



PSP 1088 OAKBANK | PSP 1089 TARNEIT NORTH | PSP 1090 TRUGANINA | PSP 1091 RIVERDALE

WYNDHAM NORTH PRECINCT STRUCTURE PLANS

BACKGROUND REPORT

June 2013

DOCUMENT FOR PUBLIC COMMENT

In June 2013 the Precinct Structure Plan (PSP) for Riverdale (PSP 1091) will be released for public comment.

The PSP for Truganina (PSP 1090) is expected to be released for public comment in July 2013.

The PSPs for Oakbank (PSP 1088) and Tarneit North (PSP 1089) are under preparation and are expected to be released for public comment in late 2013.

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1.0 CONTEXT

1.1 Introduction

The Wyndham North sub-corridor, located within the City of Wyndham, spans the four Precinct Structure Plan areas of Oakbank (1088), Tarneit North (1089), Truganina (1090), and Riverdale (1091). The area is situated at the edge of Melbourne's western employment corridor, approximately 25 kilometres west of the city centre and 45 kilometres north-east of Geelong.

The Wyndham North precinct consists of more than 3,000 hectares of land in the Urban Growth Zone (UGZ) within the localities of Truganina, Tarneit and Mount Cottrell.

Wyndham North also forms a significant part of the Melbourne West Growth Corridor which extends across both the City of Wyndham and the City of Melton from the Princes Freeway in the south to the Melton Highway in the north.

The City of Wyndham is expected to grow by a further 377,000 residents and provide an additional 164,000 jobs over the next 30 years. With more than 2,500 hectares of net developable residential land and the potential to accommodate at least 110,000 people and more than 20,000 jobs, Wyndham North will account for a significant portion of the corridor's total growth.

This background report will assist in providing context and explaining the processes that informed the preparation of the four Precinct Structure Plans and their associated documents including the PSPs, Development Contributions Plan (DCP) and Native Vegetation Precinct Plans (NVPP).

1.2 Metropolitan and Regional Context

The City of Wyndham is located in the south-west of metropolitan Melbourne on the coast of Port Phillip Bay. It has regional links to the coastal city of Geelong, approximately 45 kilometres south-west, and is neighboured by the rapidly growing City of Melton to the north. The City of Wyndham is approximately 30 kilometres west of Melbourne's city centre, 35 kilometres south-west of Tullamarine International Airport and 37 kilometres north-east of Avalon Airport.

Wyndham, along with the City of Melton, forms part of the Melbourne West Growth Corridor Plan which sets the strategic direction for future metropolitan growth and identifies areas for businesses, employment and housing, as well as setting out new transport networks, and biodiversity areas.

The eastern part of the municipality is within the western employment corridor which has the largest concentration of manufacturing and logistics jobs within metropolitan Melbourne.

1.2.1 Local Context

The City of Wyndham is the fastest growing municipality in Victoria and one of the fastest growing regions in Australia. The Wyndham North sub-corridor is the last large tract of urban growth zoned land within the municipality and sits inside the northern boundary with the City of Melton.

The individual precincts are generally defined as follows:

- PSP 1088 – Future Outer Metropolitan Ring transport corridor to the north-east, Davis Road to the east, Regional Rail Link to the south-east, and the Werribee River to the south.
- PSP1089 – Boundary Road to the north, Derrimut Road to the east, Leakes Road to the south, and Davis Road to the west.
- PSP 1090 – Boundary Road to the north, generally the Regional Rail Link or future Forsyth Road extension to the east, Leakes Road to the south, and Derrimut Road to the west.
- PSP 1091 – Regional Rail Link to the north, Davis Road to the east, Davis Creek to the south-east, and the Werribee River to the south and west.

1.2.2 History

There are three traditional owners of the land in Wyndham North including the Bunurong, Boonwurrung and Wurundjeri. The land is situated within the boundaries of the Woi wurrung language group.

European settlement occurred across the Werribee plains through the 1840s and 1850s as pastoralists moved west from the city of Melbourne. The Chirnside family in particular held a large sheep run in the general Werribee area. Later by the 1940s dairy farming, market gardening, fruit growing and poultry farming had also been introduced in the area.

Relics, ruins and places of cultural importance of both populations remain across the corridor. The Truganina precinct (PSP 1090) is of particular significance given the array of bluestone ruins and artefact scatters along Skeleton Creek.

1.2.3 Lot Size, Ownership Pattern and Topography

The Wyndham North precinct is made up of over 3,000 hectares of mixed pastoral lots and smaller semi-urban subdivisions.

The corridor is characterised by flat plains and scoured channels, including the Werribee River, Skeleton creek, Dry Creek and Davis Creek. The topography is flat and vegetation has largely been previously cleared for agriculture.

1.2.4 Surrounding Neighbourhoods

The Wyndham North precincts are adjacent to the established suburbs of Hoppers Crossing and Tarneit. To the south-west is Wyndham Vale growth corridor which comprises eight PSPs and is expected to have an ultimate population of some 75,000 people.

Boundary Road forms the boundary between Wyndham and Melton and marks the northern edge to the precincts, with the township of Eynesbury (Melton City) and Caroline Springs (Melton City) within close proximity.

1.2.5 Transport and Movement

FREEWAY AND ARTERIAL ROAD NETWORK

The corridor is well connected in all directions through the arterial road and freeway network. Major existing and planned future connections include:

- Leakes Road link to the Princes Freeway with onward connections to both the Melbourne city centre and Geelong.
- Boundary Road link to the Western Ring Road with onward connection to the northern suburbs and Tullamarine International Airport.
- Derrimut Road links to both Melton in the North and Werribee and the East Werribee Employment Precinct in the south.
- Forsyth Road links north to Caroline Springs and south to Point Cook.

Plans for the construction of the Outer Metropolitan Ring Road will further increase the corridor's regional link. The project will provide both freight rail and freeway links from the Princes Freeway and Melbourne-Geelong railway north to Melbourne International Airport in Tullamarine and beyond.

PEDESTRIAN AND CYCLE NETWORK

The major waterways of Werribee River and Skeleton Creek provide shared trail connections into and through the existing urban areas.

Both waterways also provide connection to the Federation Bike Trail which stretches 24 kilometres east to the Melbourne city centre.

Plans for the long-term connection of the Werribee River shared trail through the grasslands to Melton have been prepared. The trail will also be extended further south to Port Phillip Bay.

EXISTING RAIL SERVICES

The Werribee suburban rail line, providing connection to the Melbourne city centre, runs through the southern part of the municipality, approximately 11 kilometres south of the Wyndham North precincts. Stations are located at Werribee, Hoppers Crossing, Aircraft and Laverton with an additional station to open at Williams Landing in 2013.

Regional services connecting to Geelong and Warrnambool also depart from Werribee station.

EXISTING LOCAL BUS SERVICES

There is no existing bus network in the Wyndham North precinct. There are established bus routes in the existing suburbs of Tarneit and Truganina which provided limited connections to Hoppers Crossing and Werribee.

FUTURE SERVICES

At the time of writing, construction had commenced on the Regional Rail Link, a new rail line traversing through the Wyndham North corridor that will carry regional services between Warrnambool, Geelong and Melbourne. Four stations are proposed within the corridor at Riverdale (Sayers Road), Davis Road, Tarneit, and Truganina. Tarneit station will open in 2016 with the other three to be delivered at some point in the future.

In the short term services will be limited to the existing regional schedule however the line has been designed to allow for future capacity expansions, including the introduction of suburban services. Under the Melbourne West Growth Corridor Plan the Priority Public Transport Network will also be extended through the Wyndham North sub-corridor. Routes have been proposed along Forsyth, Dohertys, Derrimut, Davis, Sayers, and Armstrong Roads. The network will link the two major activity centres to the wider metropolitan area.

1.2.6 Town Centres and Employment

WERRIBEE TOWNSHIP

Werribee Township is the historical centre of the region and still plays an important metropolitan role as an established principle town centre, offering retail and commercial services.

Within the municipality, additional centres have emerged at:

- Werribee Plaza, Derrimut Road, Werribee
- Wyndham Village Shopping Centre, 380 Sayers Road, Tarneit

Approvals are also in place for a local town centre, directly south of Truganina (PSP 1090) on the corner of Leakes and Derrimut Road within the Rose Grange estate.

EAST WERRIBEE EMPLOYMENT PRECINCT

Wyndham North sits on the edge of the largely logistics-based western employment corridor. This emerging area is becoming a nationally significant base for distribution centres and related services. The wider region also includes a large number of industrial and manufacturing businesses.

In addition, plans for a major employment and business hub within central Werribee have been released. The East Werribee Employment Precinct is expected to eventually cater for more than 50,000 local jobs across research and development, health and learning.

The new employment precinct has the potential to significantly alter the relationship between Wyndham and the metropolitan region with a higher level of local employment and a shift from predominantly east-west travel patterns toward a greater proportion of north-south inter regional movement.

1.2.7 Open Space and Natural Features

Waterways form the most significant component of open space and most important natural feature within the Wyndham North sub-corridor. The Werribee River, Davis Creek, Skeleton Creek and Dry Creek create important recreation opportunities and provide extensive links into and across the local area.

WATERWAYS WITHIN THE PRECINCT:

- Werribee River – Forms the western edge of Riverdale (1091) and Oakbank (1088). Connects the precinct with Presidents Park, the Werribee city centre, the Federation Trail and eventually Port Phillip Bay.
- Davis Creek – Forms the eastern perimeter of Riverdale (1091) and joins the Werribee River at the south-eastern corner. The tributaries of the creek provide further connections through Oakbank (PSP 1088).
- Skeleton Creek – Skeleton Creek runs directly north to south through Truganina (PSP 1090) and links through Tarneit, Hoppers Crossing, and Point Cook.
- Dry Creek – Dry Creek runs north-west to south-east through PSP 1088 and 1089 before joining Skeleton Creek in PSP 1090.

EXISTING ACTIVE OPEN SPACE SURROUNDING THE WYNDHAM NORTH PRECINCT:

- Wootten Road Reserve – East of PSP 1091 on Hogans Road, Tarneit. This reserve includes 2 senior ovals and 12 standard tennis courts
- Presidents Park – South of PSP 1091 on Heaths Road, Wyndham Vale. This park includes softball, baseball and hockey fields, a skate park, adventure playground and walking tracks
- Goddard Street Reserve – South of PSP 1089 on the corner of Penrose Promenade and Goddard Street, Tarneit. It includes three sports grounds, one of which will be a part of the future Tarneit Central School

OTHER NOTABLE AREAS OF OPEN SPACE WITHIN THE WIDER AREA:

- Werribee Park Mansion - South Drive, Werribee South and south of the Wyndham North precinct
- The Point Cook Coastal Park – Point Cook Homestead Road, Point Cook and south-east of the Wyndham North precinct
- Werribee South coastline – Beach Road, Werribee South and south of the Wyndham North precinct

A 400 hectare regional park is planned along the Werribee River and will include land within southern

section of Riverdale (PSP 1091). This park, called the Werribee Township Regional Park, will be implemented over time as the surrounding land is developed.

1.2.8 Community Facilities and Education

The Wyndham North precinct is in close proximity to the following community facilities and schools:

PRIMARY SCHOOL

- St Francis of Assisi Primary School, Corner Manna Gum Drive and Fairview Parade, Tarneit
- Bethany Catholic Primary School, 80 Thames Boulevard, Werribee North

SECONDARY SCHOOL

- Thomas Carr Secondary College, 35 Thomas Carr Drive, Tarneit
- Baden Powell College 81 Baden Powell Drive, Tarneit
- Good News Lutheran School, 580 Tarneit Road, Tarneit
- Tarneit Senior College (years 10 – 12), 861 Leakes Road, Tarneit
- Al Taqwa Islamic College (years P-12), 201 Sayers Road, Truganina

KINDERGARTEN (4 YEAR OLD)

- Tarneit Kindergarten, 150 Sunset Views Boulevard, Tarneit
- Tarneit Central Kindergarten (opening in 2013), 21-23 Brinbrook Street, Tarneit

COMMUNITY CENTRES

- Tarneit Community Learning Centre, 150 Sunset Views Boulevard, Tarneit
- Grange Community Centre, 260 – 280 Hogans Road, Hoppers Crossing

RETIREMENT COMMUNITIES

- Palm Lake Resort, 1 Andrew Road, Truganina
- Rose Grange Retirement Village, Leakes Road, Tarneit
- Lifestyle Seasons Retirement Village, 13 Sundial Boulevard, Tarneit
- Tarneit Skies Retirement Village, 250 Thames Boulevard, Tarneit

OTHER HIGH LEVEL COMMUNITY FACILITIES IN THE WIDER AREA:

- Werribee Mercy Hospital, 300 Princes Highway, Werribee
- Wyndham Leisure and Events Centre, 80 Derrimut Road, Hoppers Crossing
- Wyndham Cultural Centre, 177 Watton St, Werribee

2.0 CURRENT ENVIRONMENT

2.1 Aboriginal Cultural Heritage

The GAA engaged Archaeological & Heritage Management Solutions (AHMS) to undertake a standard cultural heritage assessment and complete a heritage report for the whole Wyndham North corridor.

The results of the assessment identified that the highest potential for Aboriginal places exist in close proximity to the watercourses of the Werribee River, Davis Creek, Dry Creek and Skeleton Creek. The assessment revealed 51 Aboriginal places in the precinct, of which the bulk were located in close proximity to the mentioned waterways.

All of the recorded places were artefact scatters, with no scar trees, burial grounds or other significant places located during the assessment. AHMS recommended that further investigations of low to very high sensitivity be undertaken to mitigate the risk of artefact discoveries impacting on construction. Development proponents will undertake further assessments as required.

The report also made the recommendation that two areas within the precinct be retained as cultural heritage conservation areas. The first area was an alluvial terrace along the Werribee River corridor. Further assessment indicated that this area was likely to be the most intact portion of the river corridor within the Wyndham North precinct. The second area identified was centred on the confluence of Skeleton and Dry Creeks. Several of the identified artefact scatters were located in this area, demonstrating a strong history of indigenous occupation.

The alignment of Regional Rail Link traverses both proposed conservation areas and has resulted in some amendments to the proposals put forward by AHMS. While the Werribee River terrace will be protected through the Growling Grass Frog corridor, it will be heavily modified through the construction of the rail crossing. The Skeleton Creek conservation area will be impacted to a lesser degree and through proposals put forward in the Truganina PSP (PSP 1090) will be protected (in part) as part of a larger post-contact and indigenous heritage conservation area.

The AHMS heritage report has been endorsed by Aboriginal Affairs Victoria.

2.2 Post – Contact Cultural Heritage

The GAA commissioned post-contact heritage assessments of all four precincts before preparing the structure plans (by Andrew Long & Associates and Context). Additional information was provided through the Wyndham North Heritage Strategy 2012 that was completed on behalf of Wyndham City.

Places of significance were identified in all four precincts (see Table 1) however the majority were in Truganina (PSP 1090). The places were largely along the banks of Skeleton Creek and around the former village of Truganina, on the corner of Woods and Dohertys Roads. The nature and spread of places in Truganina warrants the preparation of a detailed management and integration strategy.

Overall, the places of significance will largely be retained as part of the open space network. Where possible the PSPs will provide guidance on their future use.

In addition to the places identified, there were a number of dry stone walls in the precinct highlighted as having the potential for retention. Representatives of the GAA and Wyndham City Council assessed those walls and considered their likely potential for retention given known road widening and infrastructure requirements. There were several walls in Truganina and Tarneit North (PSP 1089) that were seen as being suitable for retention.

Table 1 Heritage Places for Retention

NAME	HERITAGE OVERLAY	VICTORIAN HERITAGE INVENTORY
OAKBANK (PSP 1088)		
Dam	HO62	-
TARNEIT NORTH (PSP 1089)		
Dohertys House	HO62	-
Missen House		
TRUGANINA (PSP 1090)		
Evans House (former)	HO11	-
Robertson Farm complex	HO28	0136
Leakes Wine cellars & Mullberry trees	HO30	0137
Early stone hut & yard	HO29	0138 & 0139
Itinerants' cave	-	0140
Church (site) & Oak Tree	HO39	-
Air raid protection hall & Truganina recreation reserve	HO39	-
Truganina cemetery	HO39	-
Skeleton Creek municipal water reserve & water holes	HO119	-
RIVERDALE (PSP 1091)		
Hogan's House	HO62	-
North base stone	HO78	-

2.3 Topography and Landform

Land within the Wyndham North precincts has largely been cleared of vegetation for agricultural purposes historically and is generally of a flat nature. Given this context the remaining vegetation is a particularly prominent feature of the landscape and mainly exists as windrows along the property boundaries or stands of trees along waterways.

More generally the Wyndham North precinct is dominated by a broad volcanic plain and the Werribee River and Skeleton, Davis and Dry Creeks.

2.4 Catchments and Drainage

The land within the corridor generally drains south toward Port Phillip Bay through the major waterways of Werribee River and Skeleton, Davis and Dry Creeks.

The incised nature of the waterways means that flooding is not a significant issue for most of the precinct. The southern portion of PSP 1091 is flatter and effected by flooding from the Werribee River.

2.5 Biodiversity

There are a number of flora and fauna species listed under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 that have been recorded in the study area.

They are:

- Golden Sun Moth
- Growling Grass Frog
- Striped Legless Lizard
- Plains Wanderer
- Spiny Rice Flower
- Button Wrinklewort
- Natural Temperate Grasslands

Department of Sustainability and Environment (DSE) timestamp data has been used to prepare Native Vegetation Precinct Plans (NVPP) and calculate offsets. Under the Biodiversity Conservation Strategy (BCS) the areas highlighted for conservation are:

- Truganina Cemetery, on Woods Road (PSP 1090).
- Woods Road Golden Sun Moth Reserve, north of Leakes Road (PSP 1090).
- Growling Grass Frog Reserve along the Werribee River and Davis Creek (PSP 1088 and 1091).
- Spiny Rice Flower Reserve along the unmade Sewells Road reserve, south of the Regional Rail Link (PSP 1091).

Through the NVPP for each precinct, remnant vegetation will be retained along the existing waterways that will be kept in their natural state, particularly the Werribee River, Davis Creek (south of Sayers Road), Skeleton Creek and Dry Creek. Significant scattered indigenous trees will also be retained where possible.

All other remnant vegetation has been identified as suitable for removal and offset, in line with the guidance of the NVPP for each PSP.

2.6 Site Contamination

Aurecon was engaged by the GAA to undertake desktop environmental, hydrological and geotechnical studies of PSPs 1090 and 1091. The study indicated that both precincts have historic and existing land uses that have the potential to cause residual contamination in soils, surface water and groundwater. Potential contaminating activities cited as concerns by the study included:

- Fuel storage and fuelling operations
- Heavy equipment and farm equipment storage, use and maintenance
- Market gardens and glass houses where farming operations, possibly using fertilizers, pesticides and herbicides may have occurred and where faecal coliforms may be present from livestock waste
- Material stockpiles consisting primarily of rock and soil
- Structures where lead-based paint may have been used

Overall, the potential contamination is unlikely to impact on the ability to develop the area for sensitive uses, however some remediation may be necessary.

Statutory planners assessing applications for the development of sensitive uses within any of the Wyndham North PSPs should be aware of any property-specific recommendations contained within the relevant background assessment.

3.0 FUTURE DEVELOPMENT AND COMMUNITY

The following chapter provides an overview of the preparation process for the four Wyndham North PSPs and how the background information has influenced the plans.

A whole of corridor approach has been taken in assessing both the needs of the new community and preparing the plans. Consequently precincts should not be looked at in isolation when considering the allocation of town centres, open space, community facilities and schools.

3.1 Structure

The arterial road network is generally pre-determined by the square-mile grid. Deviations from this existing structure occurs to the western end of the sub-corridor in response to the Werribee River and railway line.

The connector road network has been designed to maximise connectivity to and between town centres. The alignment of connector roads has also been designed to enable drivers, pedestrians and cyclists who use these roads to enjoy interaction with the open space network (including the numerous waterways throughout the area).

As a broad principle, each square mile has a sporting reserve as a central focus with three out of every four square miles also including a town centre and primary school.

3.2 Town centres & employment

3.2.1 Town centre distribution

Growth corridor plans: Activity centre and employment planning (2011), prepared by Essential Economics as part of the growth corridor planning process, provides an assessment of the appropriate hierarchy and scale of town centres across Melbourne's growth areas and an overview of the population required to sustain the viability of retail provision.

Table 2 Retail Centres

CENTRE	INDICATIVE RETAIL FLOOR SPACE (M2)	INDICATIVE CATCHMENT (PEOPLE)
Major town centre	50,000	55,000
Local town centre	7,000	8,000 to 10,000
Local convenience centre	1,500	-

Volume 2 of the PSP guidelines includes the standard that 80-90 per-cent of homes should be within one kilometre of a town centre. This desire for a distributed network of town centres leads to a basic spatial pattern of three town centres for every four square miles. Responding to the standard, Essential Economics have noted "residential yields in growth areas will need to be sufficiently high to ensure that population levels in each neighbourhood unit are large enough to support a supermarket-based centre."

Waterways, conservation areas, and employment zones all impact on residential yield by reducing developable area. Further, the regional rail link represents a physical barrier that impacts neighbourhood connectivity and the ability to access local centres.

The PSPs respond to the standards, assessment by Essential Economics, and local constraints by recommending higher housing densities in appropriate locations to ensure that viability of individual centres is not compromised. This approach is discussed further in section 3.3.

3.2.2 Major Town Centres

The Melbourne West Growth Corridor Plan set the framework for the development of major town centres across Melbourne's growth corridors. Within Wyndham North the plans nominate major town centres adjacent to both the Tarneit and Riverdale train stations.

3.2.3 Local Town Centres

In addition to the two major town centres, the plans propose:

- Two local town centres in Oakbank (1088)
- Two local town centres in Tarneit North (1089)
- Two local town centres in Truganina (1090)
- Two local town centres in Riverdale (1091)

Where residential catchment is distant from one of the major or local centres, allowance has been made for the development of smaller convenience centres.

Where a local town centre has been placed proximate to employment areas a notional 10% increase in floor space has been allowed for to account for employment generated demand.

3.2.4 Employment

The Melbourne West Growth Corridor Plan note that consideration is being given to the development of an intermodal freight terminal directly north of Truganina (PSP 1090) between Boundary and Middle Roads.

The nature of the facility and buffer-generating land uses that may be located north and east of the Wyndham North PSPs have resulted in the nomination of a transition belt spanning the northern and eastern edges of the corridor.

There is a desire for this area to be a mix of light industry, logistics-related services and office parks. As a result there will also be a mix of appropriate industrial and commercial zones.

Consultation with industry through the planning process suggested amenity would be a key driver for higher-density employers in particular. In response the plans attempt to integrate the area with the shared trail network and create hubs of open space to create a point of focus where no other amenity exists. Complimentary facilities have also been placed proximate the corridor, including sporting reserves and schools.

3.3 Housing

3.3.1 Approach to housing density

The scheme sets a minimum average density of 15 dwellings per hectare (in accordance with the PSP Guidelines). This density has been adopted to support the viability of service and infrastructure delivery.

The PSPs recommend variations to this standard in response to local context. In areas where encumbrances lead to a reduced developable area, industrial and commercial zones lead to lower housing yields, or there is justification for multiple town centres in close proximity, a higher density may be recommended to ensure that the viability of service and retail provision is not undermined.

Specific sites for medium and high-density housing will not be identified in the PSPs. This approach has been adopted in response to consultation with industry and the desire to allow for greater flexibility in satisfying broader housing density goals. The overall targets remain comparable to the traditional method of identifying areas for conventional, medium-density and high-density housing.

The PSPs include guidance on the appropriate delivery of increased densities.

3.3.2 Approach to achieving a greater diversity of housing

Wyndham City Council have actively promoted the need for a greater diversity of housing across the growth areas. Council cites both demographic and market analysis in support of their position. The GAA has actively engaged with both Council and industry in exploring the issue of diversity with the intention of implementing guidelines that satisfy the interests of all parties.

From an industry perspective there is a need to maintain the ability to respond to market trends and decrease the risk of investment in non-conventional housing product. From a Government perspective there is a need to maximise the significant public investment in the Regional Rail Link and to ensure that the housing product delivered suits the diverse needs and family structures of the new community.

Further, it is important to also note that the majority of housing built in the growth areas does not require a planning permit thus efforts aimed at increasing the diversity of housing should be focussed on the range of lot sizes being delivered within new developments.

The PSPs approach the issue of housing diversity by ensuring appropriate conditions exist for the delivery of greater diversity including amenity, accessibility and employment. The documents also include revised guidelines and a housing table to assist statutory planners in understanding housing diversity and the relationship between lot size and typical housing products.

3.3.3 Approach to Transit-Oriented Development

The Wyndham North sub-corridor is unique among growth areas in benefitting from new rail infrastructure prior to commencement of development. By 2016 the Regional Rail Link will be operational with services linking Tarneit station to both Melbourne and Geelong. Over the medium and long term there is potential for three additional stations to be delivered with the land acquisition process already having been completed.

The wider structure plan and individual PSPs promote the widely accepted principles of transit oriented development with the intensification of land use around Tarneit station and potential future station sites. The uncertainty of the timeframe for the realisation of the three other stations does create complexity in both planning and development adjacent land appropriately.

Town centres have been identified adjacent both Tarneit station and the three other locations. The intention is that the early realisation of town centres will generate a degree of intensity prior to the opening of new stations. This approach is considered to be the most appropriate balance of ensuring development responds appropriately to the significant public investment whilst not prescribing land uses and densities that will not be viable in the short term.

3.4 Streetscapes

The layout of streets and landscaping within streets play a vital role in reinforcing local character. This role includes providing a connection to the existing landscape character as well as creating neighbourhoods of distinctive individual character.

The PSPs will provide guidance on achieving a greater diversity of streetscapes across developments as well as highlighting feature streets that directly link important components of the urban structure or retain elements of the existing environment.

Each PSP document includes variations to the standard cross sections for local access streets and connector streets. There are also individual cross sections for feature streets that have been identified in each precinct that will have a unique form and character.

The PSPs will also achieve improved street tree outcomes, in terms of increased tree canopy cover. Increased tree canopy cover has multiple benefits such as improve urban amenity and landscape character, more shade and lower temperatures in summer, encouraging higher levels of walking and cycling, contribution to reducing the greenhouse effect through greater carbon uptake by vegetation etc. There will be minimum standard of street tree provision for all streets, and options for alternative treatments to arterial roads to improve tree canopy cover.

New requirements for better co-ordination between underground service placement and street trees are also included within the PSPs to ensure street tree outcomes are achieved.

3.5 Open space

3.5.1 Open space provision

Open space allocation has been undertaken in accordance with Wyndham City Council's expressed preference for the general target of 10-per-cent of Net Developable Area (NDA) to be provided as 7% active and 3% passive.

3.5.2 Active open space

Active open space reserves have generally been placed at the centre of each square mile with the intended advantages of:

- Providing each square mile with a central community focus
- Ensuring most residents live less than 800 metres from a sporting reserve
- Creating a terminus and focal point for the connector road network

In determining the location and level of active open space provision across the corridor, the proximity of existing reserves to the precinct boundaries has been taken into account. This has resulted in some differences in the provision between precincts while the corridor overall meets the agreed provision targets.

3.5.3 Passive open space

A key objective of the Wyndham North PSP process has been to ensure that the provision of passive open space is localised and residents do not have to cross a barrier – whether it be a railway line, arterial road or connector road – to access their neighbourhood park. Further, there is a desire to have a real diversity of open space across the corridor in terms of both scale and format.

Under the plans the number and range of parks would be greatly increased with the mixture ranging from formal civic spaces of more than two hectares to small pocket parks on the banks of the waterways. Each of the town centres will have a civic space of a varied size and style as the point of focus and each residential neighbourhood will have an appropriately scaled local park.

An additional benefit of this approach to passive open space provision is the increased opportunities to deliver a greater choice of housing. Amenity is a key driver of higher-density housing forms and allowing the development of smaller open spaces, particularly close to town centres, will provide additional opportunities for the development of these forms of housing.

Nonetheless, it is appreciated that a balance is still required and for each of the smaller open spaces created there is an equal need to ensure that larger spaces are also provided.

3.5.4 Heritage retention

An extension of the integrated open space network is through the retention of heritage – both physical elements such as bluestone ruins and the wider importance of the landscape. In response to the work undertaken by AHMS, Andrew Long & Associates and Context, GAA, in consultation with Wyndham City Council, Aboriginal Affairs Victoria, and Heritage Victoria, has developed a heritage strategy that tries to balance the interests of protection and development.

The default position is for heritage to be retained on public land. This is largely due to the difficulty of retaining often large elements across multiple properties and ownerships. Where an item can satisfactorily be managed in private ownership then that outcome can be considered.

For the most part heritage sits within the waterway corridors, particularly along Skeleton Creek. The main intention of the strategy has been to ensure that development protects the existing landscape values along the creek and presents a sensitive interface to those areas seen as being of the greatest significance. The Truganina Heritage Network that accompanies the Truganina PSP puts in place a foundation for how developers and Council can work together to achieve a high-quality outcome that protects heritage values over the long-term.

3.6 Community Facilities, Education & Emergency Services

3.6.1 Community Facilities and Government Schools

The preparation of the Wyndham North PSPs has been informed by research undertaken by the GAA, ASR Research and Wyndham City (Planning for Community Infrastructure in Growth Areas 2008, Wyndham Social Infrastructure Plan: 2040, 2012).

These documents outline the requirements for community facilities by size of population. An overview of the recommended provision ratios has been included in the table below.

In responding to the requirements for the new population the GAA has also been cognisant of the presence of, or need for, community facilities in adjacent neighbourhoods. This approach balances the population-based provision ratios against sensible spatial distribution.

Table 3 City of Wyndham Community Infrastructure Hierarchy - WSIP Framework 2040

LEVEL	POPULATION	FACILITIES
Level 1 – Local facilities	Up to 10,000 people	• Government Primary Schools • Level 1 Community Centres • Level 1 Active Open Space • Level 1 Passive Open Space • Long Day Child Care Centres • Social Housing
Level 2 – District Facilities	Between 10 and 30,000 people	• Government Secondary Colleges • Catholic Primary Schools • Level 2 Indoor Recreation Centres • Level 2 Council Community Centres/Early Years facility/Neighbourhood Houses • Low Order Tennis Facilities • Low Order Youth Facilities • Maternal & Child Health • Occasional Child Care • Residential Aged Care
Level 3 – Low Sub-Municipal	Between 30,000 and 60,000 people	• Libraries • Community Arts Centres • Catholic Secondary Colleges • Higher Order Active Open Space Reserves • Indoor Recreation Centres • High Order Tennis Facilities • High Order Dedicated Youth Facilities • Level 3 Council Community Centres • Early Childhood Intervention Service • Planned Activity Group Facility • Delivered Meals Facility • Adventure Playgrounds • Other Independent Schools

Different facilities have different locational requirements. Generally Level 1 community centres and government schools have been located in community hubs with active open space reserves. There is a desire to integrate middle and higher-order facilities with town centres to broaden the role of the centres from retail to the focal points of community activity.

3.6.2 Wider Impact of Population Growth on Provision Ratios

In addition, consideration has been given to the wider municipal impact of the additional projected population within the Wyndham North-sub-corridor on the provision of higher order community facilities.

At the time of preparation, Wyndham City Council advised that some of those facilities under Council responsibility may be catered for on the Council owned property on Sayers Road (spanning the Riverdale and Oakbank precincts). Where those facilities cannot be catered for on that property it is recommended they be located within or adjacent either of the two major town centres.

3.6.3 Non-government Schools

The GAA has engaged extensively with the independent schools structure in the process of preparing the Wyndham North PSPs. An effort has been made to ensure the demand for independent schools is catered for and that the schools are delivered in the most appropriate locations.

The overall Wyndham North plans show indicative sites for non-government primary and secondary schools. In addition, Al-Taqwa College is an existing non-government secondary school on Derrimut Road within Truganina (PSP 1090).

Where possible, there is a desire to locate non-government schools close to town centres and public transport to reflect the fact their students often are drawn from a much broader catchment.

3.6.4 Emergency Services

A briefing was held with representatives of Department of Justice, Department of Health, Ambulance Victoria, Victoria Police, Country Fire Association (CFA), and State Emergency Services in June of 2012.

The CFA advised that two additional fire stations would be required to service the corridor. One station has been notionally placed south-west of the intersection of Leakes and Davis Roads in Riverdale (PSP 1091) where the land owner has indicated a desire to create an emergency services hub. The second may potentially be located south-west of the intersection of Derrimut and Boundary Roads within Tarneit North (PSP 1089).

Other agencies noted that there would be a need for additional services however they were not in a position to commit to specific numbers or locations. It is recommended that higher-order facilities such as hospitals and court houses be located within either of the two major town centres. Emergency response service locations are dictated by catchment and access requirements with the preference usually toward the intersection of two arterial roads. Nonetheless, there remains a desire to locate these facilities as close to town centres as practical.

3.7 Integrated Water Management

The retardation of the 100 year flood event will be provided by a number of retarding basins located throughout the precinct. Retarding basins locations have been chosen to avoid disturbance to embankments of high quality waterways.

Wetlands will be co-located with retarding basins wherever possible and will provide some of the water quality treatment required for the study area. Additional stormwater quality treatment assets will be delivered through Development Services Schemes prepared by Melbourne Water, which will provide the remaining best practice stormwater quality treatment for the study area.

Treated stormwater will be used as the water supply for new Growling Grass Frog wetlands along the Werribee River and Davis Creek.

Opportunities for stormwater harvesting and re-use in the area have been investigated and identified in the PSPs for further consideration by City West Water, Council and Melbourne Water.

3.8 Services

The relevant service authorities will advise developer proponents of requirements at the time of subdivision. The GAA has engaged the relevant authorities through the planning process and has made provision for major infrastructure items where notification of the need has been provided.

The power-supply authority Powercor advised a new zone substation and associated sub-transmission lines will be required to fully service the full development of the Wyndham North area. The zone substation will be located in Tarneit North (PSP 1089).

The gas-supply authority SP Ausnet advised a new connection to the Brooklyn-Lara pipeline will be required before full development of the Wyndham North area is complete. It is anticipated that this infrastructure will be provided outside of the Wyndham North precincts.

The water-supply authority City West Water advised that new potable and recycled water storage would be required within Wyndham North. Melbourne Water has acquired land and easements near Greek Hill in Oakbank (PSP 1088), however Melbourne Water and City West Water are assessing whether this site will be used for water storage purposes.

3.9 Infrastructure Funding

A comprehensive Development Contributions Plan has been prepared in conjunction with the Wyndham North PSPs and will provide a significant contribution towards the construction of the identified infrastructure items.

Other funding sources that will contribute towards funding the necessary infrastructure items are developer's works, Council rate base and various Stage Government agencies. A Precinct Infrastructure Plan is contained within the PSP, which also outlines responsibility for delivery of key infrastructure.

