment 4: Preferred locations of public open space (@leisure April 2012)*.

The priority for open space functions to serve this residential precinct are social /family recreation space open space, off-road trail space and sport. These functions dictate park size. In this precinct due to the location of district sports opportunities in the Shepparton Sports Precinct only approximately 1km from the site it is not proposed to provide a new district sports open space.

However it is desirable to provide at least a local level open space for sport, and as the Grahamvale Primary school does not currently provide for outdoor grass playing fields, it is logical to provide some public open space in conjunction with the school open space that can be used for sport.

It is generally agreed that the size of any social / family recreation space needs to be 1ha minimum of unencumbered land in order to provide a range of physical and social opportunities, and especially to enable the space to accommodate a perimeter trail for exercise.

@leisure recommends two district-level open spaces of a minimum of 2ha each, located adjacent to the NAC and the Grahamvale Primary School.

The developers have requested that the unencumbered public open spaces be located adjacent to retarding basins, and positioned as central as possible within the drainage catchments provided by their consultants.

The developers have also requested that all parks be located on collector roads.

@leisure considers it more appropriate for retarding basins to be located adjacent to higher order roads than it is for public open spaces. This is to maximise the ability for houses to overlook the public open spaces and recreational activity, and to provide a buffer for users and residents from noise and pollution generated by these roadways.

The indicative shape of open space has been illustrated so as to maximise the functionality of each space (to achieve relatively equal dimension along each boundary, rather than provide open space in a linear form for example) and provide at least three sides of a park where residents front the space over a local road.

Council have indicated that the proposed road layout and hierarchy is not finalised. Hence any alterations to the road layout or hierarchy may therefore need alterations to the location and shape of open space.

Local-level open space has been located where possible away from collector roads to encourage independent access by young children, avoid user contact with traffic, minimise the impact of pollution and road noise on recreational experiences and to encourage their use and ownership by local residents. It is more appropriate to site district-level open space on collector roads so that it is prominent, accessible by any public transport, and as it is larger, and in this instance to serve the commercial area and associated community facility (e.g. at the NAC), and the students of the primary school.

The relationship between open space and adjacent land uses is critical to protecting the amenity of open space and ensuring it can continue to meet the fit-for-purpose criteria for its specified function. This issue is discussed in Chapter: 5.5 Relationship between open space and adjacent land uses.

## 5.2 Types of open space (functions and landscape settings)

### Principles:

- Every open space needs to have a primary function identified on the PSP. The primary function dictates the characteristics of the space, how it should be designed and where it is to be located. For each function of open space there are key success criteria that determine whether the space is fit-for-purpose.
- At PSP stage the plan should include an open space matrix specifying the agreed primary function and landscape setting type and any details about the space necessary to design and manage the space. These will assist in costing the development and management of the open space.

- The priority for function types to be provided in any new residential development are social / family recreation, sport, off-road trail and relaxation / contemplation. Typically other primary function types include: visual amenity, water-based recreation, community horticulture, flora / fauna conservation, and ornamental / botanic garden.
- Every community needs a diversity of opportunities for physical and social activity in open space, in addition to the ability to see open space (for civic pride and the restorative qualities it can provide).
- To ensure social / family recreation open space and off-road shared paths are fit-for-purpose they need be located within 400m of residents (without having to cross a major road or physical barrier).
- Every open space should ultimately be zoned as Public Park and Recreation Zone (PPRZ), or Public Conservation and Recreation Zone (PCRZ).

- To be considered public open space, a reserve cannot be for example the median strip between two roads, unless it can meet the requirements of the function it is designed to serve.

### Discussion

Types of open spaces deemed to be required for this precinct include: sport, social /family recreation, community horticulture and off-road trail.

### Sport

Clause 56.05 of the Greater Shepparton Planning Scheme states that sport open space should be a minimum of 8ha and provided with 1km of 95% of all dwellings, and that sports open space should adjoin schools and other community facilities where practical. The entire PSP area lies just outside a 1km catchment of the nearest sports open space (the Shepparton Sports Precinct), however this is a regional sports complex.

Given the proximity of the Shepparton Sports Precinct, and the size of the new residential area, in addition to potential opportunities to provide playing fields in conjunction with the existing primary school, and if an off-road shared trail can be provided to the sports precinct, a sports park of 8ha is not warranted in this location.

@leisure recommends instead that one playing field (as a minimum one full sized junior soccer pitch and some support facilities) be provided in conjunction with a playing field in the school site to provide a two pitch shared playing field facility accessible to the community.

Council have indicated that some sports open space component is required in this development. The concept plan shown in *Attachment 4: Preferred locations of public open space (@leisure April 2012)* identifies a local-level sports space located on Open Space 5 in conjunction with Grahamvale Primary School. This assumes a portion of the school abutting the open space will be developed to include a sports field.

@leisure proposes that a free access hard court and / or other sports facilities be provided on Open Space 1 for social / family recreation. This would be adjacent to the NAC, the proposed community centre and be adjacent to Shepparton Christian College. Such a facility could be used by a small fitness provider located in the NAC or personal trainers, for example, and would ordinarily target local teenagers.

### ***Social / family recreation***

Providing open space with a social / family recreation primary function type is proposed for all five open spaces in the PSP area. These spaces provide opportunities for a variety of recreation activities and social engagement for a range of age groups. At a size of at least 1ha, they can support a perimeter shared path exercise circuit.

Details of each proposed space follow.

### ***Open space to serve an off-road trail function***

It is highly recommended that open space to serve an off-road trail function be provided in the precinct. As previously identified in this document open space is required to serve an off-road trail function in this precinct. Provision of a shared path through such open space connecting this precinct to the Sports Precinct, as well as providing access for residents to the NAC, local schools and district trails is required.

@leisure saw an opportunity to provide these along water and drainage easements (see *Attachment 7: @leisure's open space concept (9 Dec 11)*). Reeds Consulting have advised that it is not practical to do so. Discussion concerning off-road trails is provided in Chapter 5.3 Off-road trail space.

### ***Community horticulture***

It is proposed that the district park adjacent to the primary school could provide a secondary community horticulture function that protects some of the existing orchard and provides opportunities for the local school to use the space for curricula activities.

### **Proposed open spaces**

Details of each proposed open space as identified in the concept plan shown in *Attachment 4: Preferred locations of public open space (@leisure, a sports p, are as follows:*

#### **Open Space 1:**

- 2ha unencumbered district-level social / family recreation open space
- Located on collector road to be serviced by a bus route
- Located adjacent to the NAC to extend outdoor opportunities provided through the community centre, and an outlook for social activities at the NAC (eg café)
- Overlooking residences and commercial community uses (the fourth side being the collector road)
- The form or landscape setting type should include: Plaza (some paved area (hard courts / social sports facility) an ornamental garden, green space that provides more reflective and aesthetic elements than other spaces in the precinct

- The retarding basin adjacent to the NAC and district park, desirably should be designed as a wet retarding basin for more aesthetic purposes, to complement the district nature of the park and a community hub
- See also notes on the design of the interface between the activity centre in Chapter 5.5 Relationship between open space and adjacent land uses.
- Off-road shared perimeter path around the total open space

#### Open Space 2:

- 1ha unencumbered local-level open space to serve a social / family recreation
- Located away from the southern boundary of the precinct and existing residential area, as this area is not expected to benefit from the open space due to there being no direct access from this existing residential area to the PSP area

- The location is driven by a need for a collated retarding basin that is located central to the drainage catchment. This leaves an area underserved to the north and west of the collector road
- Positioned away from the collector road, and fronted on all sides by residential lots
- A bushland landscape setting type is proposed
- Provide an adjoining off-road trail open space and shared pathway to connect onto the off-road trail that serves the Shepparton Sports Precinct
- To be overlooked by residences on all sides across a local road
- Sections showing the critical design of the park edge and adjoining the community centre / NAC site and residential properties should be approved prior to planning permit
- Off-road trail corridor connection to the north (school and NAC)

#### Open Space 3:

- 1 ha open space with a social / family recreation function, to serve a local catchment
- Unencumbered space located away from the major road
- If the northern north / south road is not a collector level road as shown, then the open space provides a broader 400m catchment to the west
- Located to adjoin a retarding basin that is located to be central to the drainage catchment
- Off-road shared path should run from this park to Grahamvale Road
- Off-road shared perimeter path around the total open space
- Open grassy area / treed parkland landscape setting type is proposed
- Fronted by residences on four sides over local roads

- Off-road trail corridor connection to the north, to the primary school in the south, the NAC in the south west and to the east to a possible future off-road corridor running down along the railway to the City Centre

#### Open Space 4:

- 1 ha unencumbered open space to serve a social / family recreation function
- Unencumbered space located away from the major road
- Located toward centre of precinct to service a wider 400m catchment, however location determined by need to locate adjoining retarding basin, that has to be located central to the drainage catchment. Area to the west not served with a social / family recreation park 400m without crossing a collector road
- Off-road shared perimeter path around the total open space
- A treed parkland landscape setting type is proposed
- Fronted by residences on three sides over local roads

- Off-road shared path should run from this park to Grahamvale Road, north, as well as east to the NAC and west a future trail to the east to the City Centre.

#### Open Space 5:

- 2ha unencumbered district-level open space
- Shape is determined by the need to create a full sized soccer pitch adjoining playing fields in the school, and keeping the remaining unencumbered space central to the catchment it should serve
- Adjacent to Grahamvale Primary School to enable shared use of sports facilities
- The required adjacent retarding basin is located so as to be central to the drainage catchment
- The preferred open space landscape setting type includes: lawn managed turf for the soccer fields, and community horticulture to protect some existing orchards and provide educational opportunities

- Sections showing the critical design of the park edge with the adjoining school site and residential properties, to be approved prior to planning permit
- Shape of open space and retarding basin to conform to a finalised collector road layout
- Off-road shared perimeter path around the total open space

#### Zoning

Reed Consulting have indicated that it is not necessary for open space to be zoned as PPRZ, given that all parks will become Council reserves upon subdivision of the land. Because of the small size of public spaces and their potential erosion by other land uses @leisure considers that appropriate zoning is essential to ensure a higher degree of protection of the open space from future development, as would be the case for other land uses.



### 5.3 Off-road trail space

#### Principles:

- An off-road shared path is a primary function of open space (not just a facility type). These are not to be viewed just as a link between places: they provide for a wide range of specific physical and social activities; i.e. walking, cycling, dog walking, small-wheeled toys, skating (if sealed) etc.
- A network of off-road trails should be considered a priority over development of on-road bicycle route, because of the ability to provide for a wider range of people and the opportunities to encourage foundation skills and physical activity.
- Clause 56.05 of the Greater Shepparton Planning Scheme states that 'linear parks and trails' should be located within 1km of 95% of all dwellings.
- The trail or shared path (treadway) within this open space type needs to be designated as a shared path in accordance with Australian Road Rules.
- Off-road trail open space is a priority for young people and older adults.
- Shared paths should be provided in off-road trail open space for the following reasons:
  - young people and older adults are less likely to drive;
  - young people and older adults should not mix with traffic;
  - the nature of common activities undertaken by younger and older age groups ie use of recreational equipment / vehicles which generally cannot be used on footpaths or the road; and
  - children under four and people over 65 years do not generally play sport, yet these age groups benefit considerably from physical activity and social connectedness.
- Where it is necessary to provide a shared path in a road reservation it must be accommodated in one wider verge of a road, not a typically narrow nature strip where the path will be close to the road and the building line and where sightlines for backing vehicles may be restricted.
- Off-road shared paths should be designed to provide local circuits for exercise; to connect to community facilities, schools, commercial areas, sports facilities and parks and adjacent developments; utilise open space corridors; and provide for crossings of major barriers and transport corridors.
- Where possible an off-road shared path should be designed so as to have a row of street trees on either side of the trail.
- Public open space greater than 1ha shall have a path around the perimeter for exercise, learning and play opportunities (e.g. for wheeled recreation vehicles).

- If the residential development is too small to provide a sports park of a large enough size to be viable, residents should be able to travel to the nearby district or regional sports facility via an off-road shared path.
- New residential areas connecting to other existing areas (especially those without adequate distribution of public open space that meet the aforementioned principles) shall have provision to shared path access to these areas.

## Discussion

### Forms of trails

A number of trails types are required in the PSP residential area. These include:

- Perimeter paths around social / family recreation open space and any colocated retention basins.
- Local trail circuits around the neighbourhood, that serve local parks, community facilities, schools etc, and provide exercise routes as well as connect to enable longer routes

- Trails that connect with the existing trail networks (and regional trails) beyond the PSP area.
- All shared paths should be a minimum width of 2.5m, and be of a consolidated gravel pavement (when they are perimeter paths around open space) or a sealed shared pathway (district trails or those within road corridors).

### Location of trails

The conceptual drainage and open space layout prepared by Council (see *Attachment 8: Conceptual Drainage and Open Space Layout*) indicated the likelihood of retaining the drainage and water channels and the possibility of utilising these for off-road shared trails.

Subsequently Council indicated that a 15m wide north-south trail may be provided along the central drainage channel (see *Attachment 9: Concept plan showing central drainage channel trail* (Council, Dec 2011)).

@leisure considers these channels to provide a considerable opportunity to protect local character and cultural heritage as well as provide a hallmark open space spine and off-road trail. Other Councils such as Swan Hill Rural City are retaining their main channel land as an off-road trail.

In this case, Council have since indicated that no channels will be retained, and 2.5m shared paths are to be included within the collector road network.

@leisure does not support the provision of off-road trails only in road reservations, and in particular only in collector roads (except where a trail is required to serve community facilities and parks that are also in collector roads). Any shared trail that has to be in a road reservation, and does not have to be in a collector road should be provided in a local road.

Council have proposed that a central 'linear' reserve be provided within the collector roads identified as sections "A". See *Attachment 10: Road cross sections* (Council, Nov 2011) which shown three sections A, B, and C. The A sections show a green verge 12m in width, that could be lined with ornamental fruit trees.

### **Comments on preliminary road sections**

It is understood that a traffic engineer will develop these preliminary section designs further. @leisure considers that the distance from the lot boundary to the shared trail is too narrow to provide adequate sightlines from the lot for the safety of cyclists, especially if the lot has a driveway onto the roadway.

Also where possible a green verge is to be included within the road reserve it may be better to provide one wider green verge with a pathway and trees either side rather than two green medians. See image below of streets in Beacon Cove, Port Melbourne.



Services are shown in Council's cross-sections in the green verge with trees and the shared path. This may be too narrow to achieve this range of features in the one corridor.

It is preferable that a green corridor is consolidated into one space.

Having a green nature strip and a green median is likely to be considered desirable for the experience of road users; the road reserves appear very wide for a residential development of this size; it makes the road more difficult to cross, especially by children, and it is preferable to provide this green space in a car free corridor, or in a park rather than within a road reserve.

Consideration should be given to ensuring the species of tree and the location of these: support vigorous growth and limit hazards to riders such as overhanging limbs and fruit drop.

Reed Consulting has stated that it is far safer to generally confine pedestrian and cyclists routes to main roads. This view is not supported by @leisure for health, safety or recreation experiential reasons, and due to the considerable physical and social benefit that would result from locating routes in open space corridors or on lower order roads.

### **Trail access beyond the PSP area**

Council have indicated that there is to be no trail access between the industrial area to the south and precinct. Trail access between the two areas would be beneficial for residents and employees; through the existing vacant land to the south and in the long term down to the City Centre along the railway line, and beyond the PSP area.

The proposal to establish a landscaped buffer between the proposed residential development and the industrial area is supported (*See Attachment 4: Preferred locations of public open space* (@leisure April 2012)).

To the north there is no obvious way to connect local trails through into the local residential street pattern without acquisition, as it is not permeable, and rear yards provide a boundary with the precinct.

To provide at least some access for cyclists and pedestrians by shared trail to adjacent industrial and residential areas, a shared path must be provided along Verney Road from the precinct and north and south. A trail along Grahamvale is also required to serve the primary school and areas beyond the precinct.

A major district trail is required to serve the sporting precinct to the west, otherwise it could be argued that the new residential area should be provided with a district sports park to comply with planning scheme requirement of a sports park of 8ha within 1km of houses.

Two schools serve the Precinct. Shared trails should encourage parents and children to ride and walk to and to avoid mixing with traffic.

## 5.4 Cultural heritage and character

### Principles:

- Elements of former landuses, and those that will contribute to landscape character should be preserved in open space. (Such elements as windrows, orchards, irrigation / drainage channels as well as any heritage buildings should be retained and utilised in new open space.
- As cultural heritage areas may need cultural heritage management plans, these will be considered as an encumbrance and hence outside the minimum size required to support the agreed open space function.
- A condition assessment of the existing physical conditions and landscape should be prepared prior to a structure plan being prepared, so as to identify the potential of the land to be used for open space especially in relation to the value added for specific functions of open space.

Clause 56.05 of the Greater Shepparton Planning Scheme identifies the requirement 'to incorporate natural and cultural features in the design of streets and public open space where appropriate'.

### Discussion

A Cultural Heritage Assessment of the precinct has been undertaken and had indicated that there are currently no registered Aboriginal sites or places located within or near the PSP area.

The Assessment also indicates that there are no registered examples of significant post settlement heritage sites or places within or near the site.

### *Windrows / existing avenues of trees:*

Windrows, or existing avenues of trees along the channels for example and along the precinct boundary southwest and northwest of the precinct: provide a wind-break, shade, aid in the conservation of flora and fauna, will assist residents in connecting with nature, and provide enhanced visual amenity for a new residential development.

Existing trees could frame a shared pathway, and should be extended along the entire boundary. The row of trees in the northwest would assist in providing a more attractive entry feature into the NAC. These rows of trees should be retained as important biological elements of the site.

#### ***Orchards:***

Horticulture is central to the heritage of the Shepparton area, and orchards are a key element of the present land use of this PSP area.

Council have indicated that some recognition of the area's orchards may be retained through one or two rows of ornamental fruit trees within the collector road reserves. This is supported.

It would be desirable to retain an area of orchard in one open space. This could be developed for a community horticultural function; or as a landscape setting to provide character to a social / family recreation function in Open Space 5. This open space is located adjacent to Grahamvale School. Retaining an area of orchard could be used for educational purposes by the school.

Reeds Consulting have objected to this landscape setting on the basis of increased maintenance and liability issues for Council. There are a number of parks where this has been done to create highly successful local and visitor attractions: Myuna Community Farm in Doveton; Pettys Orchard in Templestowe, Heritage Pear Orchard in Toora, and CERES Environmental Park in Brunswick West.

#### ***Irrigation / water supply channels:***

Irrigation / water supply channels bisecting the precinct are currently Crown Land managed by Goulburn Murray Water. One or more channels could be viewed as an opportunity rather than a constraint within the development, as they could provide ideal routes for movement through the site whilst retaining cultural heritage.

It has been noted that the channels in the precinct have in some cases developed their own ecosystems, e.g. as a habitat for frogs.

Council have indicated that these channels will be removed as they are not located efficiently, and their initial proposed use for trails can be substituted by establishing shared paths in the road network.

The potential contribution to character and functionality of the residential area; reflection of cultural heritage and recreational value and hence their market value suggests that retaining one or more of these is highly desirable.

## **5.5 Relationship between open space and adjacent land uses**

### **Principles:**

- Public open space should be physically (and visually perceived as) separate from private open space. Open space and abutting land shall be located and designed to prevent commercial and community buildings from encroaching on the public open space.
- Facilities not dependant on open space (such as community centres, halls and most indoor sports centres etc) should not be provided in public open space, and additional land required for these should be taken at the same time as public open space contributions.

- Open space with a local catchment should be located adjacent to residential lots and away from collector or connector roads.
- Where medium density housing or multi-storey housing (greater than two storeys) is proposed, this should not immediately abut public open space but should be separated by a road and / or set back so as: not to overshadow the space; to ensure views onto the space from other residences are maintained, and to ensure the space is not 'privatised' by those that directly abut or overlook the space.
- All public open space (of 2ha or less), must be surrounded by public domain; either road way or utility corridor; or a compatible commercial space designed to either carry a high volume of pedestrian traffic or related recreation activity that overlooks the space.
- Due to the importance of the design of interface between public open space and adjoining properties, a "to scale" cross-section showing this interface should be provided for all parks in the precinct, and subject to Council approval prior to subdivision and construction.
- Where a new development abuts an existing school with little or no sporting facilities, additional sports playing space should be provided and designed in conjunction with sporting facilities on the school site (oval, synthetic grounds and hard courts) and so as these collectively be available to the community after hours.
- The design of new residential areas should provide good permeability and legibility for pedestrians, cyclists and people travelling in vehicles. A grid-like street pattern with paths on both sides of roads is preferred over more curvilinear road patterns and those requiring small access ways connecting court heads and cul-de-sacs.
- Shared paths provided in new residential areas should connect the new residences to adjoining residential areas and open space corridors.

## Discussion

### Neighbourhood Activity Centre (NAC)

A NAC is proposed in the northwest corner of the PSP area adjacent to Open Space 1.

*Attachment 11: Activity centre concept plan* (Council, March 2012) shows Council's initial concept plan for the NAC.

The following should be considered in the design of the NAC:

- A perimeter path should be located on the edge of Open Space 1 with accessibility to the NAC.
- Provide a shared path that encourages pedestrian and cycle movement along Verney Road and the new east west collector road.
- Ensure Open Space 1 is on a separate title to the NAC (and ideally zoned as PPRZ) to avoid encroachment.
- Provide some commercial café / recreational uses on the frontage to Open Space 1.
- Ensure cycle and pedestrian facilities are provided to encourage use.



- Ensure appropriate landscaping at the private / public interface.
- Provide an internal car park in Open Space 1 to provide separation of parking between the NAC and the open space.
- The design of the rear of the NAC and Open Space 1 must maximise public surveillance, address a road (between the NAC and the public open space, and be subject to approval by Council prior to planning permit and before construction.
- Opportunities to meet young peoples recreation needs, that complement those in the open space and the proposed community centre.

#### **Schools:**

Shepparton Christian College is located in the northwest of the PSP area. Off-road shared paths should serve the school to encourage students and employees to cycle and walk to school, connect with NAC and Open Space 1, and take students off the collector road network.

Grahamvale School is located in the east of the precinct and will be subject to some expansion. Open Space 5 should be located abutting the school without having to cross a road and to enable a combined school / community sports facility to be constructed.

An off-road shared path should run along Grahamvale Road to connect the school. The school should be connected to a network of off-road trails that link the Precinct with the City Centre, the Shepparton Sporting Precinct and the NAC.

#### **Precinct boundary / industrial interface:**

Industrial zoned land is located adjacent to the PSP area. Council has indicated a degree of separation is required between the current industrial land use and the precinct. A landscaped buffer has been proposed by Council to assist with this separation and enhance aesthetics.

Public land should be acquired that abuts the current vacant land to the south and east so that an off-road trail may connect in future to any further residential or industrial development and the transport corridor running south to the City centre.

#### **Residential interface:**

The following should be considered in designing the open space / residential area interface:

- Public domain should abut open space on all sides; either local road (collector roads for district-level open space) or complementary community facility such as school sportsground.
- Medium density residential lots or mixed-use buildings should not directly abut, but overlook open space from over a road.
- Medium density may be included here: shop-top, supported / government housing and live / work buildings, and some detached houses on smaller lots.
- In these locations additional landscaping of the semi-private and the public domain will be required and developers must ensure that such uses do not restrict the use of public park as intended, for example by building units with windows close to goals etc.

- These higher density areas must be directly served by off-road shared paths leading to public open space, schools and other community facilities.
- If a proposed building abutting a public park is to be over two storeys it should be designed so as not to overshadow public open space, to avoid wind tunneling, and with upper levels set back to provide a good scale at ground level in the park.
- Roads should be laid out in a grid pattern to avoid curvilinear street patterns that encourage vehicles to speed, and the use of cul-de-sacs.
- High fences adjoining parks and residential properties should be avoided.

## 5.6 Encumbered open space

### Principles:

- Where retarding basins are provided they should also have a variety of forms (rather than simply grassed basins) in order to add recreational diversity of opportunities and restorative qualities.
- Basins provided in the same precinct could be designed differently i.e. as permanent wet retarding basins (water bodies), or as wetlands or as dry retarding basins. For example, a wet retarding basin can be designed in a more ornamental form, as an adjunct to offset the visual impact of large bulky commercial buildings and car parks, and may be most appropriate adjacent to an activity centre.
- Another retarding basin open space could be designed as an adjunct to a public open space for relaxation / contemplation and be provided in a rough natural area character, or as a wetland.
- The landscape setting of the open space where abutting a retarding basin should differ from that of the retarding basin, i.e. if the retarding basin is dry then the open space should have a landscape setting that is primarily treed (i.e. treed parkland or bushland). A dry retarding basin abutting a public open space with treed parkland or bushland, could be designed as an open grassy area for dog exercise when dry.
- Encumbered land (such as that required for drainage, floodway or utility purposes) may have value for visual quality, relaxation / contemplation space (depending on its characteristics, location and design) and may include off-road shared paths for walking, dog walking, and cycling if all requirements for these activities can be met.



- Public open space required for sport or social / family recreation functions may not be encumbered. Public open space serving these functions may adjoin encumbered spaces if the minimum size required for the specified function at the designated catchment level, and other characteristics required to ensure these spaces are fit-for-purpose, are not compromised by this association.
- Where retarding basins are required, as distinct from swales or WSUD treatment in road verges, they should generally be an adjunct to another public open space e.g. a social / family recreation space and be embellished and planted to provide visual amenity and relaxation values, and where possible add to biodiversity.
- Water bodies will not be considered as an open space contribution unless they are specifically designed for water-based recreation, if the water quality can meet at least secondary contact requirements and if they have sufficient curtilage to support other public open space functions in their own right (e.g. social / family recreation, off-road trail) in association with the water.

### Retarding basins

Dry retarding basins (each approximately 1.4ha in size) have been proposed adjacent to parcels of open space. *Attachment 6: Drainage catchment plan and basin location* (Reeds Consulting, June 2011) shows an initial layout of retarding basins on-site.

Reeds have requested that a component of the retarding basin should be acknowledged as public open space as basins “enhance the environment and effective size of the reserves”.

These are encumbered open spaces and cannot be designed to be fit-for-purpose for the priority open space functions identified as being required in this precinct (ie social / family recreation within 400m of all residences and sports facilities to serve those within 1km catchment). It is understood that these will not be designed to be anything other than “dish shaped” grassy areas. Reeds have stated that the location of the basins and the type of basin are not flexible to any significant degree (i.e. dry basins). Reeds also note that factors such as shape, batter slope, vegetation type and density can be varied to fit in with the adjacent unencumbered open space.

Therefore they should not form part of the open space contributions for this residential development.

Council have stated that any wet basin may be difficult to provide due to Shepparton’s water table (and it would be more costly than a dry basin).

However more contemporary retarding basin design could add significant local interest and provide restorative values, especially the basin adjacent to the NAC and Shepparton Christian College.

If nothing else the landscape treatment of each of the retarding basins should be varied to provide a more interesting encumbered open space in the precinct, and reduce the visual impact of the storage area.

The retarding basins must be located central to the drainage catchment, and as per the GAA guidelines and Clause 56. of the Greater Shepparton Planning Scheme; parks need to be located adjacent to the basins.

However these locations will be subject to finalisation of the local road network design.

# Attachment 1: Clause 56.05 of the City of Greater Shepparton Planning Scheme

## **56.05 URBAN LANDSCAPE**

01/10/2009  
VC58

### **56.05-1 Integrated urban landscape objectives**

09/10/2006  
VC42

To provide attractive and continuous landscaping in streets and public open spaces that contribute to the character and identity of new neighbourhoods and urban places or to existing or preferred neighbourhood character in existing urban areas.

To incorporate natural and cultural features in the design of streets and public open space where appropriate.

To protect and enhance native habitat and discourage the planting and spread of noxious weeds.

To provide for integrated water management systems and contribute to drinking water conservation.

### **Standard C12**

An application for subdivision that creates streets or public open space should be accompanied by a landscape design.

The landscape design should:

- Implement any relevant streetscape, landscape, urban design or native vegetation precinct plan, strategy or policy for the area set out in this scheme.
- Create attractive landscapes that visually emphasise streets and public open spaces.
- Respond to the site and context description for the site and surrounding area.
- Maintain significant vegetation where possible within an urban context.
- Take account of the physical features of the land including landform, soil and climate.
- Protect and enhance any significant natural and cultural features.
- Protect and link areas of significant local habitat where appropriate.
- Support integrated water management systems with appropriate landscape design techniques for managing urban run-off including wetlands and other water sensitive urban design features in streets and public open space.
- Promote the use of drought tolerant and low maintenance plants and avoid species that are likely to spread into the surrounding environment.
- Ensure landscaping supports surveillance and provides shade in streets, parks and public open space.
- Develop appropriate landscapes for the intended use of public open space including areas for passive and active recreation, the exercising of pets, playgrounds and shaded areas.
- Provide for walking and cycling networks that link with community facilities.
- Provide appropriate pathways, signage, fencing, public lighting and street furniture.
- Create low maintenance, durable landscapes that are capable of a long life.

The landscape design must include a maintenance plan that sets out maintenance responsibilities, requirements and costs.

**56.05-2**

01/10/2009  
VC58

**Public open space provision objectives**

To provide a network of quality, well-distributed, multi-functional and cost-effective public open space that includes local parks, active open space, linear parks and trails, and links to regional open space.

To provide a network of public open space that caters for a broad range of users.

To encourage healthy and active communities.

To provide adequate unencumbered land for public open space and integrate any encumbered land with the open space network.

To ensure land provided for public open space can be managed in an environmentally sustainable way and contributes to the development of sustainable neighbourhoods.

**Standard C13**

The provision of public open space should:

- Implement any relevant objective, policy, strategy or plan (including any growth area precinct structure plan) for open space set out in this scheme.
- Provide a network of well-distributed neighbourhood public open space that includes:
  - Local parks within 400 metres safe walking distance of at least 95 percent of all dwellings. Where not designed to include active open space, local parks should be generally 1 hectare in area and suitably dimensioned and designed to provide for their intended use and to allow easy adaptation in response to changing community preferences.
  - Additional small local parks or public squares in activity centres and higher density residential areas.
  - Active open space of a least 8 hectares in area within 1 kilometre of 95 percent of all dwellings that is:
    - Suitably dimensioned and designed to provide for the intended use, buffer areas around sporting fields and passive open space
    - Sufficient to incorporate two football/cricket ovals
    - Appropriate for the intended use in terms of quality and orientation
    - Located on flat land (which can be cost effectively graded)
    - Located with access to, or making provision for, a recycled or sustainable water supply
    - Adjoin schools and other community facilities where practical
    - Designed to achieve sharing of space between sports.
  - Linear parks and trails along waterways, vegetation corridors and road reserves within 1 kilometre of 95 percent of all dwellings.

Public open space should:

- Be provided along foreshores, streams and permanent water bodies.
- Be linked to existing or proposed future public open spaces where appropriate.
- Be integrated with floodways and encumbered land that is accessible for public recreation.
- Be suitable for the intended use.

- Be of an area and dimensions to allow easy adaptation to different uses in response to changing community active and passive recreational preferences.
- Maximise passive surveillance.
- Be integrated with urban water management systems, waterways and other water bodies.
- Incorporate natural and cultural features where appropriate.

## Attachment 2: GAA PSP Guidelines - Element 5

<b>Element 5</b>	<b>Open Space and Natural Systems - Integrated open space network</b>
Design Response	Q1. How have both qualitative and quantitative criteria been used in designing the open space network?
	Q2. How will the natural and cultural attributes of the precinct be protected, managed and enhanced within a network of public open spaces?
	Q3. How have a variety of quality, well distributed and multi-functional public open spaces, including linear trails been provided to meet the needs of a wide range of future residents and users?
	Q4. How is the open space network linked to neighbourhoods within the precinct to ensure that it is easily accessible to all members of the community?
	Q5. How have opportunities to enable efficient use of active open space land been maximised?
	Q6. How has encumbered land been designed to form part of the open space network where appropriate?
	Q7. How have efficiencies been achieved in the size of retarding basins/wetlands, including by incorporating water sensitive urban design?
	Q8. How does the design of the open space and the development immediately surrounding it provide for community safety and passive surveillance?
	Q9. How is consideration of open space provision balanced with other objectives in favour of net community benefit and sustainability?
	Q10. How does the location and design of open space and other public space take account of climate change, particularly increased temperatures and extreme weather events?
Outputs	<p>An open space plan • showing active and passive public open space areas on a precinct-wide scale; the integration of different open space types; and how encumbered land has been appropriately used.</p> <p>An open space table • showing the different types of public open space (including its use as active or passive open space; its character, function, size and scale), use of encumbered land, opportunities taken to integrate open space types, and explanations of how open space (including shared space) will be managed.</p> <p>A concept plan for active open space areas • that provides a preliminary indication of the spatial configuration of sporting facilities within active open space areas. Where the active open space is co-located with community facilities, these should be included.</p>
Standard 1	<p>Provide a network of quality, well-distributed, multi-functional and cost effective open space, catering for a broad range of users that includes:</p> <p>Local parks within 400m safe walking distance of at least 95% of all dwellings;</p> <p>Active open space within 1 kilometre of 95% of all dwellings;</p> <p>Linear parks and trails, most often along waterways, but also linked to vegetation corridors and road reserves within 1 kilometre of 95% of all dwellings. See Clause 56.05-2</p>
2	<p>In residential areas, approximately 10% of the net developable area as total public opens space, of which 6% is active open space.</p> <p>In addition, residential precincts should contain active indoor recreation facilities that are co-located and/or share space with schools and integrated community facilities. This should result in an active indoor sports provision of approximately 5 hectares per 60,000 residents.</p>
3	In major employment areas, approximately 2% of net developable areas as public open space, usually with a passive recreation function.
4	<p>In meeting standards S2 and S3, encumbered land should be used productively for open space.</p> <p>The network of local and district parks should be efficiently designed to maximise the integration and sharing of space with publicly accessible encumbered land.</p> <p>Encumbered land usually includes land retained for drainage, electricity, biodiversity and cultural heritage purposes.</p> <p>The parkland created by such sharing and integration should be suitable for the intended open space function/s, including maintenance.</p> <p>In this way encumbered land will be well utilised, while the total amount of open space can be optimised without adversely impacting on the quality and functionality of the network.</p>
5	<p>Active open space should be of an:</p> <ul style="list-style-type: none"> <li>▪ appropriate size, i.e. sufficient to incorporate two football/ cricket ovals, but small enough to enable regular spacing of active open space provision across the precinct. This configuration would generally require at least eight hectares;</li> <li>▪ appropriate for its intended open space use in terms of quality and orientation;</li> <li>▪ located on flat land (which can be cost effectively graded);</li> <li>▪ located with access to, or making provision for a recycled or other sustainable water supply;</li> <li>▪ designed to achieve sharing of space between sports; and linked to pedestrian and cycle paths.</li> </ul>
	All public open space areas should be designed to maximize passive surveillance. See Clauses 56.04-4 and 56.05-2
	The public open space network is combined with techniques for managing urban run-off and biodiversity. See Clauses 56.05-1, 56.04-4, 56.05-2, 56.07-4



# Shepparton North East Growth Corridor PSP

## Notes:

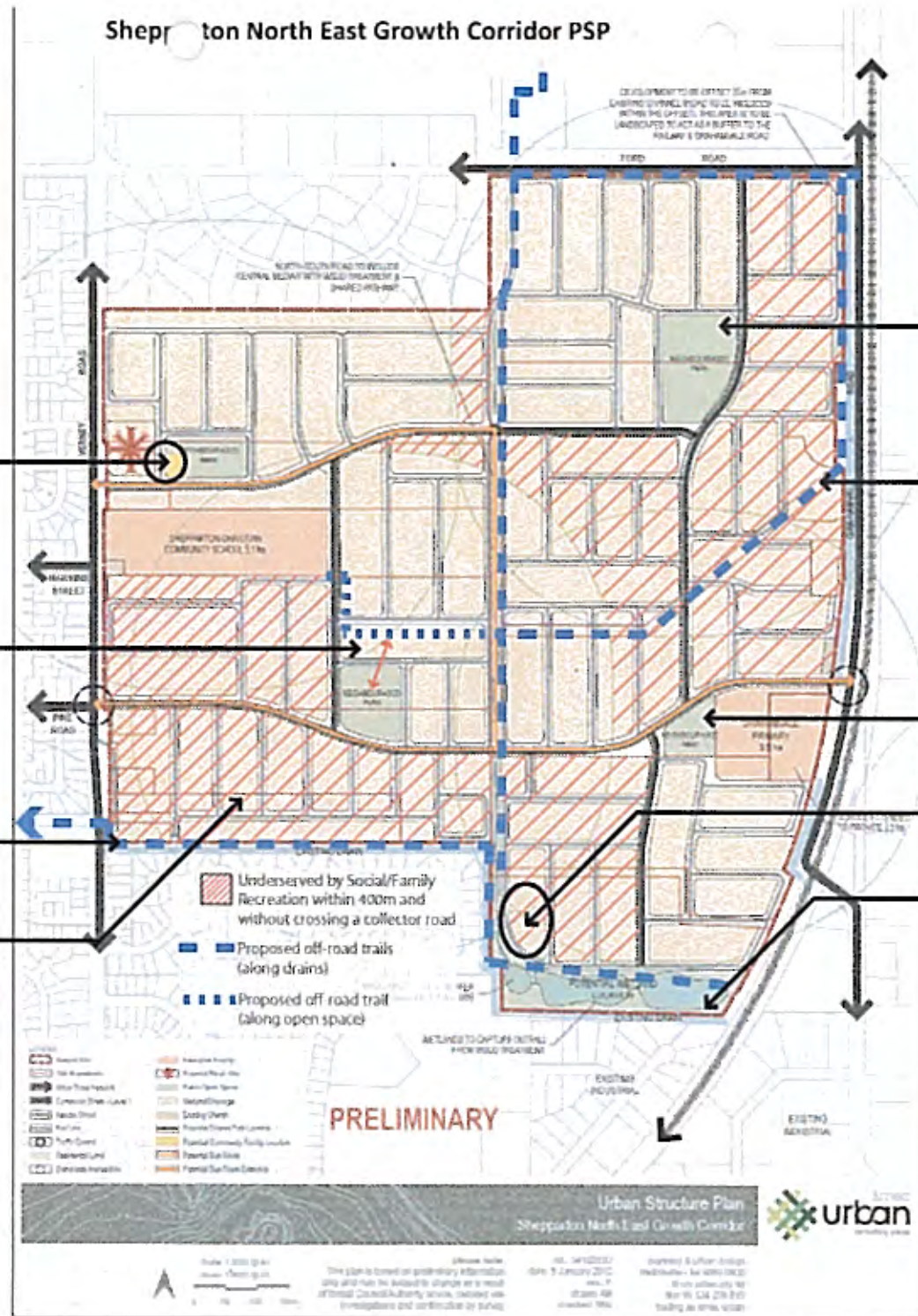
1. Identify different setting types for each park
2. Identify each neighbourhood park as a social / family recreation. Include space for social sport, kick about play, path system and landscaped and vegetated areas
3. Prepare circuit of off-road trails in west of precinct, off the main roads

Adopt Option 2 including a town square in the Neighbourhood Activity Centre. Increase neighbourhood park in size and protect it from encroachment of public and private buildings

Provide park in a more central location and connect off-road trail through it

Create off-road trail connection to Regional Sports Precinct along drain

No park within 400m of residential area. Consider providing a social / family recreation park to serve this neighbourhood



## Attachment 3: Open space peer review concept plan (2010)

Include on bus route and provide perimeter pathway for exercise

Utilise existing irrigation channels / drains to create shared trail connections to schools, activity centres and the regional sports park

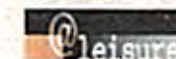
Consider increasing neighbourhood park in size and promote for local sports

Consider unencumbered space to abut waterway for social / family recreation and to serve neighbourhood that is not catered for

Do not count as public open space unless surrounded by flat land and perimeter trail

@leisure comments regarding  
public open space in Shepparton  
North East Growth Corridor PSP  
as based on SMEC Urban Consulting Group's Urban  
Structure Plan

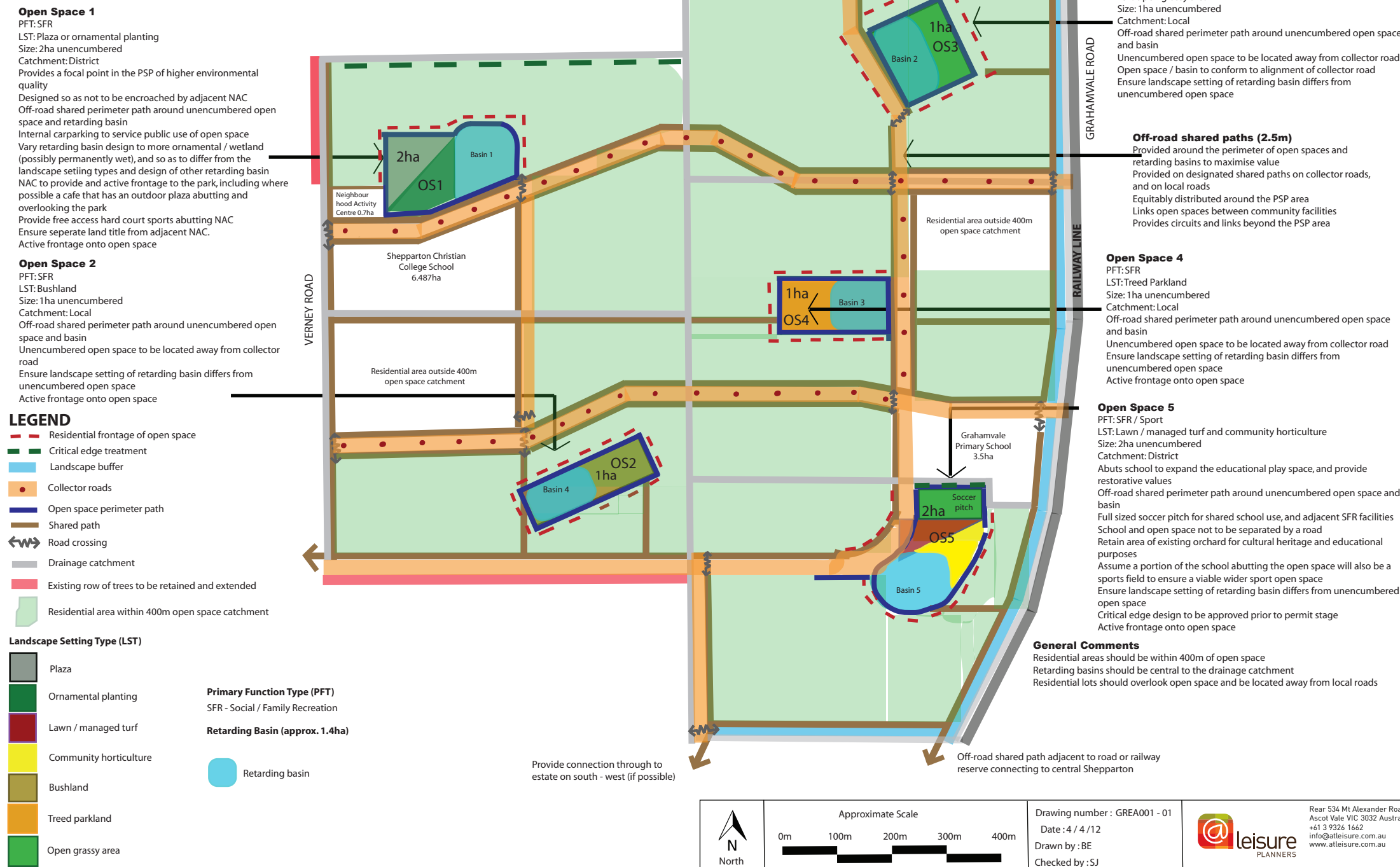
5 July 2010



# Attachment 4:

## Preferred locations of public open space:

### Shepparton North - East PSP(@leisure, Apr 2012)





## Classification and requirements for individual open spaces

OPEN SPACE	CLASSIFICATION		KEY REQUIREMENTS	OTHER COMMENTS
<b>Open space 1</b> (2ha+ for social / family recreation plus area for flood retention)	<b>PRIMARY FUNCTION TYPE</b>	Social / family recreation	<ul style="list-style-type: none"> <li>Over 2ha of unencumbered open space</li> <li>Social / family recreation open space serving 400m catchment and users of the Neighbourhood Activity Centre</li> <li>Wet basin for flood retention and visual amenity (in addition to the core 2ha for social / family recreation) that ensures an adequate buffer for an off-road trail (designated shared path) and planting</li> <li>Opportunities for a range of age groups, especially older adults and youth</li> <li>Higher environmental quality and amenity</li> <li>Provide shared trail around perimeter of open space (minimum 2.5m in width)</li> <li>Facilities for social gathering, relaxation and possible young peoples' action sports</li> <li>Locate the community centre within the NAC so it cannot encroach into the open space</li> <li>Ensure safe pedestrian access between the open space and Shepparton Christian College School, and to the east of the PSP area</li> <li>Accessible play space</li> <li>Accessible by bus</li> </ul>	<ul style="list-style-type: none"> <li>Provides a diversity of social and recreation activities for a range of age groups, especially young people e.g. through some social sport or skate facilities to serve the entire precinct</li> <li>Open space services households within 400m for social / family recreation</li> <li>Supports the commercial area, provides for social gathering, opportunities for waiting, restorative qualities</li> <li>Wet retention basin provides an open space focal point, able to be viewed from the adjacent NAC and Shepparton Christian College School</li> <li>Ensure retail areas front onto the open space</li> <li>An accessible path of travel must be provided from the NAC around the open space / basin</li> <li>The open space may include toilet / BBQ facilities as well as ball courts or action sports facilities</li> <li>Provides restorative value from the NAC and the Shepparton Christian College School</li> <li>The open space / wet basin provides a visual break for NAC employees, shoppers</li> </ul>



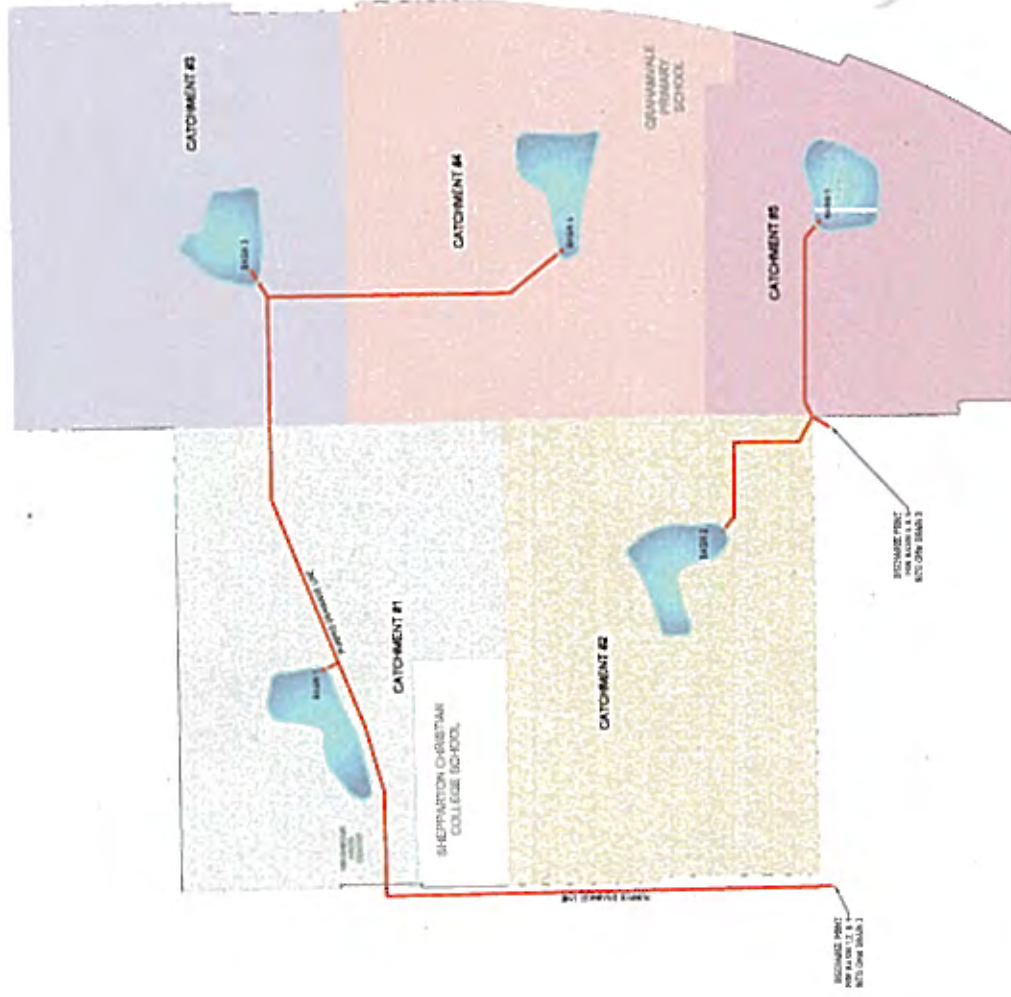
OPEN SPACE	CLASSIFICATION		KEY REQUIREMENTS	OTHER COMMENTS
	<b>LANDSCAPE SETTING</b>	Waterbody (wet retarding basin)  Plaza  Ornamental planting	<ul style="list-style-type: none"> <li>An area of open space that includes a waterbody and / or wetland</li> <li>Hard surface plaza function (plaza) / or hardcourt play / youth space</li> <li>Planted area with flowering plants typically ornamental or specimen plantings (ornamental garden)</li> </ul>	<ul style="list-style-type: none"> <li>Provides a diversity of experiences to the open space user</li> <li>Plaza function provides an appropriate interface between the NAC and open space, seating, performance, gathering or social sport</li> <li>Ornamental garden provide visual respite from built environment</li> </ul>
	<b>CATCHMENT</b>	District	<ul style="list-style-type: none"> <li>District level social / family recreation open space provides a range of facilities to encourage social engagement than other local level open spaces in the PSP area</li> <li>Will need to service the catchment on the west of the precinct south of the school outside the 400m catchment of Park no. 6</li> </ul>	<ul style="list-style-type: none"> <li>An area that generally serves the precinct</li> <li>Residents would be prepared to drive to these open spaces</li> <li>Larger and of a greater complexity than local open spaces</li> </ul>

OPEN SPACE	CLASSIFICATION		KEY REQUIREMENTS	OTHER COMMENTS
<b>Open space 2</b> (1ha+ for social / family recreation plus area for flood retention)	<b>PRIMARY FUNCTION TYPE</b>	Social / family recreation with wetland retarding basin	<ul style="list-style-type: none"> <li>Over 1ha of unencumbered open space</li> <li>Social / family recreation open space to serve a catchment of 400m of every household</li> <li>Wetland retarding basin for flood retention in addition to the core 1ha for social / family recreation</li> <li>Opportunities for a range of age groups, especially older adults and youth</li> <li>Provide shared trail around perimeter of open space (minimum 2.5m in width)</li> <li>Areas of open lawn for picnics and games, tables and seats, play structures, landscaped areas for aesthetic and environmental purposes</li> <li>Legible access between the open space and the drainage channel to the south</li> <li>Open space located central to the catchment and away from collector road, and away from the boundary of the estate to the south (as no access through)</li> <li>Set back higher density housing area away from open space and provide lower density between</li> </ul>	<ul style="list-style-type: none"> <li>Provides a diversity of social and recreation activities for a range of age groups within accessible walking distance</li> <li>Open space services households to the southwest boundary of the PSP area</li> <li>Provide a shared path around the perimeter and adequate space for shared use by a range of age groups as well as a range of activities, that enables kick-about</li> <li>Links to the drainage channel to provide a longer continuous trail and wide range of experience for the user</li> <li>Locating the open space off collector roads provides a safer environment for users, and less impact from pollutants and a higher leisure experience suitable for all age groups</li> <li>Providing higher density housing adjacent to an open space may result in restricted visual access to open space for houses behind, potential for dominating use, overshadowing and "privatisation of open space"</li> </ul>
	<b>LANDSCAPE SETTING</b>	Treed parkland or bushland with wetland retarding basin	<ul style="list-style-type: none"> <li>Parkland with scattered trees throughout or bushland</li> <li>High biodiversity values</li> </ul>	<ul style="list-style-type: none"> <li>Landscape setting provides a diversity of experience offered to the precinct</li> <li>Treed parkland or bushland provide more environmentally-focused landscape setting type. Appropriate for shade and biodiversity</li> </ul>
	<b>CATCHMENT</b>	Local	<ul style="list-style-type: none"> <li>Facilities provided at a relatively low level of complexity</li> </ul>	<ul style="list-style-type: none"> <li>An area that services the immediate local area</li> <li>Relatively small in size, services daily and weekly neighbourhood use and will generally be accessed by bicycle or foot from the surrounding catchment</li> </ul>

OPEN SPACE	CLASSIFICATION		KEY REQUIREMENTS	OTHER COMMENTS
<b>Open space 3</b> (1ha+ for social / family recreation plus area for retarding basin)	<b>PRIMARY FUNCTION TYPE</b>	Social / family recreation with dry retarding basin	<ul style="list-style-type: none"> <li>Over 1ha of unencumbered open space</li> <li>Social / family recreation open space provided to serve 400m catchment</li> <li>Provide shared trail around perimeter of open space (minimum 2.5m in width)</li> <li>Provide crossing point if located on collector road to extend catchment to west of precinct</li> <li>Dry basin for flood retention</li> <li>Provide off-road trails back to NAC and north / south through the PSP area</li> </ul>	<ul style="list-style-type: none"> <li>Provides a diversity of social and recreation activities for a range of age groups within accessible walking distance</li> <li>Shared perimeter path around both spaces</li> <li>Open space services households on the northeast of the PSP area</li> <li>Locating the open space on secondary roads provides a safer environment for users, and less impact from pollutants</li> </ul>
	<b>LANDSCAPE SETTING</b>	Bushland / treed parkland abutting dry retarding basin		<ul style="list-style-type: none"> <li>Landscape setting provides a diversity of experience offered to the precinct</li> <li>An open space providing social and play activities in a treed shady site with respite from the built environment</li> </ul>
	<b>CATCHMENT</b>	Local	<ul style="list-style-type: none"> <li>Facilities provided at a relatively low level of complexity</li> </ul>	<ul style="list-style-type: none"> <li>An area that services the immediate local area</li> <li>Relatively small in size, services daily and weekly neighbourhood use and will generally be accessed by bicycle or foot from the surrounding catchment</li> </ul>

OPEN SPACE	CLASSIFICATION		KEY REQUIREMENTS	OTHER COMMENTS
<b>Open space 4</b> (1ha+ for social / family recreation plus area for retarding basin)	<b>PRIMARY FUNCTION TYPE</b>	Social / family recreation (adjacent to dry retarding basin)	<ul style="list-style-type: none"> <li>Over 1ha in size</li> <li>Social / family recreation open space provided to serve 400m catchment</li> <li>Provide shared trail around perimeter of open space (minimum 2.5m in width)</li> <li>Consider providing dog off-lead open space</li> <li>Located away from collector roads</li> <li>Access by off-road trail to link the open space with spaces to the north and south within the PSP area</li> <li>Retarding basin acts as a buffer from collector road</li> </ul>	<ul style="list-style-type: none"> <li>Provides a diversity of social and recreation activities for a range of age groups within accessible walking distance</li> <li>Shared perimeter trail around both spaces</li> <li>Would be suitable as a dog off-lead area as the open space is central within the PSP area</li> <li>Locating the SFR off the collector roads with the retarding basin as a buffer between houses and busy roads provides a safer environment for users with less impact from pollutants and greater leisure experience – more sure suitable for a wider range of age groups</li> </ul>
	<b>LANDSCAPE SETTING</b>	Treed parkland	<ul style="list-style-type: none"> <li>Parkland with scattered trees throughout. Open grassy areas in between</li> </ul>	<ul style="list-style-type: none"> <li>Landscape setting adds to the diversity of experiences offered in the precinct</li> <li>Treed parkland will also provide for open areas for kick about space and solar access</li> </ul>
	<b>CATCHMENT</b>	Local	<ul style="list-style-type: none"> <li>Facilities provided at a relatively low level of complexity</li> </ul>	<ul style="list-style-type: none"> <li>An area that services the immediate local area</li> <li>Relatively small in size, service daily and weekly neighbourhood use and will generally be accessed by bicycle or foot from the surrounding catchment</li> </ul>

OPEN SPACE	CLASSIFICATION		KEY REQUIREMENTS	OTHER COMMENTS
Open space 5 (2ha+)	<b>PRIMARY FUNCTION TYPE</b>	Social / family recreation (no associated retarding basin)	<ul style="list-style-type: none"> <li>Over 2ha in size</li> <li>Social / family recreation open space providing for residents within 400m and school students from a wider catchment</li> <li>Ensure safe and accessible link between the open space and the school</li> <li>No retention basin to be provided</li> <li>Provide a shared trail around perimeter of open space (minimum 2.5m in width)</li> <li>Located off the collector road</li> <li>Link open space with drainage channel and wetland area to the south by off-road trail</li> <li>Provide an accessible play space</li> <li>Consider utilising some of this space to enhance sporting opportunities for the school or as a community gardening / environmental park proving an education / horticultural function</li> </ul>	<ul style="list-style-type: none"> <li>Provides a diversity of social and recreation activities for a range of age groups within including students</li> <li>Ensure community access to hard courts and synthetic sports fields within the school</li> <li>Open space services households in the southeast of the PSP area</li> <li>Linking with off-road trail on drainage channel and wetland area enables a longer continuous path and wider range of experience for the user</li> <li>Larger catchment to accommodate school users and existing underprovided south-west residential and southern industrial areas more effectively</li> <li>A crossing should be provided from the school into the space</li> <li>No play space present in existing residential area to the south</li> <li>Open space services eastern areas of the PSP area, including overflow from Grahamvale Primary School</li> </ul>
	<b>LANDSCAPE SETTING</b>	Lawn / managed turf  Vegetable garden / pasture / agriculture	<ul style="list-style-type: none"> <li>Areas of turf managed for sports, as well as picnics and games and / or for community horticulture or environmental park to serve the school, local community</li> </ul>	<ul style="list-style-type: none"> <li>Landscape setting provides diversity of experiences offered in the precinct</li> <li>An area set aside as lawn / managed turf which could be provided as a training area for Grahamvale Primary School</li> <li>A community horticulture area may be managed in associated with Grahamvale Primary School for education purposes, acknowledging the orcharding heritage of the PSP area</li> </ul>
	<b>CATCHMENT</b>	District i.e. the whole precinct including students of the adjacent and other schools	<ul style="list-style-type: none"> <li>Facilities provided at a relatively high level of complexity</li> </ul>	<ul style="list-style-type: none"> <li>An area that services the immediate local area and catchment of the school</li> <li>Would be served by off-road trails, as well as a bus route via the school</li> </ul>



NOTE:  
BASINS TO BE GENERALLY CENTRALLY LOCATED WITHIN  
CATCHMENTS TO CONTROL WEACH LENGTH & POND DEPTH

CATCHMENT	AREA	BASIN AREA	VOLUME	CATCHMENT DEPTH IN RAINFALL
	32,100 sqy	34,723 sqy	3,100 cu ft	APPROX. 1.2m

CATCHMENT 2	AREA	BASEN AREA	VOLUME	CATCHMENT DEPTH IN RAILER
	364,200 sqm	53,640 sqm	10,000 cu m	average 3.5m

CATCHMENT 3	AREA	BASIN AREA	VOLUME	CATCHMENT DEPTH IN WATER
	364,784sqm	11,970sqm	10,000sqm	APPROX. 12m

CATCHMENT 4	AREA	BASE AREA	VOLUME	CATCHMENT DEPTH IN BATTLE
	37000000	14427000	421800000	APPROX. 1.50

CATIONICITY	AREA	BALEN AREA	VOLUME	CATIONICITY DEPTH 1/8 BATTLE	APPROX. 1.85
-	2.500 ± 0.010	137.4 ± 0.05	27.18 ± 0.05		

NOTE:  
ULTIMATE BATH DEPTH IS A FUNCTION OF FINAL SHAPE,  
BATHING BEHAVIOR, AND BATHING FREQUENCY.

[illegible]



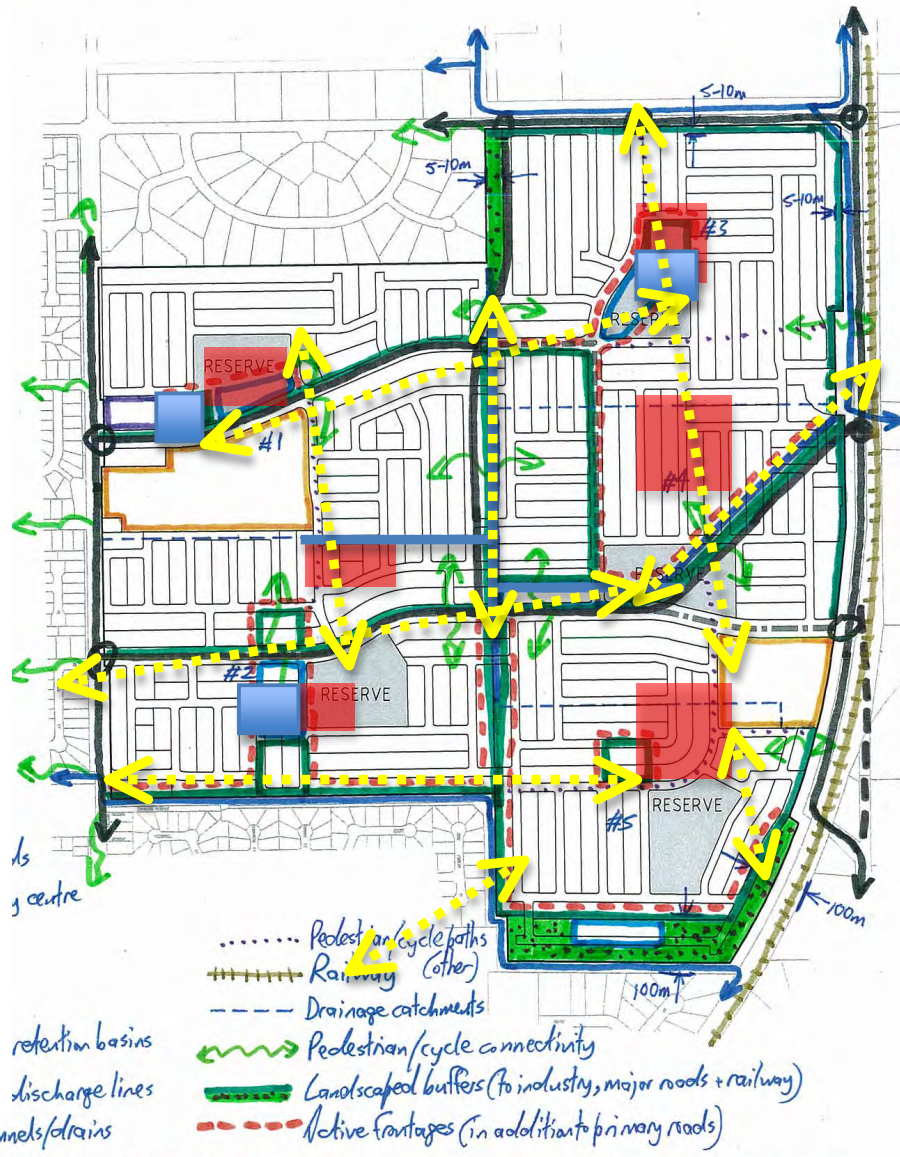
⊗ Conceptual drainage + open space layout only

In order to provide open spaces for social / family recreation within approximately 400m of all households and provide these off major roads, adjacent to schools and potential share trail or drainage, 6 unencumbered sites are likely to be required, all over 1 ha.

This plan assumes three retarding basins are provided as well as channels that have a drainage and potential retardation function.

A grid of off road trails is provided.

A landscape buffer between the railway line and housing is recommended, as is the retention of the tree plantations along the drains and major roads.



## VERNEY AND FORD ROADS, SHEPPARTON

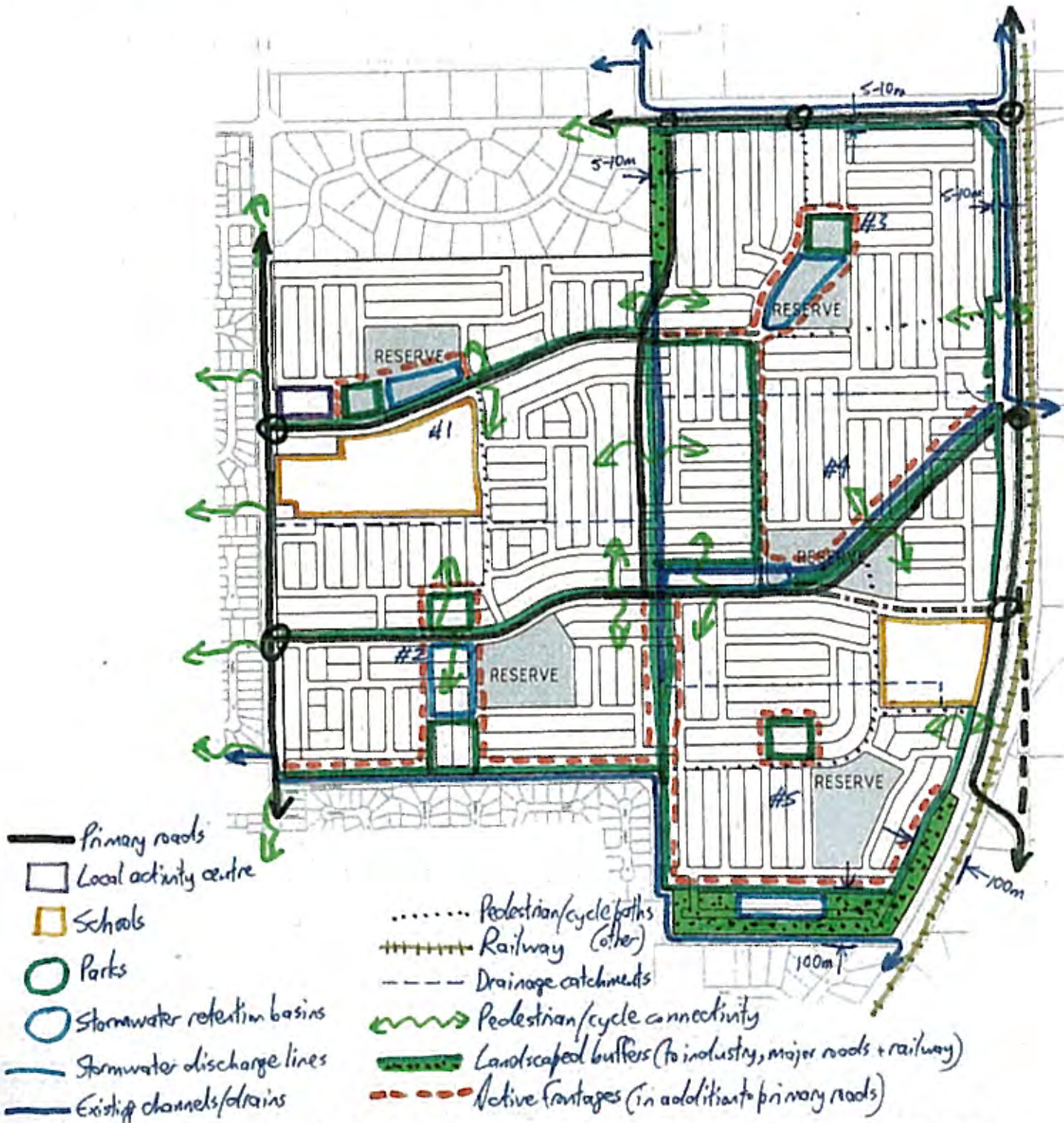
### OVERALL PLAN AND DRAWING INDEX

SHEET 1 OF 5

REEDS REF: 21656E DWG: 21656E\_1P1A



⊗ Conceptual drainage + open space layout only



**VERNEY AND FORD ROADS, SHEPPARTON**  
**OVERALL PLAN AND DRAWING INDEX**  
**SHEET 1 OF 5**



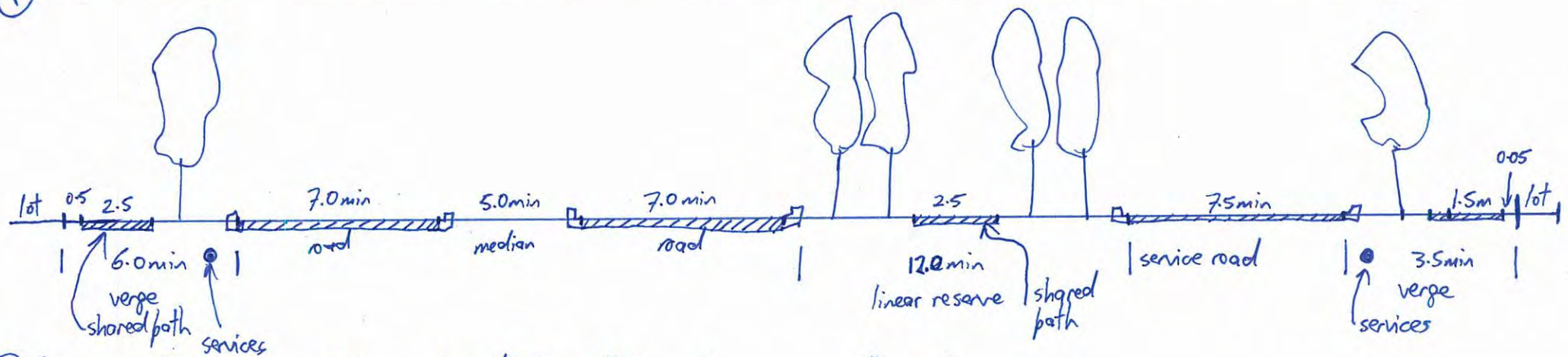
# Attachment 9: Concept plan showing central drainage channel trail (Council, Dec 2011)

- Drainage catchment (with no.)
- ↔ Primary roads
- Local activity centre
- Schools
- Park (with min. area)
- Drainage basin
- ← Channel/drain
- Linear park
- Linear park along road
- - - off-road shared path
- Landscaped buffer
- ... Active frontage
- ~ Pedestrian/cycle connectivity (across primary roads)
- ▨ Redundant irrigation channels utilised as linear parks

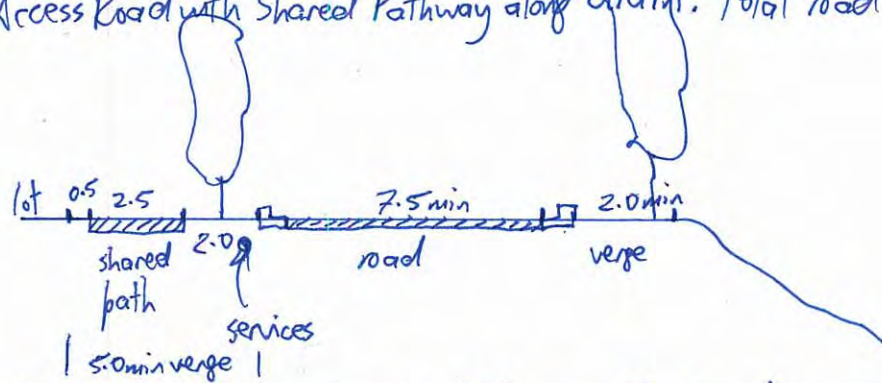


\*Not to scale

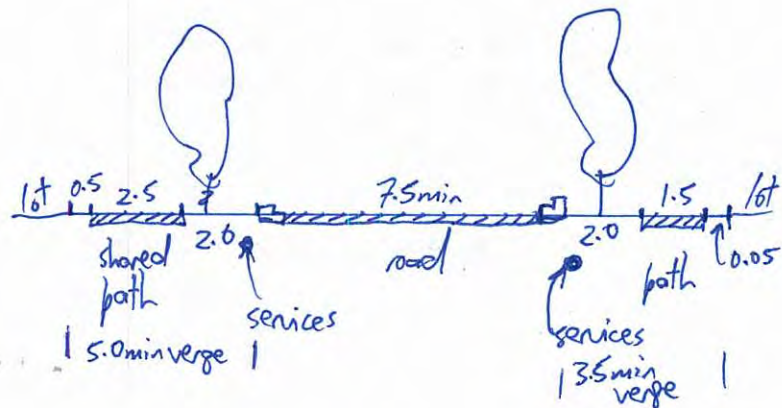
Ⓐ Collector Street - Level 2, with additional Linear Reserve (and service road). Total road reserve width = 52.5m (min)



Ⓑ Access Road with Shared Pathway along drain. Total road reserve width = 16.0m (min)



Ⓒ Access Road with Shared Pathway. Total road reserve width = 17.5m (min) (1.5m additional)



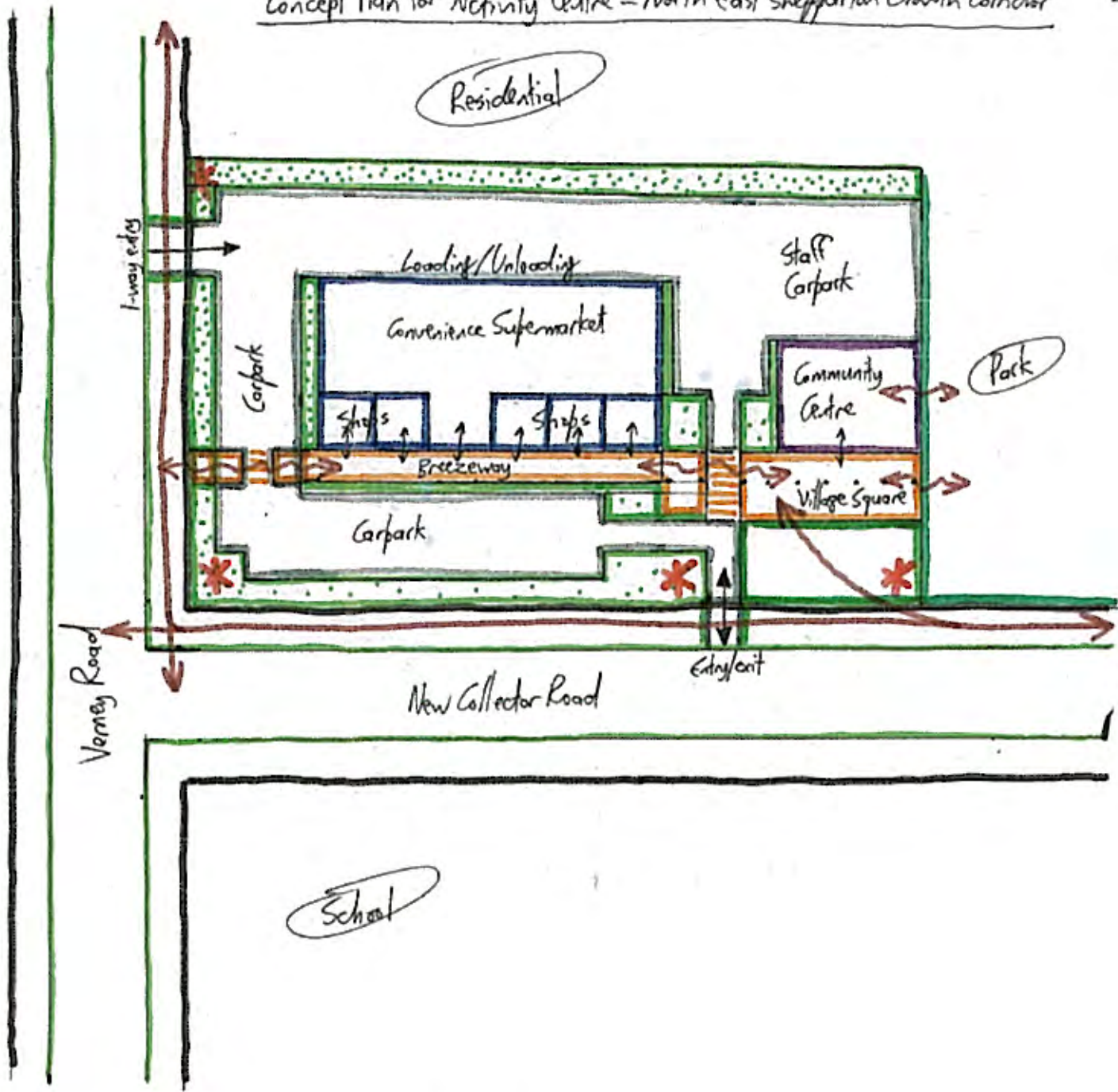
Attachment 10:

Road cross-sections (Council, Nov 2011)



Concept Plan for Activity Centre – North East Shepparton Growth Corridor

AS  
29/3/11



- \* Potential entry statements
- Vehicle driveway/parking
- Retail
- Community
- 'Public' areas
- Landscaping (buffer or amenity)
- ||| Shared pedestrian/vehicle area
- Pedestrian connectivity
- ↔ Cycle connectivity

\* Not strictly to scale