AMENDMENT NO. 5

TO

DROVERS PLACE PRECINCT

AGREED STRUCTURE PLAN NO. 80

This Amendment to the Agreed Structure Plan is prepared under the provisions of Part 9 of the City of Wanneroo District Planning Scheme No. 2

RECORD OF AMENDMENTS MADE TO THE DROVERS PLACE PRECINCT

AGREED STRUCTURE PLAN NO. 80

Amendment No.	Description of Amendment	Finally Endorsed Council	Finally Endorsed WAPC
Amendment 1	Amend table 'C' – Planning Requirements for the Central Precinct as follows:- • Introducing Hairdresser with a general training component and with a minimum area of 150m2 (Lot 810); • Introducing Large Format Liquor Store with a minimum area of 950m2 (lot 811); • Deleting Butcher, Bakery and Fishmonger.	20 August 2013	22 October 2013
Amendment 2	t.b.a – in progress		
Amendment 3	t.b.a – in porgress		
Amendment 4	t.b.a – in progress		
Amendment 5	Amend objective (b) of Clause 7.0, General Objectives to read: (b) *Provide for land uses that do not significantly compromise the viability of nearby Activity Centres*; Add an additional General Objective to the end of Clause 7.0 as follows: (e) *Provide a zoning and use control framework that maintains the character of developed precincts*. Substitute a new Table 'C' – Planning Requirements for the Central Precinct to implement the following changes:- • Modify the intent statement of the Central Precinct; • Alter the list of permitted land uses within Clause 2.1; • Modify the definition of Grower's Mart to simplify and clarify the definition; • Add the definitions "costume hire" and "general store"; • Add provisions relating to ancillary and subordinate uses; • Make any uses not covered in the table discretionary rather than		

	prohibited; • Amend the maximum permissible showroom floorspace for Lots 1 and 132 as contained in Clause 2.1 of Table C from 11,500m^2 NLA to 13,000 m^2 NLA. • Introduce a new Section to Table C requiring enhanced information accompanying applications for PLUC 5 uses. Amend Section 5.1 of Table F to permit cost sharing arrangements for the design and construction of a signal controlled intersection at the junction of Clarkson Avenue and Wanneroo Road		

AMENDMENT NO. 5

TO

DROVERS PLACE PRECINCT

AGREED STRUCTURE PLAN NO. 80

The City of Wanneroo, pursuant to Part 9 of District Planning Scheme No. 2, hereby amends the above Agreed Structure Plan by:

1. Deleting objective (b) of Clause 7.0 General Objectives and substituting with the following:

   "(b) Provide for land uses that do not significantly compromise the viability of nearby Activity Centres".

2. Adding an additional General Objective to Clause 7.0 as follows:

   "(e) Provide a zoning and use control framework that maintains the character of developed precincts."

3. Substituting an amended Table C Planning Requirements for the Central Precinct as shown in Annexure "A" which, specifically, amends the existing Table as follows:

   a. Deleting Section 1.1 and substitute with a new Section 1.1 and Section 1.2 as follows:

   "1.1 The intent of the Central Precinct is to accommodate health, welfare, community services, entertainment, recreation, commercial and cultural facilities that:

   - *Attract a significant number of employees or users and/or generate significant vehicle trips; and*
   - *Do not significantly compromise the viability of nearby Activity Centres.*

   1.2 Development is encouraged to provide a built form that respects and recognises the environment of Yellagonga Regional Park."

   b. Deleting Section 2.1 and substitute with a new Section 2.1 as follows:

   "2.1 Permitted 'P' uses within the Special Use Zone shall include:

   - Art Gallery
   - Car Park
   - Growers Mart (Lots 810 and 811 only)
   - Hairdresser (Must have minimum floorspace of 150m^2 and incorporate a training component)
   - Hardware Store
   - Liquor Store (Must have a minimum retail net lettable area of 950m^2)
   - Lunch Bar
   - Reception Centre

- Recreation Centre
- Storage Yard
- Veterinary Consulting Rooms
- Veterinary Hospital
- Warehouse

Discretionary “D” uses within the Special Use Zone shall include:

- Auction Room
- Bank
- Beauty Parlour
- Car Wash
- Child Care Centre
- Civic Building
- Costume Hire
- Drive-through Food Outlet
- Dry Cleaning Premises
- Education Establishment
- General Store (Must have a maximum floorspace in food and groceries of 40%; must not exceed 1,500m^2)
- Hire Service
- Funeral Parlour
- Laundromat
- Laundry
- Market (Retail)
- Mast or Antenna
- Medical Centre (must have a minimum of 8 consulting rooms and may include a pharmacy)
- Motor Vehicle Repairs
- Office
- Pharmacy (where it forms part of a Medical Centre)
- Place of Assembly
- Place of Worship
- Private Recreation
- Restaurant
- Retail Nursery
- Service Station

- Shop (minimum retail net lettable area of 200m^2; must not sell food or groceries unless part of a Grower's Mart or permissible General Store)
- Showroom (Lots 810 and 811 Maximum NLA 5,500m^2)
- Showroom (Lots 1 and 132 Maximum NLA 13,000m^2)
- Take-Away Food Outlet
- Tavern
- Telecommunications Infrastructure
- Vehicle Sales / Hire Premises

Prohibited "X" uses within the Special Use zone shall include:

- Abattoir
- Aged or Dependent Persons Dwelling
- Amusement Facility
- Amusement Parlour
- Ancillary Accommodation
- Animal Husbandry
- Aquaculture
- Bed & Breakfast
- Camping Ground
- Caravan Park
- Caretaker's Dwelling
- Cattery
- Cinema
- Cinema Complex
- Club (Non-Residential)
- Concrete Batching Plant
- Consulting Room (other as than part of Medical Centre)
- Convenience Store
- Corner Store
- Department Store
- Display Home Centre
- Drive In Theatre
- Equestrian Activity
- Factory Unit
- Fuel Depot
- Golf Course

- Grouped Dwelling
- Hall
- Holiday Village/Resort
- Home Business – Category 1
- Home Business – Category 2
- Home Business – Category 3
- Hospital
- Hotel
- Industry – Extractive
- Industry – General
- Industry – Hazardous
- Industry – Light
- Industry – Rural
- Intensive Agriculture
- Kennels
- Kindergarten
- Landscape Supplies
- Market Garden Sales
- Milk Depot
- Motel
- Multiple Dwelling
- Night Club
- Nursing Home
- Open Air Display
- Park
- Park Home Park
- Piggery
- Plant Nursery
- Public Exhibition Facility
- Residential Building
- Restricted Premises
- Retirement Village
- Roadhouse
- Roadside Stall
- Rural Use
- Salvage Yard

- Single House
- Smash Repair Station
- Special Place of Assembly
- Sports Ground
- Stables
- Stall – General
- Theatre
- Trade Display
- Transport Depot
- Vehicle Wrecking
- Video Hire
- Winery
- Woodyard

c. Deleting the existing Section 2.2 and renumbering subsequent sections accordingly.

d. Deleting the existing Section 2.3 and substituting with a new Section 2.2:

*"**2.2. Ancillary and Subordinate Uses***

A use that is less than 10% of the floorspace of a use is permissible as part of that use (irrespective of its permissibility if considered as a separate use) provided it is ancillary and subordinate to the dominant use. The City may exercise discretion and grant Planning Approval for ancillary and subordinate uses that exceed 10% of floor area, provided the City is satisfied that the use is genuinely ancillary and subordinate to the dominant use."

e. Adding the definition of "Costume Hire" in Section 2.2 as follows:

Costume Hire – means an area of land or buildings used for the hire or sale of costumes.

f. Deleting the definition of "Growers Mart" in Section 2.2 and substitute the following definition:

Growers Mart – means an area of land or buildings used for the wholesale distribution and retail sale of fresh food products through multiple contiguous tenancies.

g. Adding the definition "General Store" to Section 2.2 as follows:

General Store – means an area of land or buildings used as a large self-service retail store that sells general merchandise including household goods, food and groceries and bulky goods.

h. Deleting the existing Section 2.5 and substituting with the following:

"2.4 All other uses in the Special Use Zone" shall be Discretionary 'D'."

i. Inserting a new Section 2.5 as follows:

"**2.5 Information Requirements**

Applications for "D" uses shall include information relating to the potential impact of the use on the existing and planned hierarchy of local, neighbourhood and district centres. Such assessment shall apply to PLUC 5 "D" uses only and shall address the extent (if any) to which the proposed use would affect the overall viability of centres within its primary trade area."

4. Deleting Section 5.1 of Table F and substituting a new Section 5.1 as follows:

"If business development of Lots 1 and 132 is proposed, in accordance with the structure plan, a condition of such development shall be that the subdivider/developer of Lots 1 and 132 Wanneroo Road, in consultation with MRWA, shall design and construct a four-way signal controlled intersection at the junction of Clarkson Avenue and Wanneroo Road, as indicated on Plan 1 to the specification and satisfaction of the City of Wanneroo. The cost sharing arrangements will be the subject of separate agreement between the City of Wanneroo, the landowners of Lots 1 and 132 Wanneroo Road and MRWA."

TABLE C – PLANNING REQUIREMENTS FOR THE CENTRAL PRECINCT

1.	Intent	1.1 The intent of the Central Precinct is to accommodate health, welfare, community services, entertainment, recreation, commercial and cultural facilities that: • Attract a significant number of employees or users and/or generate significant vehicle trips; and • Do not significantly compromise the viability of nearby Activity Centres. 1.2 Development is encouraged to provide a built form that respects and recognises the environment of Yellagonga Regional Park.
2.	Zoning	2.1 Permitted ‘P’ uses within the Special Use Zone shall include: • Art Gallery • Car Park • Growers Mart (Lots 810 and 811 only) • Hairdresser (Must have minimum floorspace of 150m^2 and incorporate a training component) • Hardware Store • Liquor Store (Must have a minimum retail net lettable area of 950m^2) • Lunch Bar • Reception Centre • Recreation Centre • Storage Yard • Veterinary Consulting Rooms • Veterinary Hospital • Warehouse Discretionary “D” uses within the Special Use Zone shall include: • Auction Room • Bank • Beauty Parlour • Car Wash • Child Care Centre • Civic Building • Costume Hire • Drive-through Food Outlet • Dry Cleaning Premises

	• Education Establishment • Funeral Parlour • General Store (Must have a maximum floorspace in food and groceries of 40%; must not exceed 1,500m^2) • Hire Service • Laundromat • Laundry • Market (Retail) • Mast or Antenna • Medical Centre (must have a minimum of 8 consulting rooms and may include a pharmacy) • Motor Vehicle Repairs • Office • Pharmacy (where it forms part of a Medical Centre) • Place of Assembly • Place of Worship • Private Recreation • Restaurant • Retail Nursery • Service Station • Shop (minimum retail net lettable area of 200m^2; must not sell food or groceries unless part of a Grower's Mart or permissible General Store) • Showroom – (Lots 810 and 811 Maximum NLA 5,500m^2) • Showroom – (Lots 1 and 132 Maximum NLA 13,000m^2) • Take-Away Food Outlet • Tavern • Telecommunications Infrastructure • Vehicle Sales / Hire Premises Prohibited "X" uses within the Special Use zone shall include: • Abattoir • Aged or Dependent Persons Dwelling • Amusement Facility • Amusement Parlour • Ancillary Accommodation • Animal Husbandry

	• Aquaculture • Bed & Breakfast • Camping Ground • Caravan Park • Caretaker's Dwelling • Cattery • Cinema • Cinema Complex • Club (Non-Residential) • Concrete Batching Plant • Consulting Room (other as than part of Medical Centre) • Convenience Store • Corner Store • Department Store • Display Home Centre • Drive In Theatre • Equestrian Activity • Factory Unit • Fuel Depot • Golf Course • Grouped Dwelling • Hall • Holiday Village/Resort • Home Business – Category 1 • Home Business – Category 2 • Home Business – Category 3 • Hospital • Hotel • Industry – Extractive • Industry – General • Industry – Hazardous • Industry – Light • Industry – Rural • Intensive Agriculture • Kennels • Kindergarten

	• Landscape Supplies • Market Garden Sales • Milk Depot • Motel • Multiple Dwelling • Night Club • Nursing Home • Open Air Display • Park • Park Home Park • Piggery • Plant Nursery • Public Exhibition Facility • Residential Building • Restricted Premises • Retirement Village • Roadhouse • Roadside Stall • Rural Use • Salvage Yard • Single House • Smash Repair Station • Special Place of Assembly • Sports Ground • Stables • Stall – General • Theatre • Trade Display • Transport Depot • Vehicle Wrecking • Video Hire • Winery • Woodyard **2.2. Ancillary and Subordinate Uses** A use that is less than 10% of the floorspace of a use is permissible as

	part of that use (irrespective of its permissibility if considered as a separate use) provided it is ancillary and subordinate to the dominant use. The City may exercise discretion and grant Planning Approval for ancillary and subordinate uses that exceed 10% of floor area, provided the City is satisfied that the use is genuinely ancillary and subordinate to the dominant use. **2.3 Definitions** For the purposes of this Table the following definitions are adopted: Costume Hire – *means land and buildings used for the hire of clothing and may include the display of some items of clothing*. Growers Mart — *means an area of land or buildings used for the wholesale distribution and retail sale of fresh food products through multiple contiguous tenancies*. Retail Nursery — *Means land and/or buildings used for the storage, display and retail sale of nursery and horticultural products including plants, seeds, bulbs, seedlings, trees and other nursery stock and products associated with horticulture, domestic gardens, outdoor living, garden decor and clothing for gardening and may include associated outdoor leisure products and an incidental café.* General Store – *means an area of land or buildings used as a large self-service retail store that sells general merchandise including household goods, food and groceries and bulky goods.* **2.4 Other Uses** All other uses in the Special Use Zone" shall be Discretionary 'D'. **2.5 Information Requirements** Applications for "D" uses shall include information relating to the potential impact of the use on the existing and planned hierarchy of local, neighbourhood and district centres. Such assessment shall apply to PLUC 5 "D" uses only and shall address the extent (if any) to which the proposed use would affect the overall viability of centres within its primary trade area.

CERTIFIED THAT AMENDMENT NO. 5 TO THE DROVERS PLACE PRECINCT AGREED STRUCTURE PLAN NO. 80

WAS ADOPTED BY

RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON

……

Signed for and on behalf of the Western Australian Planning Commission

…….

an officer of the Commission duly authorised by the Commission pursuant to section 24 of the Planning and Development Act 2005 for that purpose, in the presence of:

……. Witness

…….. Date

AND BY

RESOLUTION OF THE COUNCIL OF THE CITY OF WANNEROO
(or as otherwise delegated under Section 8.1 of its Delegated Authority Register)

ON …….

Signed for and on behalf of the City of Wanneroo in accordance with the Local Government Act 1995, Clause 9.49 A. (1) (b)

……..
Director, Planning and Sustainability, City of Wanneroo

……. Date

EXPLANATORY REPORT

DROVERS PLACE PRECINCT
AGREED STRUCTURE PLAN No. 80

AMENDMENT NO. 5

1. Introduction

This request to amend the Drovers Place Precinct Agreed Structure Plan No. 80 (ASP No. 80) is made on behalf of the landowner of Lots 1 and 132 Wanneroo Road, being Lakewide Pty Ltd. Lots 1 and 132 are located within the Drovers Place Central Precinct.

This request proposes the following modifications to ASP No. 80:

1. Amend the general objectives of the Structure Plan to provide greater flexibility to cope with the ongoing planning needs of the site.
2. Amend the intent statement relating to the Central Precinct to accord with State Planning Policy 4.2 – Activity Centres for Perth and Peel.
3. Introduce additional land use classifications to Clause 2 of Table C to increase the range of discretionary business uses permitted within the Central Precinct;
4. Increase the maximum 'Showroom' floorspace for Lots 1 and 132 as contained in Clause 2.1 of Table C from 11,500 m^2 NLA to 13,000 m^2 NLA; and
5. Introduce the requirement to enter into cost sharing arrangements relating to the design and construction of a four-way signalised intersection at the intersection of Wanneroo Road and Clarkson Avenue.

The following report provides detailed information and justification in support of the proposed modifications.

2. Background

2.1 Agreed Structure Plan No. 80

The Drovers Place Precinct Agreed Structure Plan No. 80 (ASP No. 80) was adopted by Council on 23 August 2011 and was forwarded to the Western Australian Planning Commission (WAPC) for adoption and certification.

The WAPC adopted ASP No. 80 in July 2012 subject to a number of modifications in response to an application for review to the State Administrative Tribunal. In its letter to the City dated 10 July 2012 advising of the decision to adopt ASP No. 80, the WAPC advised *'that further investigation is to be undertaken by the City of Wanneroo into cost sharing for the provision of a signalised intersection at Clarkson Avenue'.*

To date, the City has not undertaken a review into the cost sharing arrangements relating to the provision of a signalised intersection at Clarkson Avenue and Wanneroo Road.

Currently, the general objectives of ASP No. 80 are to:

(a) Guide subdivision and provide for a variety of appropriate land uses and development in the three distinct precincts, where proposals will have high

exposure to Yellagonga Regional Park, Wanneroo Road, Drovers Place and Joondalup Drive;

(b) Complement surrounding activity centres through provision of niche business uses reliant on highway exposure;

(c) Facilitate adaptive built form that maintains a visual relationship with and provides pedestrian access to Yellagonga Regional Park; and

(d) To protect and enhance the environmental, heritage, and landscape values of the Structure Plan area and adjacent regional park.

In addition to the above, ASP No. 80 also contains requirements relating to permissible land uses, development controls and information requirements to accompany future applications for subdivision and development approval.

2.2 Drovers Place Central Precinct Detailed Area Plan

The City, under its powers of delegated authority, adopted the Drovers Place Central Precinct Detailed Area Plan (DAP) on the 28 November 2013. The DAP establishes detailed provisions relating to building envelopes, permitted building heights, built form, earthworks, access and heritage requirements.

2.3 Relationship to Prior Structure Plan Amendments

There are currently two proposed amendments to ASP80 (Amendments No. 3 and 4) which affect the Central Precinct and which have not been finally determined. The objective of those amendments is to alter the approach to approved uses for Lots 810 and 811 only. While the Landowner of Lots 1 and 132 substantially agrees with the proposed changes in approved uses, the landowner is strongly of the opinion that there should be a consistent approach to the intent and land use permissibility across the entire Central Precinct.

This proposed amendment has been prepared in a way which attempts to avoid, as far as possible, the need to revisit fundamental issues which have been raised and considered in the context of those other structure plan amendments and assumes that they will be determined in favour of the proponent.

This Structure Plan Amendment has been prepared on the basis that the Central Precinct should remain as one cohesive precinct which should also be recognised as an ‘out of centre’ precinct pursuant to the City’s Local Planning Policy 3.2 – Activity Centres Policy and in accordance with the definitions of ‘out of centre’ development set out in State Planning Policy 4.2.

Amendment No. 4 seeks to split the Central Precinct into two sub-precincts presumably on the basis that Lots 810 and 811 are already substantially developed while Lots 1 and 132 remain undeveloped. We are of the opinion that this is not a valid reason to split the Central precinct into two sub precincts and that the Central precinct should remain as one cohesive precinct on the following basis:

- the existing (and proposed) range of uses are the same across all of the lots within the Central Precinct except for a couple of exceptions which can easily be delineated within the text of the Structure Plan.
- the Central precinct will ultimately be developed as an integrated development which will share consolidated access points onto Wanneroo Road.

- the Central precinct has always been recognised as one cohesive precinct and there is no merit in splitting the precinct into two separate sub-precincts.

This proposed amendment has, at the request of the City, been developed to be generally consistent with the modifications proposed in Amendment No. 4, apart from the following points of difference:

1. Retain the Central precinct as one precinct rather than splitting the precinct into two sub-precincts;
2. Proposal to increase the maximum 'Showroom' floorspace in relation to Lots 1 and 132 from 11,500sqm to 13,000sqm;
3. Proposed inclusion of 'Service Station' as a discretionary land use;
4. Inclusion of a proposal to amend clause 5.1 of ASP80 to provide for cost sharing arrangements for the cost of constructing a signalised intersection at the junction of Clarkson Avenue and Wanneroo Road.

The justification for the proposed amendments, to the extent that they differ from Amendment No. 4, are provided within this report. All other amendments which are consistent with Amendment No. 4 have previously been justified within the Amendment no. 4 scheme amendment report and it is requested that the decision making authorities refer to the Amendment No. 4 documentation for the relevant justification.

3. Site Details

This request relates to Lots 1 and 132 Wanneroo Road, Wanneroo. The title particulars are provided in the table below:

Lot	Vol/Folio	Diagram	Land Area	Landowners
1	28/14A	7782	2.8009 ha	Lakewide Pty Ltd
132	1663/446	231049	3.4086 ha	Lakewide Pty Ltd
810	2613/1	42376	2.8009 ha	Goldrange Pty Ltd
811	2613/2	42376	2.9488 ha	Greenpark Asset Pty Ltd

Refer to Appendix A – Certificates of Title

4. Justification for Proposal

4.1 State Planning Policy 4.2 – Activity Centres for Perth and Peel

State Planning Policy 4.2 – Activity Centres for Perth and Peel (SPP 4.2) sets out the broad requirements for the distribution, function, broad land use and urban design criteria for activity centres within the metropolitan area.

SPP4.2 provides for 'out of centre' development to be located in designated centres, such as the Drover's Place Central Precinct and lists the type of uses appropriate to these designated areas as including health, welfare, community services, entertainment, recreation, commercial and cultural facilities that are *'likely to attract a significant number of employees or users and generate significant vehicle trips'*.

4.2 Local Planning Policy 3.2 – Activity Centres Policy

The Drovers Place Central precinct has been recognised within the City's *Local Planning Policy 3.2 – Activity Centres Policy* as accommodating 'out of centre development' as defined by *State Planning Policy 4.2 – Activity Centres for Perth and Peel* (SPP4.2).

It is acknowledged that the reference to 'out of centre' development within LPP 3.2 is made only in relation to Lots 810 and 811 on the basis that the out of centre development is already established on these lots. However, Lots 1 and 132 are recognised within ASP80 as forming part of the Central precinct with the same range of 'out of centre' uses as Lots 810 and 811 and on this basis we have made a separate request to the City to update LPP 3.2 to also refer to Lots 1 and 132 as being located within a precinct which is suitable to accommodate 'out of centre' development.

Furthermore, the Drovers Place Central Precinct is ultimately intended to share access onto Wanneroo Road, which will include reciprocal rights of access to service all development within the Central Precinct, and therefore the precinct development will share traffic and customer base.

LPP 3.2 expands on SPP4.2 and states the following in the 'Purpose and Application' section with respect to 'out of centre' development:

"That health, welfare, community services, entertainment, recreation, commercial and cultural facilities that attract a significant number of employees or users and/or generate significant vehicle trips cannot always be accommodated within or adjacent to activity centres within the Activity Centres Hierarchy. In these circumstances these uses should occur in out-of-centre developments as referred to in provision 5.6 of State Planning Policy 4.2."

On the basis of the above, it is clear from the established policy context, that the additional commercial, business, health, community and cultural facilities proposed to be included within the Central precinct by way of this proposed amendment are appropriate in the context that the Central Precinct has been designated as an 'out of centre' precinct by LPP3.2.

4.3 Justification for Proposed Amendments

Proposal 1 and 2 – Amendment to General Objectives

It is proposed to amend objective (b) to read:

(b) *Provide for land uses that do not significantly compromise the viability of nearby Activity Centres.*

This amendment is proposed to reinforce that land uses within the Central Precinct should complement rather than compromise the viability of nearby activity centres while still providing for land uses that benefit from the exposure to traffic along Wanneroo Road.

It is also provided to add the following additional general objective to align with that proposed in Amendment No. 4:

(e) Provide a zoning and use control framework that maintains the character of developed precincts.

This objective is included in reference to the detailed area plan which applies to the entire Central precinct.

Proposal 3 – Modifications to Table C

This part of the proposed amendment differs from Amendment No. 4 in that it seeks to retain the Central precinct as one precinct rather than splitting the precinct into sub precincts.

This is on the basis that the entire Central Precinct should be recognised as an 'out of centre' precinct pursuant to the City's Local Planning Policy 3.2 – Activity Centres Policy.

The Central precinct, which encompasses Lots 810, 811, 1 and 132 has for some time been recognised as forming one cohesive precinct which will ultimately share access on to Wanneroo Road as an integrated development precinct which provides similar compatible business and bulky goods land uses that benefit from the exposure to Wanneroo Road.

The Drovers Place Central precinct has been recognised within the City's *Local Planning Policy 3.2 – Activity Centres Policy* as accommodating out of centre development as defined by *State Planning Policy 4.2 – Activity Centres for Perth and Peel* (SPP4.2). Specific reference is made to Lots 810 and 811 in the policy, as they are established and already accommodate 'out of centre' development. However, they are only one part of the Central Precinct and we are of the view that this policy should be updated to also refer to Lots 1 and 132, which are also recognised within ASP80 as being suited to 'out of centre development' land uses as enumerated in the structure plan.

Intent Statement

It is proposed to modify the intent statement as follows:

1.1 The intent of the Central Precinct is to accommodate health, welfare, community services, entertainment, recreation, commercial and cultural facilities that:

- *Attract a significant number of employees or users and/or generate significant vehicle trips; and*
- *Do not significantly compromise the viability of nearby Activity Centres.*

This generally reflects the City's requested modification to Amendment No. 4 for the Special Use B zone but seeks to apply this intent statement to the entire Central precinct, rather than splitting up the Central precinct into sub-precincts. This intent statement generally accords with the intent of State Planning Policy 4.2 with respect to 'out of centre development'.

Land Uses

The current range of land uses that are able to be approved within the Central Precinct is very restricted and is not reflective of the Central Precinct's designation as an 'out of centre' development precinct in the context of LPP 3.2.

This proposed amendment generally seeks to introduce the same additional use classes as outlined within Amendment No. 4 but with the following alterations:

- Retain the Central precinct as one precinct.
- Delineate maximum showroom floorspace for Lots 810 and 811 and Lots 1 and 132 as currently provided for within ASP80 but increase the floorspace cap for Lots 1 and 132 to 13,000sqm for reasons outlined below.
- Identify 'Growers Mart' as being a permitted ('P') use in relation to Lots 810 and 811 only to reflect current land use arrangements.
- Include 'Service Station' as a discretionary land use.

The detailed justification for the introduction of these additional uses is outlined in Amendment No. 4.

The justification for increasing the net lettable showroom floorspace by 1,500 m^2 (or 13%) from 11,500m^2 to 13,000 m^2 is provided below.

Locational requirements for showroom and 'bulky goods' outlets have evolved over time from when this format originally emerged in the 1970's where these uses were typically disbursed throughout light industrial areas in response to this type of shopping being viewed as ancillary shopping by consumers.

Showroom and bulky goods retailing has now evolved to that of a comparison and destination shopping format, meaning that showroom outlets require and depend upon a critical mass of other showroom and bulky goods uses in order to attract a sufficient consumer base to that centre in order to remain viable.

Showroom and 'bulky goods' uses have therefore evolved from being located in ad hoc locations to be located in clusters (or precincts) in close proximity to activity centres on key transport routes to maximise exposure to passing trade.

Furthermore, showroom outlets are now having to compete with and are under threat from the increasing trend of consumers towards online shopping as a preference over more localised forms of shopping, which is forcing change upon retailers on how and in what format they conduct business.

Imposing a floorspace cap for showroom uses is effectively placing further pressure on the viability of the Drovers Place Central Precinct as it is limiting the ability to achieve the required critical mass of outlets to ensure the long term viability of individual businesses within the Centre.

State Planning Policy 4.2 (SPP 4.2) specifies broad planning requirements in relation to activity centres and out of centre developments. The Policy represents a shift

away from imposing floorspace caps for retail ('shop') uses in favour of a performance based approach to achieve a diversity of land uses within Centres.

Clause 5.6.1 (2) of SPP 4.2 states that bulky goods uses should be promoted in clusters in close proximity to activity centres with good access to the regional road network and public transport.

Furthermore, the Drovers Place activity centre is identified as an 'Out of Centre' activity centre within the City's Activity Centre's Policy. SPP4.2 acknowledges that these centres should accommodate high employment and trip generating land uses, including showroom development.

It is clear that there is a strong consumer demand for showroom and bulky goods shopping and by increasing the amount of permissible floorspace at Drovers Place will help alleviate pressure on land zoned for industrial and core retail uses while at the same time will contain showroom uses within a centre format rather than ribbon development along Wanneroo Road, in accordance with the intent and objectives of SPP 4.2.

The demand for retail and commercial uses in the locality is supported by recent retail assessments commissioned by other landowners in the area, which demonstrate a clear shortfall in appropriately zoned land for commercial and retail purposes in the area.

Furthermore, the development of the site to include the increased showroom floorspace as proposed can still meet the objectives and requirements of the Drovers Place Central Precinct Detailed Area Plan with respect to built form, building envelopes and interface with the public realm. The preliminary development plan demonstrating this is contained at Appendix B.

Service Station

It is proposed to include 'Service Station' in the list of discretionary 'D' uses for the Central precinct.

The definition of a 'Service Station' as contained within the City's DPS2 means a:

"premises used for the retail sale of petroleum products and motor vehicle accessories and goods of an incidental/convenience retail nature, and for carrying out greasing, tyre repairs or minor mechanical repairs to motor vehicles, but does not include a transport depot, panel beating, spray painting, major repairs or wrecking".

A 'Service Station' is a use which is consistent with the proposed revised objectives of ASP80 in that it is a commercial land use that would benefit from the exposure to Wanneroo Road and which is use that would not readily be accommodated within a traditional district or neighbourhood centre but would rather be appropriately located in proximity to or the edge of an activity centre. A service station located within the Central precinct would also not undermine the viability of other retail based activity centres.

There is demand for an additional service station on Wanneroo Road in this location. The site is well positioned and lends itself to accommodating a service station. Environmental issues could be managed on-site through the use of grease and sediment traps and other measures to prevent runoff of waste materials in accordance with the requirements of the Department of Water's *Water Quality Protection Note 52: Stormwater management at industrial sites*.

Proposal 4 – Cost Sharing Arrangements for Construction of Traffic Lights

Transcore Traffic Report

The owner of Lots 1 and 132 commissioned Transcore to prepare a Traffic Report to investigate the distribution of traffic generated by existing and anticipated developments within the Drovers Place precinct and the proportion of this traffic which would travel through the intersection of Wanneroo Road and Clarkson Avenue.

The report divides the Drovers Place precinct into four sub areas:

- Area A: Lots 1 and 132 Wanneroo Road (the subject site);
- Area B: Lot 19 Clarkson Avenue;
- Area C: Lots 810 and 811 Wanneroo Road; and
- Area D: Land contained within the Western and Southern Precincts of the Drovers Place Precinct.

The report finds that each area would contribute volumes of traffic during the peak hour in accordance with the following table:

Table 1 – Estimated Distribution of Traffic Volumes

Traffic Contributor	Intersection Traffic	Proportion of Traffic
Area A	914	17%
Area B	264	5%
Area C	60*	1%
Area D	500	9%
Background Traffic	3539	67%
Total	5277	100%

**Area C figures assume that the existing access/egress to these lots from Wanneroo Road will remain as a left-in / left-out / right-in access.*

As illustrated in Table 1 above, the ultimate development of Lots 1 and 132 (represented as Area A) will only contribute to 17% of the overall traffic using the intersection of Wanneroo Road and Clarkson Avenue in the peak hour period.

The GHD Traffic Report summarised below and commissioned by the City of Wanneroo in preparing ASP No. 80 provides further evidence that the development of Lots 1 and 132 Wanneroo Road is not the sole contributor to the traffic passing through the intersection and further acknowledges that the intersection would be required to be upgraded to a signal controlled intersection irrespective of the development of the subject site.

Refer to Transcore Traffic Report Contained at Appendix C.

Traffic Report supporting ASP No. 80

The City commissioned a Traffic Report prepared by GHD to support Structure Plan No. 80. This report states that the main issue with the functionality of the Wanneroo Road / Clarkson intersection *is 'with background traffic growth, so improvements to this intersection and Wanneroo Road will need to be considered irrespective of the Precinct development'*. (refer Page 36, GHD July 2011)

The City's Traffic Study also noted that Wanneroo Road currently carries approximately 27,000vpd, which is expected to increase to 47,800vpd by 2031. The City's Traffic Report also acknowledges that the full development of Lots 1 and 132 is likely to generate 1,053 vehicles in the peak hour, which represents a small proportion of the total movements that will travel through this intersection. The City however is requiring the landowner of Lots 1 and 132 to contribute to the total cost of the lights.

Refer to excerpt of GHD Traffic Report contained at Appendix D.

State Government Support

The Minister for Transport has previously indicated the Department of Transport's support and willingness to consider a proposal to explore a tri-partite funding arrangement as a way of sharing the costs of constructing the traffic lights in order to allow this important project to proceed.

Following this letter, the member for Wanneroo, Paul Miles MLA, wrote to the Mayor of the City, Tracey Roberts, in a letter dated 13 December 2012, requesting the City investigate the tri-partite funding arrangement to enable to upgrade of the intersection to proceed.

This correspondence is contained at Appendix E for information.

ASP 3 – Lot 19 Clarkson Avenue

Additionally, the City's administration section has previously acknowledged in a report to Council meeting on the 1 May 2012 that related to a commercial development application at Lot 19 Clarkson Avenue, that:

"While the (proposed development of Lot 19) does not trigger the need for traffic lights to be installed at the subject intersection, Administration acknowledges that the installation of the traffic lights would be of some benefit to the subject proposal, as well as other land owners within the local area."

Summary of Justification for Cost Sharing Arrangements

In consideration of the above information and technical data, it is clear that Clause 5.1 of Table F of ASP No. 80 does not withstand one of the three principles of the validity test contained in the Model Subdivision Conditions of the WAPC relating to the need for a planning authority to demonstrate relevance or a nexus between the development proposal and the requirement of the condition.

An authority must demonstrate that the condition is justified by the nature of the development and the effect on its surroundings. If a condition requires the upgrading of an adjacent intersection then it is necessary to demonstrate that the upgrading arises directly out of the effects of the subdivision or development rather than being primarily directed to the public benefit. The City's traffic report, and subsequent Transcore traffic report commissioned by the landowner of Lots 1 and 132, demonstrates that the development of Lots 1 and 132 is only a part contributor to the need to upgrade the intersection and therefore it is suggested through the outcome

of the test that the costs should be shared.

As previously identified, the main issue at this intersection is caused by background traffic growth generated by other developments, so improvements to this intersection and Wanneroo Road will need to be considered irrespective of the development of Lots 1 and 132.

The City recently adopted an amendment to Agreed Structure Plan No. 3 which relates to increasing the retail floor space on Lot 19 Clarkson Avenue, located adjacent the intersection from 1,100m^2 to 1,900m^2. This recent amendment has increased the potential for Lot 19 to contribute to traffic at this intersection.

The landowner of Lots 1 and 132 should therefore not be required to contribute the entire cost of the intersection upgrade particularly considering that the City's own commissioned traffic study suggests the need to signalise the intersection regardless of development of Lots 1 and 132.

In summary, Lakewide Pty Ltd requests Clause 5.1 of Table F within ASP No. 80 be amended to provide for cost sharing arrangements of the traffic lights for the following reasons:

- The WAPC has directed the City in endorsing ASP No. 80 to investigate cost sharing arrangements for the signalised intersection. To date this has not occurred. This proposed amendment will facilitate the necessary investigations;
- The Council has previously acknowledged that the cost sharing arrangement would represent a more equitable outcome, however, could not implement a cost sharing arrangement due to the current wording of Clause 5.1;
- The City's own Traffic Report indicates that the intersection will require an upgrade to a signalised intersection regardless of the development of the Central Precinct;
- There is a nexus between the recent increase in retail development permissible on Lot 19 Clarkson Avenue and the increase in vehicle movements through the intersection of Wanneroo Road and Clarkson Avenue;
- It is equitable (and legal planning practice) that all parties that contribute to the vehicle movements through the intersection also proportionally contribute to the costs of upgrading the intersection. This includes landowners within the Drovers Place Central precinct, Main Roads and potentially other landowners / developers within the vicinity.

6. Conclusion

This request to amend the Drovers Place Precinct Agreed Structure Plan No. 80 is made on behalf of the landowners of Lots 1 and 132 Wanneroo Road, Wanneroo.

The proposed amendment seeks to modify the general objectives of ASP80, the 'Intent' statement relating to the Central Precinct and also seeks to expand the range of permissible land uses within the Central precinct, which is currently very limited, in recognition of the precincts role in accommodating appropriate 'out of centre' development as defined by the City's LPP 3.2.

The proposed amendment also seeks to increase the showroom floorspace cap from 11,500m^2 NLA to 13,000 m^2 NLA in relation to Lots 1 and 132.

In addition, the request seeks a more equitable cost sharing arrangement to cover the cost of designing and constructing the upgrade of the intersection of Clarkson Avenue and Wanneroo Road to a signalised intersection.

It is considered that the proposed amendments are consistent with the established planning framework and on this basis it is respectfully requested that the City and Western Australian Planning Commission endorse the requested modifications.

APPENDIX A

Certificates of Title

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REGISTER NUMBER	
1/P7782	
DUPLICATE EDITION **4**	DATE DUPLICATE ISSUED **18/8/2007**

WESTERN AUSTRALIA

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **28** FOLIO **14A**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 1 ON PLAN 7782

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

LAKEWIDE PTY LTD OF 312 OXFORD STREET, LEEDERVILLE
(T K289917) REGISTERED 1 AUGUST 2007

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. TITLE EXCLUDES THE LAND SHOWN ON DIAGRAM 56993.
2. TITLE EXCLUDES THE LAND SHOWN ON DIAGRAM 64903.
3. K127722 EASEMENT BURDEN FOR PIPELINE PURPOSES TO WATER CORPORATION - SEE DEPOSITED PLAN 53856 REGISTERED 20.3.2007.
4. *L241916 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 25.2.2010.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 28-14A (1/P7782).
PREVIOUS TITLE: 1276-81.
PROPERTY STREET ADDRESS: 1369 WANNEROO RD, WANNEROO.
LOCAL GOVERNMENT AREA: CITY OF WANNEROO.

NOTE 1: K026292 DEPOSITED PLAN 53856 LODGED FOR EASEMENT PURPOSES ONLY
NOTE 2: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING L241916

REGISTER NUMBER	
132/DP231049	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	**24/4/2007**

WESTERN AUSTRALIA

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

VOLUME **1663** FOLIO **446**

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 132 ON DEPOSITED PLAN 231049

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

LAKEWIDE PTY LTD OF 312 OXFORD STREET, LEEDERVILLE
(T K016428) REGISTERED 8 DECEMBER 2006

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE.
2. TITLE EXCLUDES THE LAND SHOWN ON DIAGRAM 64902.
3. *L243847 MORTGAGE TO NATIONAL AUSTRALIA BANK LTD REGISTERED 26.2.2010.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND: 1663-446 (132/DP231049).
PREVIOUS TITLE: 1081-433.
PROPERTY STREET ADDRESS: 1351 WANNEROO RD, WANNEROO.
LOCAL GOVERNMENT AREA: CITY OF WANNEROO.

NOTE 1: A000001A LAND PARCEL IDENTIFIER OF SWAN LOCATION 132 (OR THE PART THEREOF) ON SUPERSEDED PAPER CERTIFICATE OF TITLE CHANGED TO LOT 132 ON DEPOSITED PLAN 231049 ON 11-JUL-02 TO ENABLE ISSUE OF A DIGITAL CERTIFICATE OF TITLE.
NOTE 2: THE ABOVE NOTE MAY NOT BE SHOWN ON THE SUPERSEDED PAPER CERTIFICATE OF TITLE OR ON THE CURRENT EDITION OF DUPLICATE CERTIFICATE OF TITLE.
NOTE 3: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING L243847

APPENDIX B
Preliminary Development Plan

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SITE & GROUND FLOOR PLAN

SCALE: 1 : 500

0 2.5 5 7.5 10 12.5 25

COMPOSITE SITE CRITERIA

1. Site Area		**62,712m²**		
2. Landscaping (8% of site required)		**5,019m²**		
a. Hard		5,040m²		
b. Soft		4,500m²		
Total		**9,540m² *(15.2% of site)***		
3. Floor Areas				
a.	T1 - T3 : Fast Foods	734m²	@ 1/15	30 cars
b.	T4,5,16-17 : Mixed Use	3,644m²	@ 1/30	126.7 cars
c.	T6 - T27 : Showroom	13,000m²	@ 1/30	433.3 cars
	Warehouse	2,000m²	@ 1/50	40.0 cars
d.	T9 :Mixed Use	330m²		16 cars
e.	T11 :Gym	600m²	40ppl @ 1/4ppl	10 cars
f.	T28 : Mixed Use	750m²		40 cars
g.	T29 : Mixed Use	2,581.5m²		33 cars
	Total	**23,639.5m²**		**742.8cars**
4. Car Parking				
a. Cars Required		**743 cars**		
b. Cars Provided		**809 cars**		
i) On Grade		780 cars		
ii) Drive Thru		29 cars		

PROPOSED COMMERCIAL DEVELOPMENT

LOCATION : Wanneroo & Clarkson Avenue, Tapping WA 6065

FOR : VEND PROPERTY

PROJECT No	7666
SKETCH No	SK013
SHEET No	3
SCALE	As indicated @ B1
DATE	sep 2014

meyer shircore and associates ARCHITECTS 50 YEARS 1963|2013
Suite 2, Ground Floor, 437 Roberts Rd, Subiaco, Western Australia 6008.
t : (08) 9381 8511.
e: msa@meyershircore.com.au.
w: www.meyershircore.com.au

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APPENDIX C

Transcore Traffic Report

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61 York Street
Subiaco WA 6008
P.O.BOX 42 Subiaco WA 6904
Phone: +61 (08) 9382 4199
Fax: +61 (08) 9382 4177
Email: admin@transcore.net.au

transport planning • traffic engineering • project management

TRANSCORE PTY LTD AS TRUSTEE FOR THE TRANSCORE TRUST
ACN 094 951 318 ABN 85 707 500 280

Technical Note: No 1a - Final **Date:** 25/10/2013
Project No: t13.222
Project: Lot 1 & Pt Lot 132 Wanneroo Road, Tapping
Subject: Future 4-way Signalised Intersection of Wanneroo Road and Clarkson Avenue – Traffic Contribution Assessment

INTRODUCTION

The 4-way signalised intersection of Wanneroo Road and Clarkson Avenue is planned as part of the Drovers Place Structure Plan and will require the construction of a fourth (western) leg at the intersection and installation of traffic signals. Clarkson Avenue currently intersects Wanneroo Road to form a three-way unsignalised intersection.

Transcore has been commissioned by Lakewide Pty Ltd to review previous traffic studies for a number of developments proposed in the vicinity of the proposed signalised intersection, and to estimate the percentage of traffic through the proposed intersection associated with each development as well as background through traffic.

As the proposed signalised intersection is on Wanneroo Road, which is a Primary Regional Road, it is expected that a significant portion of non-local traffic will also utilise and traverse through the intersection.

The purpose of the review undertaken by Transcore is to ascertain the proportion of traffic attributed to the proposed development on Lots 1 & 132 Wanneroo Road, other proposed developments in the Drovers Place Structure Plan Area, proposed development at the south-east corner of the intersection of Wanneroo Road/Clarkson Avenue and future background through and regional traffic utilising the intersection. Based on this data, a percentage traffic load was assigned to each component to establish an estimate of the relative cost contribution for the proposed signalised intersection.

BACKGROUND

The location of the proposed 4-way signalised intersection is shown in Figure 1. The major developments considered in this assessment and surrounding the intersection were divided into four areas: A, B, C & D.

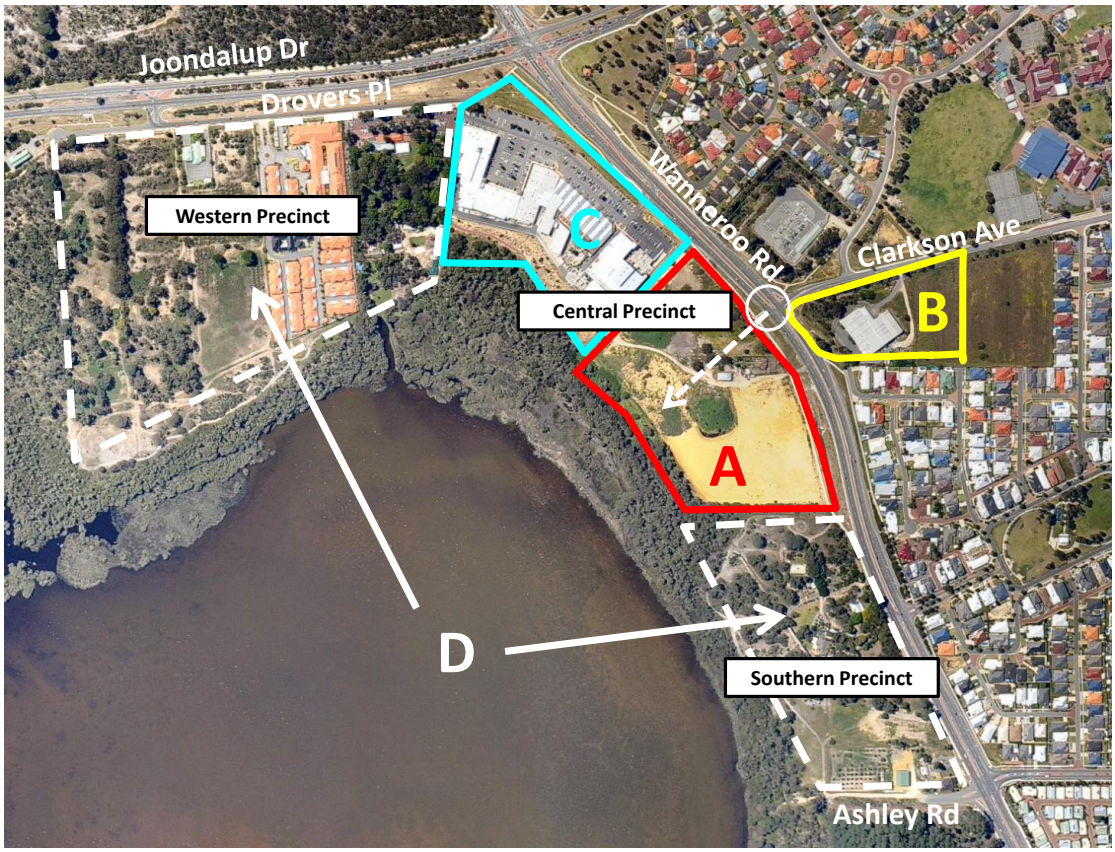

Figure 1: Study area

Area A focused on the traffic generation of the proposed development on Lots 1 and 132 Wanneroo Road. Transcore has previously undertaken a traffic study for this proposed development.

Area B focused on traffic generated by a proposed commercial development on Clarkson Avenue, east of the proposed signalised intersection. Transcore has previously undertaken a traffic study for this proposed development.

Area C focused on the traffic generation of the markets and other developments proposed on Lots 810 & 811 Wanneroo Road. Transcore has previously undertaken a traffic study for this proposed development.

Area D focused on the traffic generation of the balance of the Drovers Place Structure Plan which is bounded by Drovers Place, Wanneroo Road and Ashley Road, and is divided into three precincts – Western, Central and Southern Precincts as shown in Figure 2. Areas A and C are located in the

Central Precinct of the Structure Plan and Area D covers the Western and Southern Precincts.

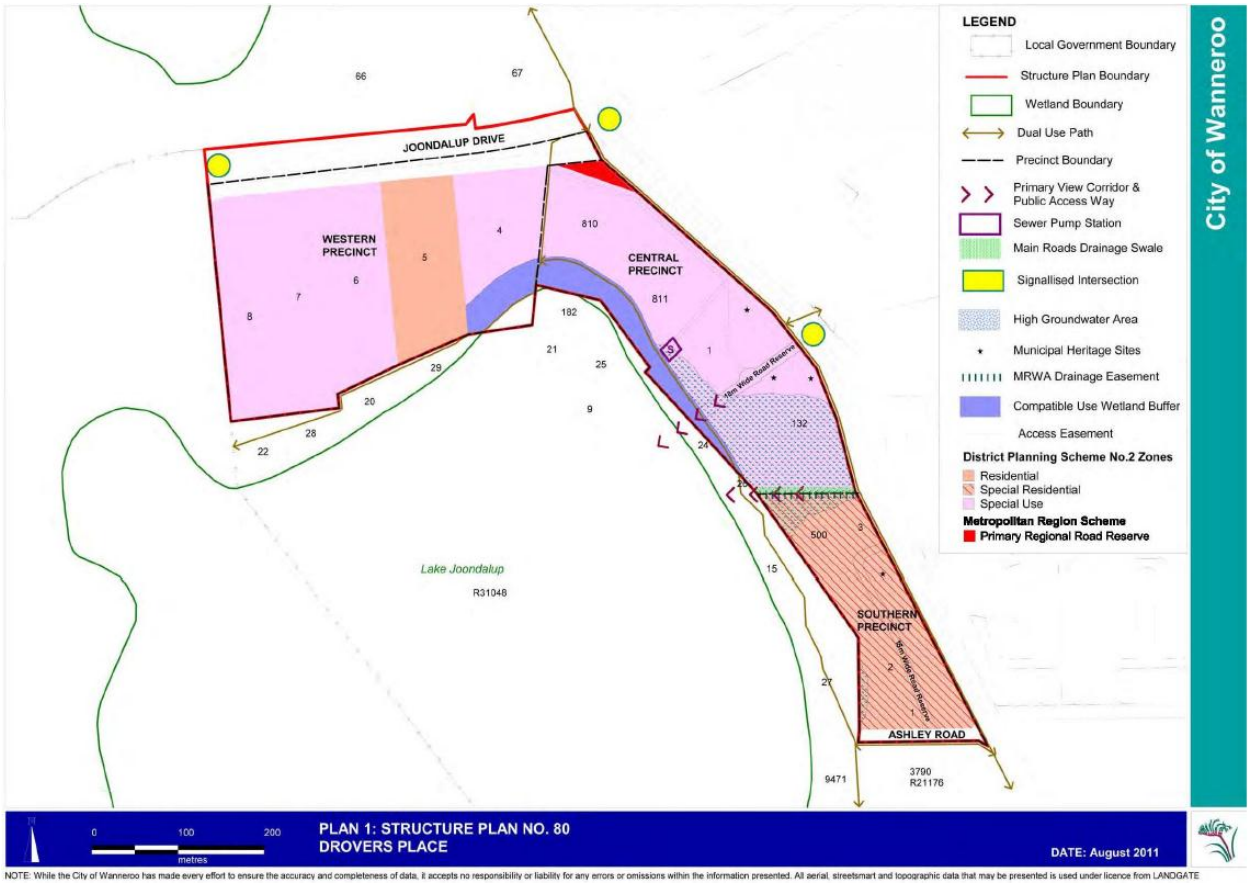

Figure 2: Drovers Place Structure Plan

LITERATURE REVIEW

The traffic studies and other information reviewed for the purpose of estimating the future traffic composition at the intersection included:

- Area A: *Proposed Detailed Area Plan Lot 1 & Pt Lot 132, Wanneroo Road, Wanneroo* (Transcore reference: t12.203.mr.r01a prepared in December 2012).
- Area B: *Proposed Commercial Development at the Corner of Wanneroo Road and Clarkson Avenue, Tapping.* Transcore references: t11.091.mr.r01a (July 2011), t11.091.mr.tn01a (Dec 2011).
- Area C: *Lots 810 & 811 Wanneroo Road, Wanneroo.* Transcore reference: t11.181.vb.tn02 (Dec 2011).
- Area D: *Report for Drovers Place – Traffic Study Update* GHD July 2011.
- Regional Traffic: *Report for Drovers Place – Traffic Study Update* GHD July 2011, Main Roads WA traffic counts.

ESTIMATED INTERSECTION TRAFFIC VOLUMES

The future traffic volumes for the critical PM peak hour through the proposed 4-way signalized intersection of Wanneroo Road and Clarkson Avenue have been estimated based on the findings of the literature review.

The traffic accommodated by the proposed intersection for each area shown in Figure 1 is detailed individually as follows:

Area A: Proposed development at Lots 1 and 132 Wanneroo Road

This development is located within the Southern part of the Central Precinct of the Drovers Place Structure Plan. Review of the previous traffic studies indicates that approximately 914 vehicles per hour (vph) associated with this development traverse through the proposed intersection.

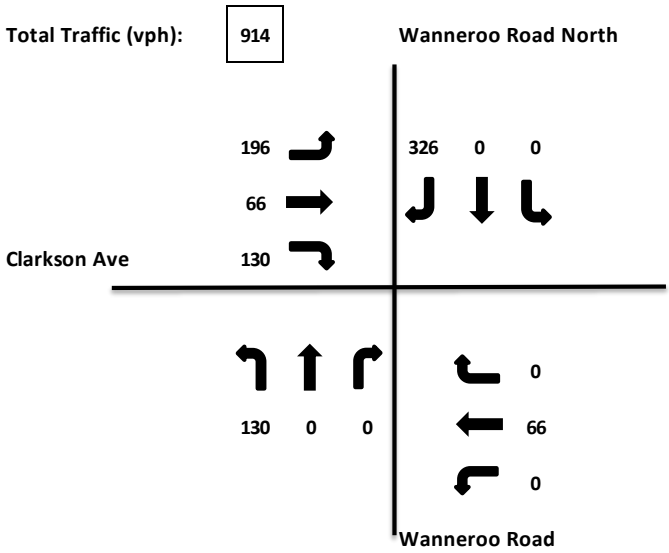

Figure 3: Lots 1 & 132 estimated intersection peak hour volumes (vph)

Area B: Proposed commercial development

This proposed development is located outside the Drovers Place Structure Plan. It is located to the east of Wanneroo Road; therefore traffic from this area using the proposed intersection will primarily be on the eastern leg. Review of the previous traffic studies indicates that approximately 264 vehicles per hour (vph) associated with this development would traverse through the proposed intersection.

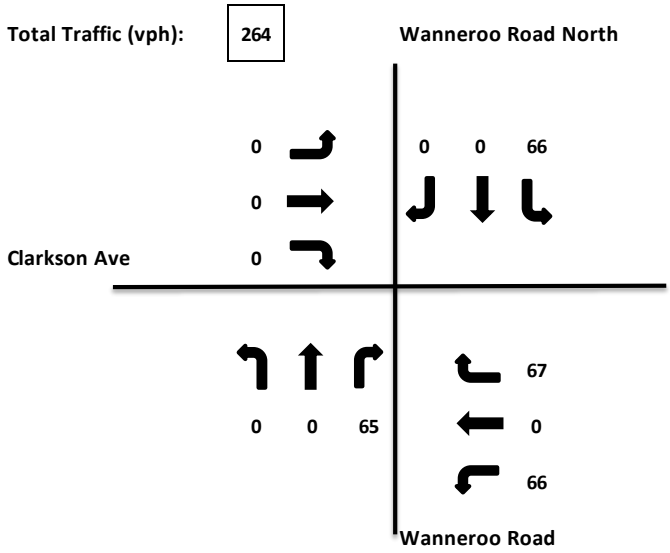

Figure 4: Area B: estimated intersection peak hour volumes (vph)

Area C: Existing and Proposed developments on Lots 810 & 811 Wanneroo Road

The existing and proposed developments on Lots 810 & 811 are located within the Central precinct of the Drovers Place Structure Plan. It was assumed that the existing left-in / left-out / right-in crossover intersection located on Wanneroo Road north of the proposed signalised intersection will remain open. Review of the previous traffic studies indicates that most of the traffic from this development will access and egress the site from the left-in / left-out / right-in crossover intersection located on Wanneroo Road north of the proposed signalised intersection. Therefore only around 60 vehicles per hour (vph) associated with this development is estimated to traverse through the proposed intersection.

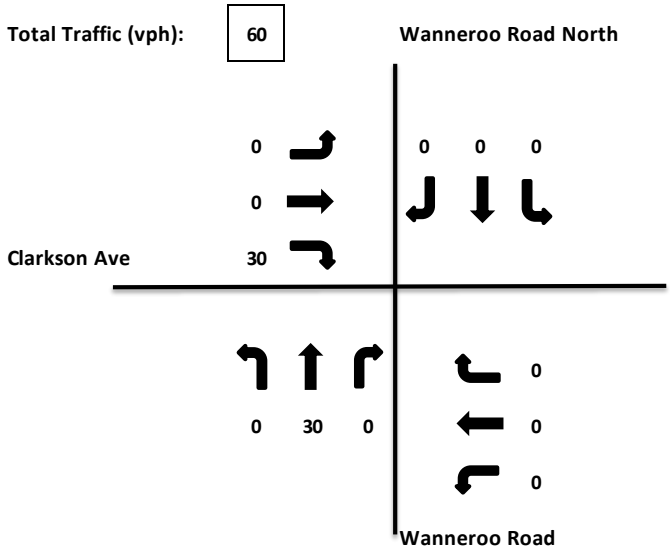

Figure 5: Area C: estimated intersection peak hour volumes (vph)

Area D: Balance of Drovers Place Structure Plan Area

Based on the GHD traffic report, the following Drovers Place Structure Plan traffic volumes (assuming full development) are estimated with the exclusion of the Central Precinct:

- Western Precinct: 500vph (250 in / 250 out) to and from Wanneroo Road south.
- Southern Precinct: 20vph (10 in / 10 out). It is assumed that no Southern Precinct traffic will use the proposed signalised intersection and will access Wanneroo Road via Ashley Road.

The volumes estimated to be accommodated at the proposed intersection associated with the balance of the Drovers Place Structure Plan Area are estimated to be around 500vph (excluding Areas A and C traffic). All of this traffic is associated with the Western Precinct of the structure plan area.

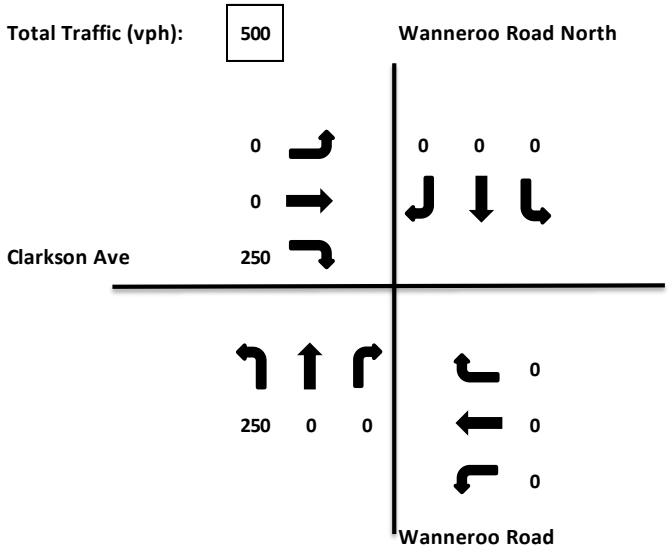

Figure 6: Area D: Estimated intersection peak hour volumes (vph)

Future Intersection Regional (Background) Traffic Volumes

The background traffic volumes through the proposed signalised intersection of Wanneroo Road and Clarkson Avenue have been estimated based on traffic volumes presented in the GHD report and recent traffic count data for Clarkson Avenue.

Table 3.4 of the GHD traffic report indicates that Wanneroo Road is forecasted to carry around 47,800 vehicles per day (vpd) south of Joondalup Drive in 2031. For the purposes of the traffic assessment made in this technical note, it was assumed this projection includes about 30% of development traffic in Areas A, B, C & D in the vicinity of the proposed traffic signals.

Based on recent traffic count data obtained from Main Roads WA, Wanneroo Road carried around 28,103 vpd south of Joondalup Drive (October 2013). The same data recorded approximately 8.2% of the daily traffic during the PM peak hour (2,317 vph). Of this traffic, 1,314 vph (57%) was northbound and 1,003 (43%) vph was southbound.

Application of the above percentages to the forecasted 2031 daily traffic volumes results in a forecasted 3,920 vph during the peak hour (2,234 vph northbound and 1,686 vph southbound), on Wanneroo Road south of Joondalup Drive.

Recent traffic counts previously undertaken by Transcore for the Area B traffic study at the intersection of Wanneroo Road and Clarkson Avenue indicated that Clarkson Avenue carried 215 vph (125 vph westbound and 90 vph eastbound) at the intersection with Wanneroo Road in 2011. Adjustment of these base volumes by 2% per annum to the year 2031 results in a background traffic flow of 319 vph on Clarkson Avenue at the intersection with Wanneroo Road (eastern leg).

The total forecasted traffic flows at the proposed signalised intersection of Wanneroo Road and Clarkson Avenue is estimated to reach 4,062 vph during the PM peak hour in 2031. Discounting 30% of the development traffic in Areas A, B, C & D at the intersection, results in an estimated background traffic flow of 3,539 vph.

The background traffic flows are detailed in Figure 7.

The total future intersection traffic flows including Areas A, B, C, D and the background regional traffic are detailed in Figure 8.

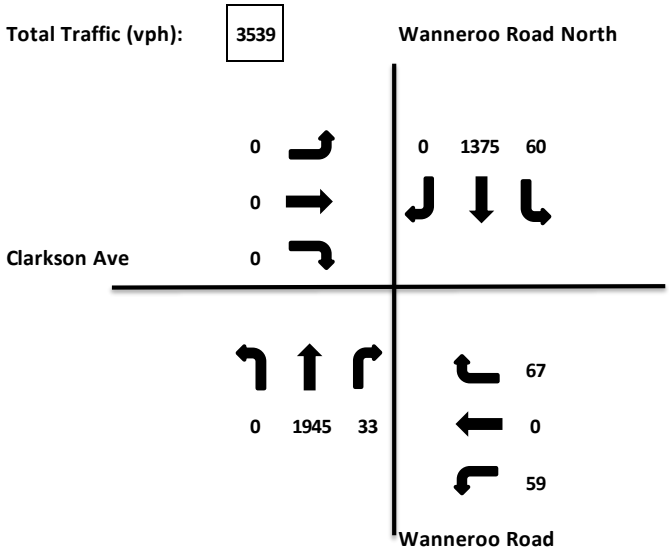

Figure 7: Background 2031 intersection peak hour volumes (vph)

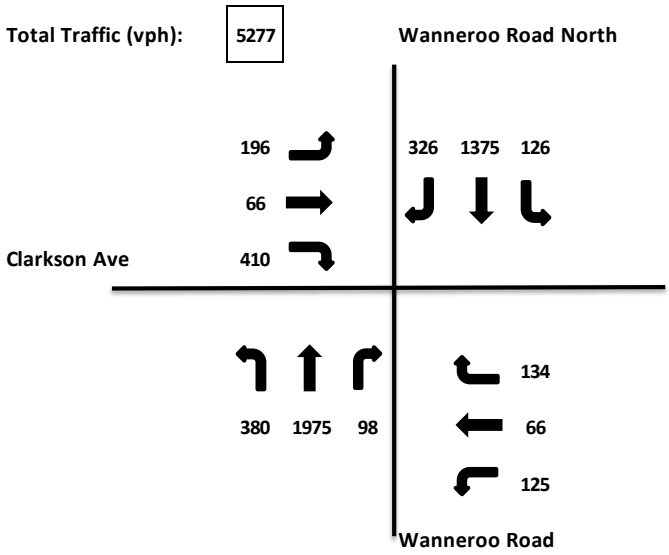

Figure 8: Total 2031 intersection peak hour volumes (vph)

TRAFFIC COMPOSITION AND PERCENTAGE CONTRIBUTION

The future percentage contribution of Areas A, B, C and D to the total traffic load at the proposed 4-way signalised intersection during the PM peak hour is estimated and detailed in Table 1.

Table 1: Percentage Traffic Composition

Traffic Contributor	Intersection Traffic	Proportion of Traffic
Area A	914	17%
Area B	264	5%
Area C	60	1%
Area D	500	9%
Background Traffic	3539	67%
Total	**5277**	**100%**

CONCLUSIONS

The proposed 4-way signalised intersection at Wanneroo Road and Clarkson Avenue will entail the construction of a fourth (western) leg at the existing intersection and installation of traffic signals. Clarkson Avenue currently intersects Wanneroo Road to form a three-way unsignalised intersection.

The purpose of the review undertaken by Transcore is to ascertain the proportion of traffic attributed to the proposed development on Lots 1 & 132 Wanneroo Road, other existing and proposed developments in the vicinity and future regional and local traffic utilising the intersection. Based on this data, a percentage traffic load was assigned to each component to establish an estimate of the relative cost contribution for the proposed signalised intersection.

As demonstrated in Table 1, it was estimated that the proposed development on Lots 1 & 132 Wanneroo Road would result in a PM peak hour traffic load of 914 vehicles per hour through the proposed 4-way signalised intersection. This represents 17% of the total traffic which will be accommodated by the intersection in the future. The regional and background traffic through the intersection is estimated to be about 67% of the total traffic.

APPENDIX D

GHD Traffic Report

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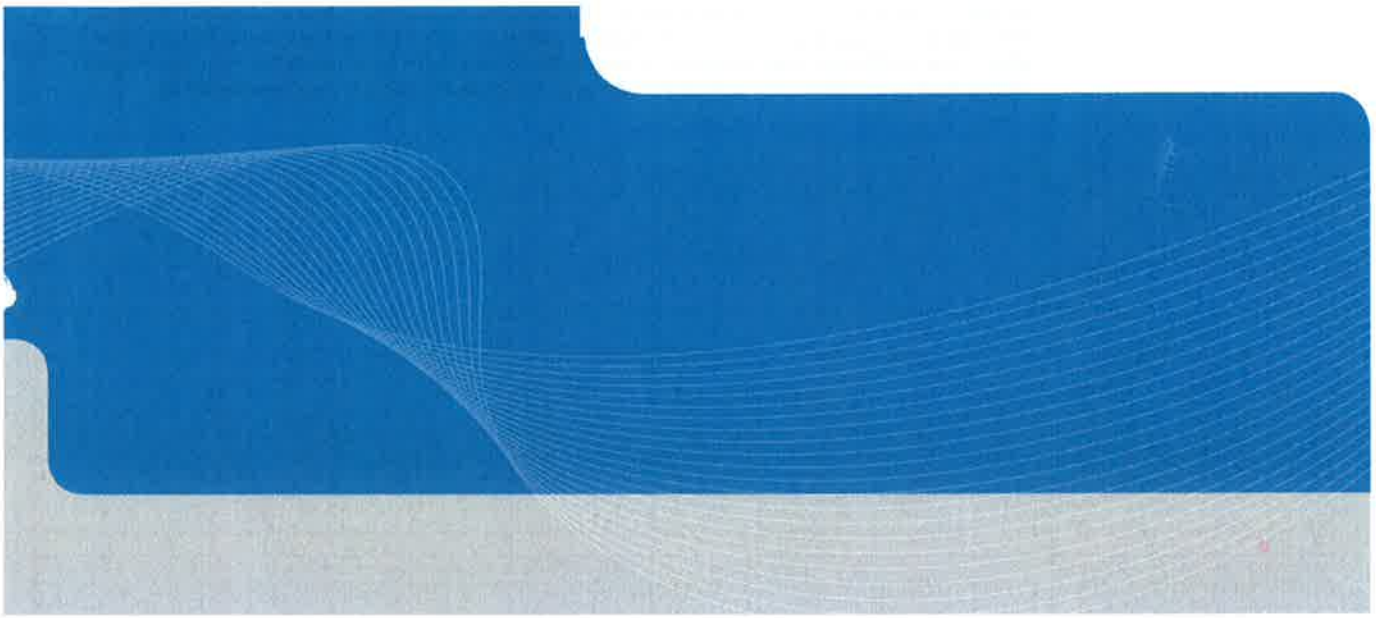
CLIENTS | PEOPLE | PERFORMANCE

City of Wanneroo

Report for Drovers' Place

Traffic Study Update

July 2011



INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

This "Report for Drovers' Place, Traffic Study Update" *("Report"):*

1. *has been prepared by GHD Pty Ltd ("GHD") for the City of Wanneroo;*
2. *may only be used and relied on by City of Wanneroo;*
3. *must not be copied to, used by, or relied on by any person other than City of Wanneroo without the prior written consent of GHD;*
4. *may only be used for the purpose of a traffic study as detailed within the Report (and must not be used for any other purpose).*

GHD and its servants, employees and officers otherwise expressly disclaim responsibility to any person other than City of Wanneroo arising from or in connection with this Report.

To the maximum extent permitted by law, all implied warranties and conditions in relation to the services provided by GHD and the Report are excluded unless they are expressly stated to apply in this Report.

The services undertaken by GHD in connection with preparing this Report:

- *were limited to those specifically detailed in Section One of this Report, i.e. an update of the previously issued "Traffic Study Version 2, Additional Lane on Joondalup Drive" dated May 2010.*

The opinions, conclusions and any recommendations in this Report are based on assumptions made by GHD when undertaking services and preparing the Report ("Assumptions"), including (but not limited to):

- *the data provided by Main Roads and any other third parties are assumed to be correct.*

GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with any of the Assumptions being incorrect.

Subject to the paragraphs in this section of the Report, the opinions, conclusions and any recommendations in this Report are based on conditions encountered and information reviewed at the time of preparation and may be relied on until 6 months from the date of the Report, after which time, GHD expressly disclaims responsibility for any error in, or omission from, this Report arising from or in connection with those opinions, conclusions and any recommendations.

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1. Introduction

GHD have been instructed by the City of Wanneroo to undertake a revision to a previously submitted GHD report, to account for an update to the Main Roads ROM Model.

The previous GHD Report was called "Report for Drovers' Place Precinct, Traffic Study Version 2, Additional Lane on Joondalup Drive" and was issued in May 2010.

Since then, the ROM Model has been updated, and this Report reflects the new data.

For background information, the previous report (and therefore this Report also) was a traffic study for the Structure Plan for the Drovers Place Precinct.

The City has developed a revised structure plan for the Drovers Place Precinct. The study area is shown in Figure 1 and the Structure Plan on Figure 2. The plan is to better guide future use and development of the area. The plan has been advertised, and responses collected, and these are to be reviewed as part of an additional report.

The study area presents key implications with regard to traffic management, including the intersection of Wanneroo Road and Joondalup Drive and future plans for grade separation, and ensuring proposed land uses, particularly introduction of a secondary school and expansion of business uses, do not impact on services from an existing FESA station.

Figure 1: Drovers Place Precinct Study Area

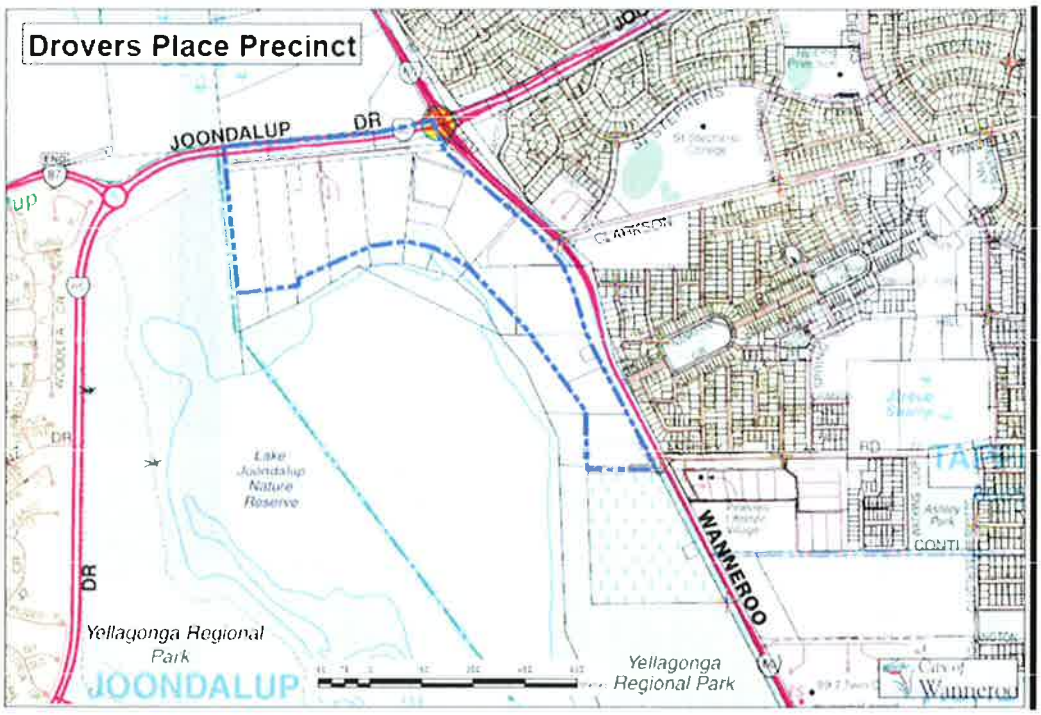
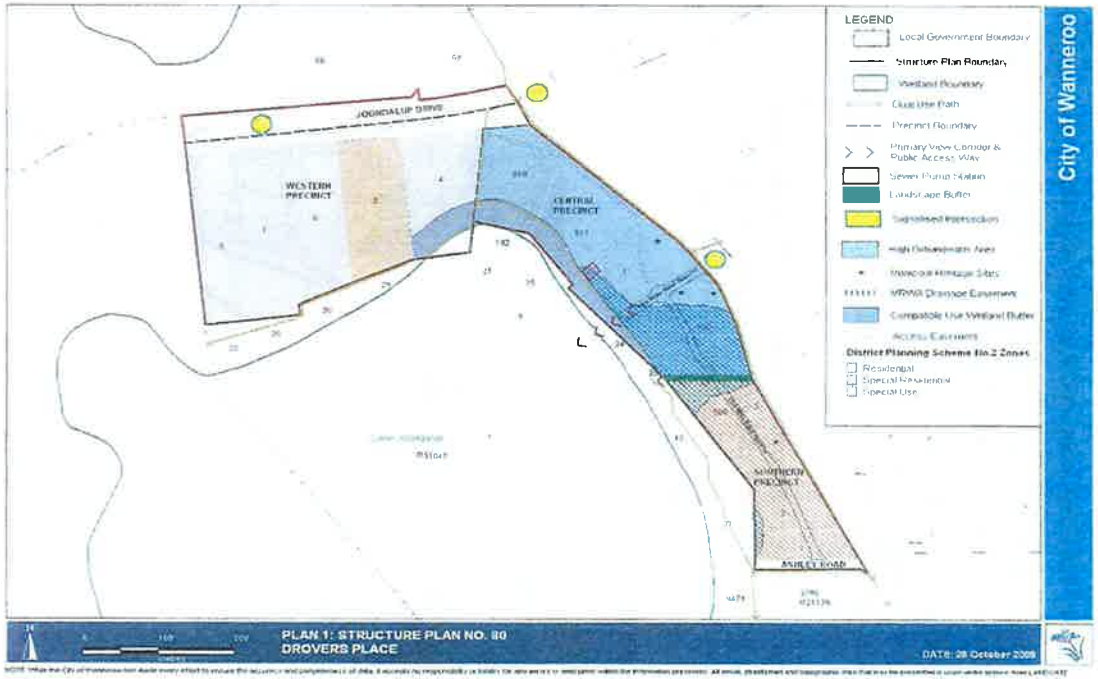


Figure 2: Drovers Place Structure Plan

CITY OF WANNEROO AGENDA OF COUNCIL FORUM MEETING 24 NOVEMBER, 2009 22



1.1 Scope of Works

The following scope of works was undertaken for the May 2010 Report, and the results of that work (i.e. the content of the May 2010 Report) are repeated within this updated Report (with the intersection models updated with the amended flows):

- Review specified reference documents;
- Prepare a Transport Assessment in accord with WAPC Transport Assessment Guidelines for Developments Volume 2 – Structure Plans (Trial & Evaluation Version August 2006)
- Liaise with the City and Main Roads WA to develop recommended access-egress designs for all precincts that will address all requirements of proposed school and business uses, in consideration of existing FESA station requirements;
- Review existing traffic counts and models available for the study area and undertake any required additional traffic monitoring;
- Undertake traffic modelling of traffic flows based on land uses proposed by draft Drovers Place Structure Plan No. 80;
- Provide recommendations regarding land uses proposed by the draft Drovers Place Structure Plan with regard to traffic implications, with particular regard to impact on FESA operations.

2. Structure Plan Outline

The plan in Figure 2 indicates the current proposed Structure plan.

The following tables summarise the proposed land uses.

Table 2.1 Western Precinct - Zoning

Lot	Zoning
Intent	◗ To provide a diverse precinct of community, education and private recreation use that integrates with the environment of Yellagonga Regional Park
5	R20 (Aged Persons Development)
6,7,8	Private High School
4	Special Use Zone including: ◗ Art Gallery ◗ Caravan park ◗ Holliday Village/Resort ◗ Hotel ◗ Mast or antenna ◗ Motel ◗ Private Recreation ◗ Public Exhibition facility ◗ Reception Centre ◗ Restaurant ◗ Tavern

Table 2.2 Central Precinct - Zoning

Lot	Zoning
Intent	◗ To provide for niche business and cultural uses that benefit from hogh exposure to Wanneroo Road but do not compromise the viability of nearby activity centres and encourage landuses that respect and recognise the environment of Yellagonga Regional Park.
Precinct	◗ Art Gallery ◗ Auction Room ◗ Child Care Centre ◗ Costume Hire ◗ Caravan park ◗ Mast or antenna ◗ Public Exhibition Facility ◗ Restaurant ◗ Showroom ◗ Telecommunications Infrastructure ◗ Veterinary Consulting Rooms
Lots 810/811	Growers Mart and Retail Nursery may continue under the non-conforming land use provisions of the Scheme

Table 2.3 Southern Precinct - Zoning

Lot	Zoning
Intent	To provide for single dwellings in a natural landscape setting, whilst protecting adjacent natural assets.
Precinct	Special Residential
	Minimum lot size of 2000m2 with and average lot size of 3000m2

Transport Requirements

- If business development of Lots 1 and 132 is proposed a condition will require a four-way signalised intersection at Clarkson Ave/Wanneroo Road.
- Lots 6, 7, 8 will require a three way signal controlled intersection linking Drovers Place to Joondalup Drive.
- Traffic study to demonstrate how traffic generated by the school development in the western precinct can be satisfactorily handled.

2.1 Comments from Stakeholders (Traffic and Transport)

The City provided stakeholders with the opportunity to comment on the draft structure plan and responses received at the time of the May 2010 Report are summarised as follows:

2.1.1 Transperth

- Generally supportive of the Structure Plan.
- Support traffic signals on Joondalup Drive to serve school bus access to the proposed school and request that bus access is considered in the design of the local access road.

2.1.2 Main Roads WA 28 January 2010

- Draft structure plan does not reflect earlier comments made by Main Roads WA.
- Main Roads WA will review following a traffic impact assessment of Structure Plan.

2.1.3 Main Roads WA 21 September 2009

- Does not address what the intended access arrangement onto Wanneroo Road will be south of Lot 1 and Ashley Road.
- Upon installation of traffic signals at Wanneroo Road/Clarkson Ave the existing access abutting Lot 811 is to be removed.
- Main Roads does not support the proposed signalised intersection in the position of the existing Joondalup Drive/Drovers Place as it would compromise the future operations of the proposed interchange at Wanneroo Road and Joondalup Drive. The current intersection would need to be closed and the verge and its vegetation made good. The preferred location is at the Cul De Sac of Drovers Place. The existing access is too near the where the left slip lane will merge with Joondalup Drive.
- The proposed future concept at the intersection of Wanneroo Road/Joondalup Drive is for a grade separated interchange with Wanneroo Road bridged over Joondalup Drive. This project is not on Main Roads current 4 year forward estimated construction program and is considered long term.
- Developer responsible for all costs associated with the installation of traffic signals and any intersection modification.

2.1.4 TPG

- The road reserve between the central and southern precinct should not be connected, to ensure that commercial traffic does not use the residential area as a short cut. A cul de sac is suggested and an internal access arrangement be established to serve the central precinct which connects Lot 1 with Lot 811 and other existing commercial development to the north.

2.1.5 Resident Camelot Grove

- Concerned about traffic impacts associated with the proposed educational facility. Currently significant queuing occurs east bound in Joondalup Drive, the proposed school will exacerbate this. Also concerned about westbound traffic queuing back to Wanneroo Road as already long queues occur currently from the Burns Beach roundabout.

- Concerned at congestion and impacts to operation of Fire Station.
- Concerned at current operation of Burns Beach Roundabout and impacts of added congestion.

2.1.6 Rosa Moon Day Spa

- Concerned about traffic problems associated with the proposed school.

2.1.7 Land Owner Lot 500/501

- Concerned about the through road between Clarkson and Ashley Road and use by through traffic.

2.1.8 Residents

- A shared service road allowing access to all neighbouring blocks would reduce the current number of driveways entering Wanneroo Road.

2.1.9 Fire and Emergency Services

- Existing traffic modelling undertaken to support the proposal for the High School is not based on recent traffic counts and does not consider the increased traffic movements as a result of the Mitchell Freeway extension. *(Modelling now takes into account recent counts)*
- Location of school adjacent to the Joondalup Fire Station will result in increased traffic movements along nearby roads specifically Joondalup Drive, Wanneroo Road and Drovers Place. This will hinder the egress of emergency response vehicles and increase response times during peak periods.

Potential solutions:

- A dedicated FESA access point to Joondalup Drive directly in front of the Joondalup Fire Station to be clearly marked as a Keep Clear Zone with local laws to be updated allowing for infringements to be issues to people blocking this area.
- The creation of emergency vehicle lanes on Joondalup Drive and Wanneroo Road.
- Closure of existing commercial access to Drovers Place to reduce traffic flow.

2.1.10 Chappell Lambert Everett Planning Consultants

- Support 3 separate precincts
- Proposed installation of traffic signals at both Wanneroo Road and Joondalup Drive will greatly assist in the controlled management of such traffic.
- Proposed traffic signals on Joondalup Drive adjacent to the western boundary of Lot 8 Drovers Place is supported as this will remove the traffic flow and car parking away from the FESA Fire Station and facilitate better traffic movement to and from the colleges.

2.2 Drovers Place Precinct Plan – Proposed Catholic Senior College (Transcore August 2008)

- The report indicates that the proposed school could generate up to 750 vehicle trips in and 750 vehicle trips out during the am peak hour and a similar amount in the afternoon period.

Approximately 30% of this traffic is anticipated to use the proposed access road link to Wanneroo Road. The remaining 70% of traffic would access Joondalup Drive from Drovers Place.

- The existing priority controlled intersection at Joondalup Drive/Drovers Place was assessed as not having sufficient capacity to accommodate additional school traffic.
- Subsequent analysis has been undertaken by Transcore incorporating updated traffic volumes and an additional westbound lane on Joondalup Drive. *(GHD have undertaken further analysis based on geometry proposed by Transcore, a copy of this analysis is included in Appendix C).*

It should be noted that Transcore's report on the Catholic Senior College is also due to be updated.

2.3 Response to Public and Stakeholder Comment following Advertising

Refer to Appendix F.

3. Existing Situation

3.1 Traffic Volumes

A peak hour turning movement survey was undertaken at the intersection of Wanneroo Road/Joondalup Drive on 15 March 2010 and a summary of the survey is shown in Appendix A.

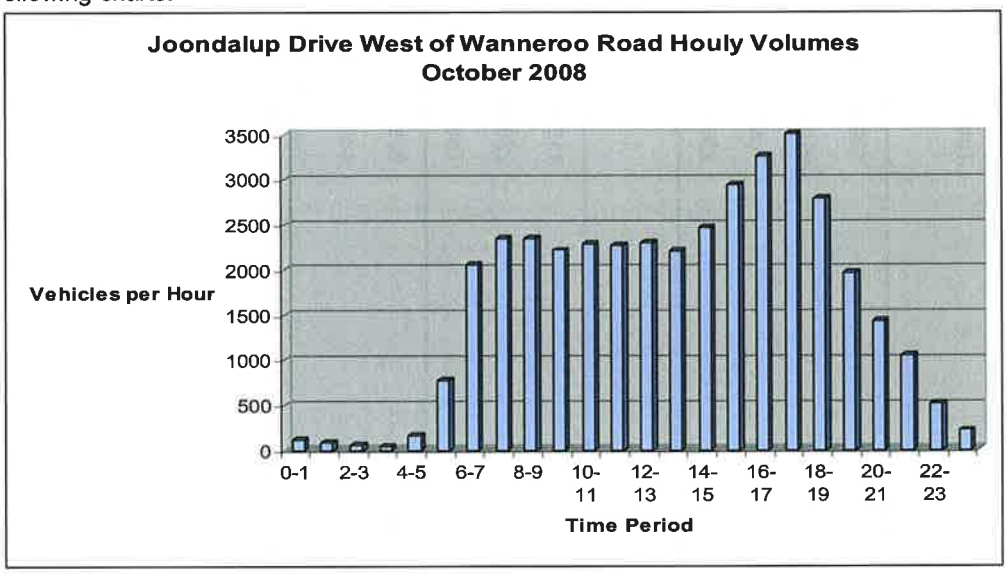
The following table summarises available peak hour data on surrounding roads.

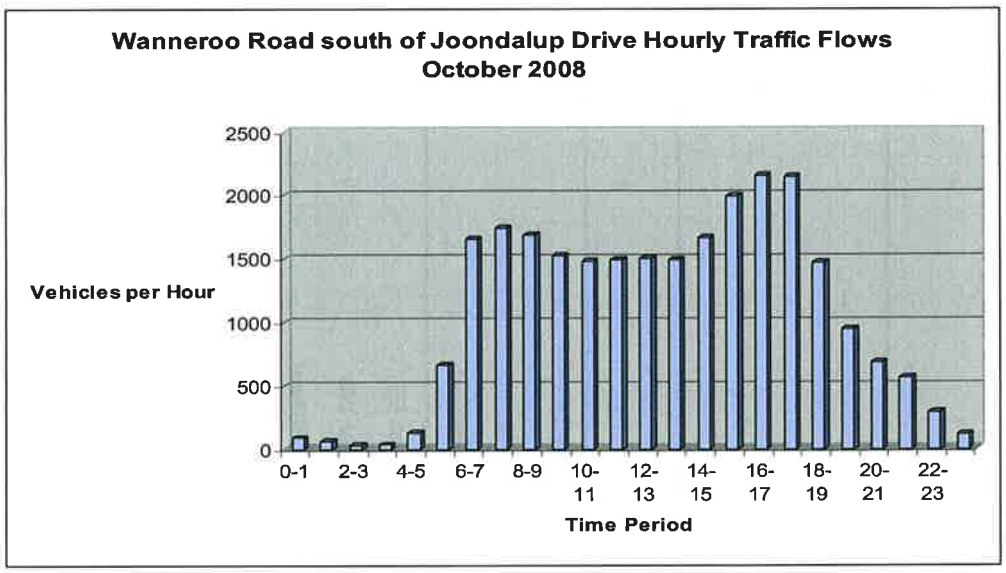
Table 3.1 Peak hour Traffic Data

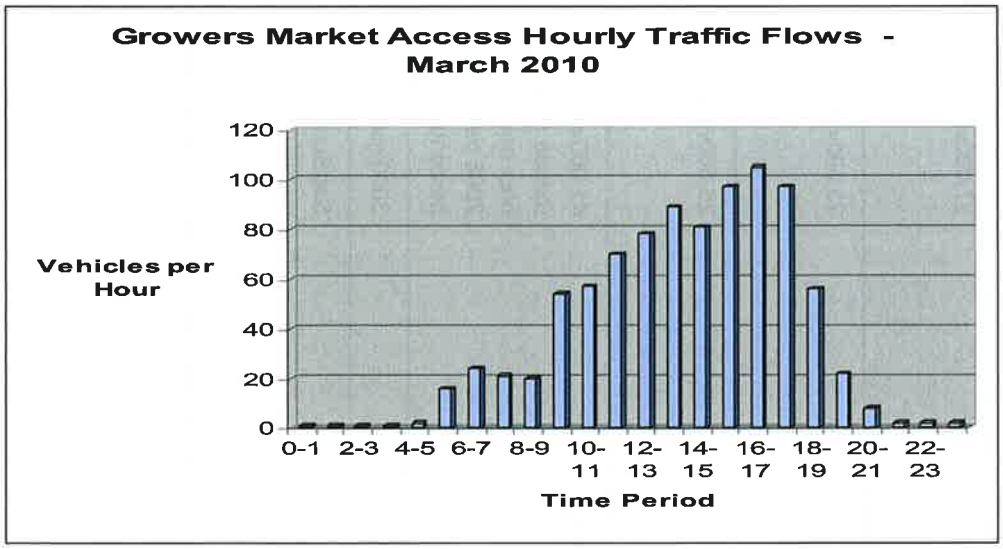
Location	2003	2006	2007	2008	2009	2010
Wanneroo Road (North of Pinjar Road)						
8-9am				920vph NB		917NB
				1361vph SB		878SB
				Total 2281vph		Total 1795vph
4.30-5.30pm				1247vph NB		1078NB
				872vph SB		823SB
				Total 2119 vph		Total 1901vph
Wanneroo Rd (North of Joondalup Drive)						
8-9am		712vph NB				472NB
		1122vph SB				1024SB
		Total 1834vph				Total 1496vph
4.30-5.30pm		1094vph NB				1082vph NB
		716vph SB				629vph SB
		Total 1810vph				Total 1711vph
Joondalup Drive (E of Wanneroo Road)						

Location	2003	2006	2007	2008	2009	2010
8-9am			706vph EB 1391vph WB Total 2097vph			796vph EB 1300vph WB Total 2096vph
4.30pm-5.30pm			1078vph EB 788vph WB Total 1866vph			1394vph EB 910vph WB Total 2304vph
Jooondalup Drive (W of Wanneroo Road)						
8-9am	792EB 1074WB Total 1866vph			2332vph		1159EB 2254WB Total 3413vph
4.30-5.30pm	1074vph EB 1030vph WB Total 2104vph			3458vph		2083vph EB 1401vph WB Total 3484vph

An indication of the hourly traffic volumes on Joondalup Drive and Wanneroo Road are shown in the following charts.







The above graph indicates that peak activity of the Growers Mart does not coincide with peak activity of the proposed school.

The following table summarise daily traffic volumes available on existing roads surrounding the site and the estimated 2010 volumes based on a growth factor from the 2010 survey.

Table 3.2 Daily Traffic Volumes (average weekday traffic)

Location	2003	2006	2007	2008	2009	2010 (Estimated)
Wanneroo Road (North of Pinjar Road)				27,017vpd		27,000vpd
Wanneroo Rd (North of Joondalup Drive)		23,514vpd				23,500vpd
Joondalup Drive (E of Wanneroo Road)			21,555vpd			26,500vpd
Jooondalup Drive (W of Wanneroo Road)	22,303vpd		36,201vpd	38,183vpd		41,000vpd (based on peak hour count and 2008 peak hour percentage)
Clarkson Ave				2,690vpd		3000vpd
Commercial access from Wanneroo Road						Sat/Sun 930vpd Weekday 504vpd

For the May 2010 Report, Main Roads provided forecast traffic volumes from the Regional Model as shown in Table 3.3.

Table 3.3 Main Roads Forecast Traffic Volumes – Previous Data

Locations	2021 (vpd)	2031 (vpd)
Joondalup Dr, west of Wanneroo Rd	36,500 - 45,000	40,000 - 49,000
Wanneroo Rd, south of Joondalup Dr	23,000 - 28,000	26,000 - 32,000

Subsequently, the updated ROM plots show the following flows of 24-hour Annual Average Weekday Traffic, as shown in Table 3.4 below.

Table 3.4 Main Roads Forecast Traffic Volumes from UPDATED ROM plots

Locations	2021 (AAWT)	2031 (AAWT)
Joondalup Dr, west of Wanneroo Rd	56,200	57,400
Wanneroo Rd, south of Joondalup Dr	45,300	47,800

Comparing these flows shows the following factors in Table 3.5 can be used to convert the previous Main Roads data to the updated flows (based on the upper end of the ranges in Table 3.3). For this updated Report, these factors have only been applied to the base traffic, not the development-generated traffic, and this is explained in more detail in Section 4 "Transport Networks".

Table 3.5 Factors for Converting Old Main Roads Data to Updated Flows

Locations	2021	2031
Joondalup Dr, west of Wanneroo Rd	1.25	1.17
Wanneroo Rd, south of Joondalup Dr	1.62	1.49

Comparing the 2010 flows with the updated 2021 and 2031 flows gives the following factors for converting 2010 data to updated 2021 and 2031 flows, as shown in Table 3.6.

Table 3.6 Factors for Converting 2010 Data to Updated 2021 and 2031 Flows

Locations	2021	2031
Joondalup Dr, west of Wanneroo Rd	1.37	1.40
Wanneroo Rd, south of Joondalup Dr	1.68	1.77

3.2 Wanneroo Road

The above traffic data would indicate that Wanneroo Road, adjacent to the site, carries around 27,000vpd (a check of SCATS data for Tues 21 June 2011 indicates around 24,000vpd) and is forecast to increase to around 45,300 AAWT by 2021 and 47,800 AAWT by 2031.

Wanneroo Road is classified as a Primary Distributor Road in the Main Roads Functional Road Hierarchy.

The carriageway consists of two lanes in each direction with channelization at intersections. Wanneroo Road/Joondalup Drive intersection is traffic signal controlled. A plan of the recent upgrade is shown in Appendix B.

The current northern access into the site provides for all movement except the right turn out onto Wanneroo Road. Right and left turn lanes are available in Wanneroo Road.

There is an unsignalised channelised intersection with Clarkson Avenue a further 216m south of the site access.

The capacity of a dual carriageway, two lanes in each direction, at a good Level of Service (LoS C) is 38,000 vpd.

3.3 Joondalup Drive

The above traffic data would indicate that Joondalup Drive adjacent to the site carries around 41,000vpd and is forecast to be around 56,200 by 2021 and 57,400vpd (AAWT) by 2031. (A check of SCATS data for Tues 21 June 2011 indicates around 40,000vpd). The forecasts therefore indicate some increase from current levels. The Road Reserves Review document 1991 (Dept of Planning) indicates the capacity of a 4 lane divided carriageway (for a Level of Service C) is 38,000vpd, the existing traffic volumes therefore exceed the free flow capacity, (although not the physical capacity).

Joondalup Drive is classified as a District Distributor A in the Main Roads Functional Road Hierarchy.

The carriageway consists of two lanes in each direction with channelization at intersections.

The current access into Drovers Place is approximately 500m west of the traffic signal controlled intersection with Wanneroo Road and provides for all movements.

There is a roundabout with Burns Beach Road a further 430m m west of the Drovers Place intersection. AM peak hour observations indicate that occasional westbound queuing on Joondalup Drive extends to the cul de sac of Drovers' Place. Eastbound queuing indicates queuing beyond the right turn lane to Joondalup Drive.

3.4 Crash Data

The five year crash data is shown below and has been obtained from the Main Roads web site.

State Frequency Rank No. 1537 **State Cost Rank No. 945** **Intersection No. 79472**

Summary of Intersection Crashes			
Street 1	JOONDALUP DR	Authority Name	WANNEROO (C)
Street 2	DROVERS PL ACCESS	Region	METROPOLITAN
Street 3		Cost	$1,157,601
Intersection Classification	Local Road Only	Total Crashes	13

Crash Details

Rear End	Side Swipe	Right Angle	Right Thru	Wet	Night	Ped	Cycle	Truck	Motorcycle	Casualty
8	0	4	0	0	0	0	0	0	1	1

The above data does not indicate a significant safety issue at the current intersection.

State Frequency Rank No. 48 **State Cost Rank No. 93** **Intersection No. 13875**

Summary of Intersection Crashes			
Street 1	WANNEROO RD	Authority Name	WANNEROO (C)
Street 2	JOONDALUP DR	Region	METROPOLITAN
Street 3		Cost	$3,551,455
Intersection Classification	State and Local Roads	Total Crashes	153*

Crash Details

Rear End	Side Swipe	Right Angle	Right Thru	Wet	Night	Ped	Cycle	Truck	Motorcycle	Casualty
106*	5	4	30*	24*	30*	0	0	4	4*	24*

The above data indicates a significant crash history and requires further investigation. The ultimate grade separated interchange will clearly improve the current situation.

State Frequency Rank No. 101 **State Cost Rank No. 31** **Intersection No. 80354**

Summary of Intersection Crashes			
Street 1	JOONDALUP DR	**Authority Name**	JOONDALUP (C)
Street 2	JOONDALUP DR	**Region**	METROPOLITAN
Street 3	BURNS BEACH RD	**Cost**	$5,892,002
Intersection Classification	Local Road Only	**Total Crashes**	115*

Crash Details

Rear End	Side Swipe	Right Angle	Right Thru	Wet	Night	Ped	Cycle	Truck	Motorcycle	Casualty
73*	22*	1	7*	23*	14*	0	1	1	3*	16*

The above data indicates a significant crash history and requires further investigation.

4. Transport Networks

4.1 Traffic Generation

Based on the proposed structure plan the traffic likely to be generated by the fully developed precinct has been estimated as shown in the following table:

Table 4.1 Western Precinct – Traffic Generation

Lot	Zoning	Trip rate (vph)	Vph
Intent	◗ To provide a diverse precinct of community, education and private recreation use that integrates with the environment of Yellagonga Regional Park		
5	R20 (Aged Persons Development) (100)	0.1-0.2 per dwelling	(10-20vph)
6,7,8	Private High School	1 per student	1500vph
4	Special Use Zone including: ◗ Art Gallery ◗ Caravan park ◗ Holliday Village/Resort ◗ Hotel ◗ Mast or antenna ◗ Motel ◗ Private Recreation ◗ Public Exhibition facility ◗ Reception Centre ◗ Restaurant ◗ Tavern	Motel – 0.4 trips/unit Caravan Park – 0.75 trips/unit Holliday Village/Resort – 0.75 trips/unit Hotel - 0.67 trips/room Reception Centre – 5 trips/100m2 Restaurant 5 trips/100m2 Tavern 20 trips/100m2	Significant range based on actual landuse, if 50% site coverage and 1 to 5 trips per 100m2 is assumed then the range could be 120vph to 600vph. Peak hour of the land use will not necessarily coincide with peak hour of the road network.
	Surveyed in 2008	Current Generation from precinct	90-177vph
Total	**(School + surveyed)**		**1,677vph (Could be higher based on land use of Lot 4)**

Note: Trip rates from NSW Guide to Traffic Generating Development, Institute of Transport Engineers and Director General of South Australia.

Table 4.2 Central Precinct – Traffic Generation

Lot	Zoning	Trip Rate (vph)	Vph
Intent	◗ To provide for niche business and cultural uses that benefit from high exposure to Wanneroo Road but do not compromise the viability of nearby activity centres and encourage landuses that respect and recognise the environment of Yellagonga Regional Park.		
Precinct	◗ Art Gallery ◗ Auction Room ◗ Child Care Centre ◗ Costume Hire ◗ Caravan park ◗ Mast or antenna ◗ Public Exhibition Facility ◗ Restaurant ◗ Showroom ◗ Telecommunications Infrastructure ◗ Veterinary Consulting Rooms Lot 1: 2.3 Ha x 10,000m2 x 50%=11,500m2GLA Lot 132: 3.2 Ha x 10,000m2 x 50% = 16,000m2GLA	◗ Assumption 2.5 trips per hour/100m2 of GLA (Based on RTA Guide to Traffic Generating Developments)	688vph
Lots 810/811	Growers Mart and Retail Nursery may continue under the non-conforming land use provisions of the Scheme	97vph Ave weekday (based on survey, shown in table below)	97vph
Total on full development			**785vph**

It should be noted that in addition to the traffic generated by the central precinct a proportion of traffic is also likely to enter/exit the western precinct.

Table 4.3 Growers Mart – Traffic Generation

The following indicates the current traffic movements at the Growers Mart access to Wanneroo Road.

Day and Time Period	Surveyed vph (March 2010)
Weekday	
8-9am	20vph
3-4pm	97vph
4-5pm	104vph
5-6pm	97vph
Sunday	
11-12noon	221vph
12-1pm	243vph
1-2pm	275vph

Table 4.4 Southern Precinct – Traffic Generation

Lot	Zoning	Trip Rate (vph)	Vph
Intent	To provide for single dwellings in a natural landscape setting, whilst protecting adjacent natural assets.		
Precinct	Special Residential (20 dwellings)	0.85 trips/dwelling	17vph
	Average lot size of 2000m2		
Total			**17vph**

It should be noted that in addition to the traffic generated by the southern precinct a proportion of traffic is also likely to enter/exit the central precinct.

4.2 Traffic Distribution

The following traffic distribution is assumed for each precinct.

Western Precinct:

30% via Joondalup West

30% via Joondalup east

30% via Wanneroo Road south and

10% via Wanneroo Road north

Central Precinct

41.5% via Wanneroo Road north and

41.5% via Wanneroo Road south

17% via Clarkson Ave

Southern Precinct

50% via Wanneroo Road north and

50% via Wanneroo Road south

Applying the above distribution to the approach roads is likely to result in the following peak hour traffic volumes.

Table 4.5 Traffic Distribution Western Precinct

Western Precinct	Generated Traffic 1677vph	Approach Road	Traffic Generation
30% Joondalup east + 10% Wanneroo Rd N		Joondalup Drive east of new intersection	670vph (335vph in/335vph out)
30% via Joondalup Drive west		Joondalup Drive west of new intersection	500vph (250vph in/250vph out)
30% via Wanneroo Road South		Via Wanneroo Road south through Central Precinct	500vph (250vph in/250vph out)

Table 4.6 Traffic Distribution Central Precinct

Central Precinct	Generated Traffic 785vph + 500vph (to/from Western Precinct)	Approach Road	Traffic Generation
41.5% via Wanneroo Road north		Wanneroo Road North	533vph (266vph in/266vph out)
41.5% via Wanneroo Road south		Wanneroo Road South	533vph (266vph in/266vph out)
17% via Clarkson Ave		Clarkson Ave	214 (107vph in/107vph out)

Note: Traffic volumes currently generated by the Commercial precinct remain consistent during the pm peak hours, 3-4pm, 4-5pm and 5-6pm.

Table 4.7 Traffic Distribution Southern Precinct

Southern Precinct	Generated Traffic 17 vph	Approach Road	Traffic Generation (Rounded up)
50% via Wanneroo Road north		Wanneroo Road North	9vph (5vph in/5vph out)
50% via Wanneroo Road south		Wanneroo Road South	9vph (5vph in/5vph out)

4.3 Internal Transport Networks

A number of road network options have been considered to address access to the 3 precincts including FESA access.

Table 4.8 Road Network Options

Option	Comments
Option 1	
◗ Traffic signals at the end of Drovers Place. ◗ Existing access FESA access only. ◗ Existing commercial access to Wanneroo Road left/in/out only. ◗ Traffic signals at Clarkson Ave/Access Road/Wanneroo Road ◗ Road connection west side of Growers Mart to southern link road.	◗ Provides good permeability to all 3 precincts. ◗ Some potential for through traffic through southern precinct could be overcome by having no direct connection from the southern precinct. ◗ Rationalises access to Wanneroo Road and Joondalup Drive. ◗ Provides FESA access. ◗ Allows school traffic to circulate.
Option 2	
◗ Road access from Joondalup Drive/Burns Beach Road roundabout (see section 4.4) ◗ Link road to Clarkson Ave/Wanneroo Road traffic signals ◗ Existing access to Joondalup Drive FESA access only. ◗ Existing commercial access to Wanneroo Road left/in/out only. Road connection west side of Growers Mart to southern link road	◗ Provides good permeability to all 3 precincts. ◗ Some potential for through traffic through southern precinct could be overcome by having no direct connection from the southern precinct. ◗ Rationalises access to Wanneroo Road and Joondalup Drive and overcomes the need for traffic signal on Joondalup Drive. ◗ Provides FESA access. ◗ Allows school traffic to circulate. ◗

Option	Comments
Option 3 Existing Structure Plan with no direct southern connection	
◗ Traffic signals at the end of Drovers Place. ◗ Existing access to Joondalup Dr FESA access only. ◗ Existing commercial access to Wanneroo Road left/in/out only. ◗ Traffic signals at Clarkson Ave/Access Road/Wanneroo Road.	◗ Provides access to all 3 precincts however restricted permeability compared with options 1 and 2. ◗ No potential for through traffic through southern precinct as no direct connection from the southern precinct to the central precinct. ◗ Rationalises access to Wanneroo Road and Joondalup Drive. ◗ Provides FESA access. Does not allow school traffic to circulate to the same degree as Options 1 and 2.
Option 4	
◗ Traffic signals at the end of Drovers Place. ◗ Existing access FESA access only. ◗ Existing commercial access to Wanneroo Road left/in/out only. ◗ Traffic signals at Clarkson Ave/Access Road/Wanneroo Road ◗ Road connection west side of Growers Mart to southern link road	◗ Provides good permeability to all 3 precincts. ◗ No potential for through traffic through southern precinct as no direct connection from the southern precinct, (local connection only) ◗ Rationalises access to Wanneroo Road and Joondalup Drive. ◗ Provides FESA access. ◗ Allows school traffic to circulate. ◗ Extends frontage parking along Wanneroo Road

Subsequent discussion with Main Roads WA (Section 4.5) indicates that additional access to Joondalup Drive is not supported in view of conflict with a planned free flow left turn lane associated with planned interchange at the Wanneroo Road/Joondalup Drive intersection.

The City of Wanneroo advises that a road connection south of the retirement village cannot be achieved.

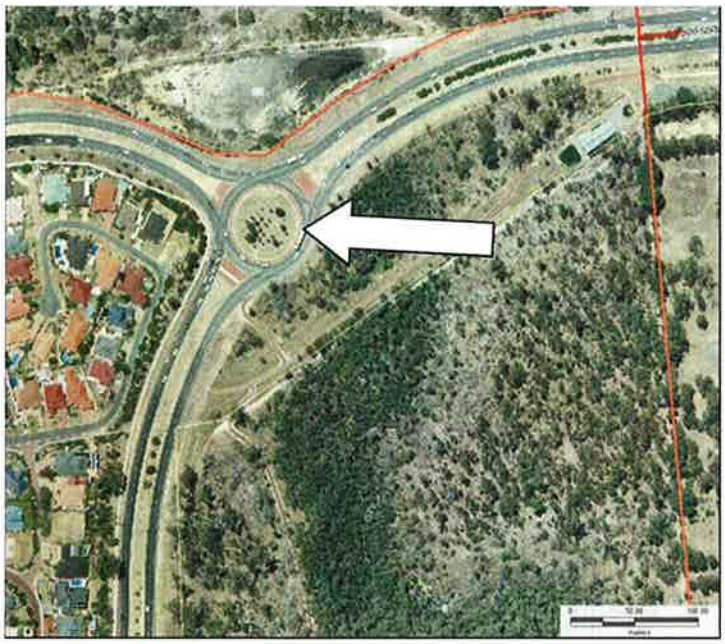
4.4 Connection to Burns Beach Road Roundabout

A possible road connection to the Burns Beach Roundabout was discussed with the City of Wanneroo

The land is reserved for Park and Recreation under the MRS, making any proposal complicated and outside of the City's control. Costs could also be high. Any connection would require significant negotiation with DEC, DoW, DoP (Bushforever branch) and the City of Joondalup.

As a future option to improve permeability and accessibility to the precinct a connection could be further investigated. An assessment of turning volumes at the roundabout and generated traffic from the precinct would also be required. The findings from this study indicate that any connection would need to be in addition to a new signalised intersection with Joondalup Drive.

As part of the regional impacts analysis of the proposed new signals in Joondalup Drive it is strongly recommended that a VISSIM / LINSIG analysis is undertaken to analyse the impact of eastbound traffic exiting the roundabout and the queue at the new signalised intersection on vehicle movement and roundabout operation.



4.5 Liaison

4.5.1 Transcore

As part of the earlier study process contact has been made with Transcore who are undertaking the traffic analysis for the proposed Catholic College in the western precinct. The provision of a connecting road around the south and east side of the proposed college was discussed and GHD believe this is necessary to allow some redistribution of traffic via the central precinct.

The following points were noted:

- Transcore have undertaken analysis assuming an additional westbound lane is constructed on Joondalup Drive. Traffic volumes as derived by GHD have been used in their analysis (this now needs to be updated to reflect new ROM forecast volumes).
- Analysis includes double right turns into and out of the site from Joondalup Drive.
- Access to the school is split into Boys and Girls school via Drovers Place and a new north-south road. The plan in Appendix D refers.
- A new road adjacent to the school could be further progressed with the proponents for the school.
- A plan of the school site and access arrangements are included in Appendix D (this now needs to be updated).

It should also be noted that Transcore are due to update their Report as well, but at this stage the updated Report has not been produced.

4.5.2 Main Roads WA

A meeting was held with Main Roads WA (David Van Den Dries and Andy Plummer) in 2010 to discuss the Structure Plan and access arrangements. The outcomes of the meeting are summarised as follows:

- Signals at Drovers Place/Joondalup Drive are supported in principle however the detailed operation will need to be assessed and approved.
- An additional access onto Joondalup Drive or maintaining the existing access is not supported in view of the impacts to the free flow lane associated with the proposed interchange at Wanneroo Road/Joondaup Drive intersection.
- A continuous link through the precinct to the Ashley Road signals may be necessary to distribute traffic movements to enhance the operation of the Drovers Place/Joondalup Drive intersection. Additional traffic calming could be installed to discourage other through traffic however the route to the western precinct is circuitous. *(Subsequent analysis referred to later in this report provides for an additional westbound lane on Joondalup Drive which is likely to reduce the demand to use the signals at Ashley Road)*
- Left in/out only onto Wanneroo Road is supported at the existing commercial access. A right turn in is not supported as it conflicts with the proposed Parclo at Wanneroo Road/Joondalup Drive intersection.
- The operation of a roundabout at the Drovers Place intersection could be checked. *(Has subsequently been checked and does not provide a workable solution)*
- Information regarding demographics for the school site could be checked with Transcore to determine if the distribution to Wanneroo Road south from the western precinct could in fact be higher than 30%. *(It is understood that the distribution was based on future population of suburbs in the primary catchment, cognisant of three existing Catholic Secondary Schools that will affect the catchment and road connections from these areas.)*
- A high bus use at the school could influence (reduce) traffic volumes. *(It is understood that the use of buses is part of the planning for the school to minimise car trips.)*
- Traffic signals at Clarkson Ave/Wanneroo Road are supported.

- Traffic signals at Ashley Road are supported and this intersection has been designed for a 4-way operation. This intersection is however constrained by existing building on the south east corner.
- An additional access south of Clarkson Avenue to the central precinct is not supported.
- No further discussion has been undertaken with Main Roads following their new ROM forecasts.

4.6 Intersection Analysis

Analysis has been undertaken assuming no direct connection to the southern precinct from the central precinct.

Based on the anticipated traffic volumes likely to be generated by the three precincts analysis has been undertaken for key intersections using 2010 volumes including:

- Western Precinct Access/Joondalup Drive - Signalised
- Clarkson Avenue/Wanneroo Road - Signalised
- Commercial Access/Wanneroo Road – Left in/out only

Analysis for 2031 and 2021 has also been undertaken for the Western Precinct signalised intersection on Joondalup Drive and Wanneroo Rd/Clarkson Ave. The 2031 analysis was undertaken in the previous Report and has been updated for this Report. Additionally, for this Report 2021 analysis was undertaken for these two intersections. As the 2031 analysis indicated that the intersections would be over-capacity, it was considered appropriate to model 2021 as well, to assess at what point in the future remedial measures would be required.

Traffic growth factors were **not** applied to the movements to and from the precincts in each case, as development traffic is determined by the levels of development planned. Background traffic growth generally reflects increased development creating new trip generators and trip attractors, so it is not appropriate to apply it to traffic that is generated by given quantums of development.

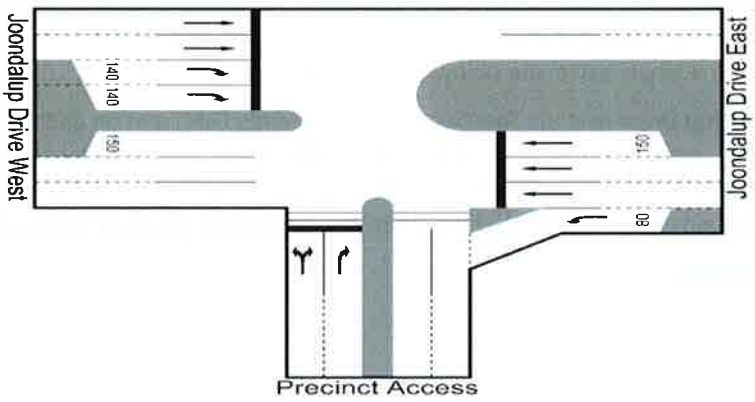
The growth factors applied were as detailed in Tables 3.5 and 3.6.

Details of the Sidra analysis are shown in Appendix C together with the turning volumes used. The results are discussed below – these refer to the updated models, except 2010 models which are not changed.

4.6.1 Western Precinct Access/Joondalup Drive Intersection – Signalised

The proposed location of the traffic signal controlled intersection is approximately 600m west of the intersection with Wanneroo Road and 280m east of Burns Beach Road roundabout.

AM and PM analysis has been undertaken assuming the development as indicated in Table 4.1 and assumes a proportion of traffic will enter/exit via the central precinct.



Sidra analysis indicates the operation of traffic signals based on current volumes on Joondalup Drive, is likely to be good at peak times with most movements Level of Service (LoS) A-E (AM) and A-D (PM) and queues on Joondalup Drive of around 218m eastbound. The overall intersection LoS is forecast to be B/C. This assumes that a proportion of traffic (500vph) will access Wanneroo Road south via the central precinct. The analysis indicates that all traffic will clear the intersection in a single cycle. The analysis indicates that it is necessary to add an additional eastbound and westbound lane on Joondalup Drive to minimise queue lengths, if only two lanes in each direction are maintained then significant queuing on Joondalup Drive is likely to occur.

Traffic volumes have been factored to anticipated 2031 levels, using the updated ROM plots as described earlier, and analysis of the intersection with the additional westbound lane indicates overall LoS of C (AM and PM) and queue lengths on Joondalup Drive east up to 351m (AM) and Joondalup Drive west up to 350m (PM). In the PM scenario, all traffic is forecast to clear in a single cycle. However, in the AM scenario, the effective stop rate per vehicle is greater than 1 for all movements from the Precinct access and on the right turn from Joondalup Drive West, indicating that on these movements traffic will **not** all clear in a single cycle. The analysis therefore indicates that the geometry as proposed may not accommodate forecast traffic volumes. The LoS on the movements from the Precinct access is F in the AM, and E in the PM, while on the right turn from Joondalup Drive West the LoS is E (both AM and PM). However, despite this, the average delay is not severe, with the highest being 97.3 seconds (AM). Notwithstanding that this average includes undelayed (unqueued) vehicles, the amount of delay is still not severe. It is also useful to examine the intersection control delay for the intersection, as this measures the difference between the base condition (no delay of any type whether geometric or signal delay) and a queued vehicle. This is also 97.3 seconds for the AM period, for the worst movement (which suggests that every vehicle has to queue on that movement as the average delay is the same).

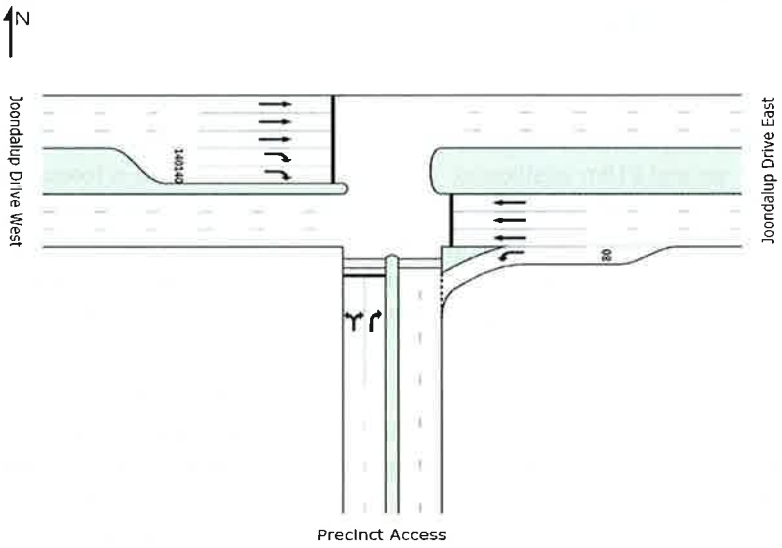
It is significant that the analysis indicates that queue lengths on Joondalup Drive are predicted to extend back to Burns Beach Roundabout.

In order to determine at what stage traffic fails to clear in a single cycle, the intersection was modelled with 2021 flows as well.

The 2021 models show that the overall LoS is still C in both periods. Again, in the PM all traffic is forecast to clear in a single cycle, while AM traffic has an effective stop rate per vehicle greater than 1 on two movements: the right turn out of the Precinct (1.01) and the right turn from Joondalup Drive West (1.02). However, while traffic does not all clear in a single cycle, the average delays are only up to 95.7 seconds (AM). The intersection control delay for AM period, worst movement is 95.7 seconds. So while the traffic does not clear in a single cycle, the delays are not severe.

Queue lengths on Joondalup Drive east are forecast to be 218 metres (AM) and on Joondalup Drive west are 340 metres (PM), extending beyond Burns Beach Roundabout. Further analysis incorporating three lanes in each direction on Joondalup Drive indicates significant improvements to operational performance, with eastbound queue length of 180m (PM) and westbound queue of 218m (AM).

The following geometry refers:



It is clear that by 2021 three lanes in each direction on Joondalup Drive are likely to be required.

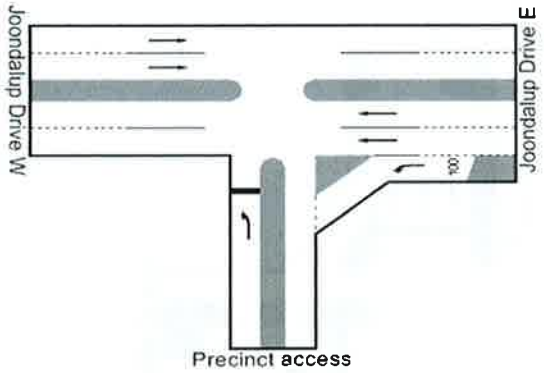
A further access onto Joondalup Drive would be desirable to improve the performance, i.e. maintaining the existing access or a new access as left in /out only. However following discussion with Main Roads a further access or maintaining the existing access to Joondalup Drive is not supported because of the proximity to the proposed interchange at Wanneroo Road/Joondalup Drive and the planned free flow lane.

A roundabout has also been tested at the Precinct intersection however the operational performance is unacceptable with significant queues and delays and is not therefore a viable option.

The traffic management for the school will need to ensure that queuing into the precinct is managed at peak times and will require measures to limit school traffic passing the FESA access in Drovers Precinct. Adequate set-down and pick-up facilities must be incorporated into the detailed design of the school.

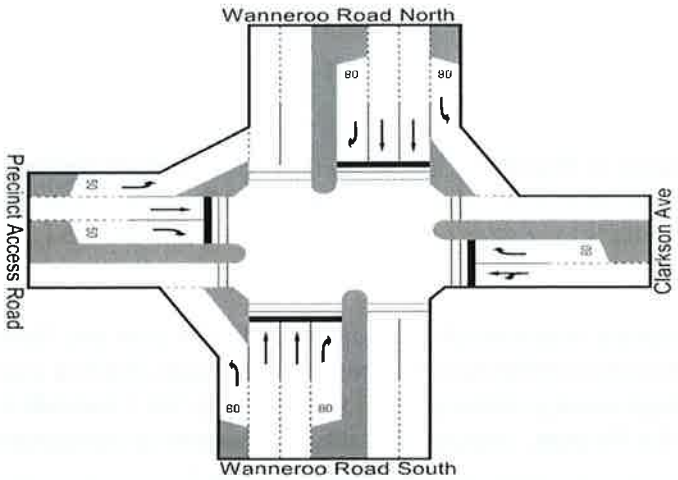
4.6.2 Joondalup Drive/Access to precinct left in/out only

Further analysis has been undertaken to assess the operation of a left in/out access to Joondalup Drive in addition to the proposed traffic signals should this be permitted.



Analysis indicates a poor level of service for the left turn out of the precinct for the am peak period. Assumed volumes of 50vph turning left out and 150vph turning left in have been used. Higher left turn out volumes will result in significant queuing back into the precinct at peak times. This was modelled for 2010 only.

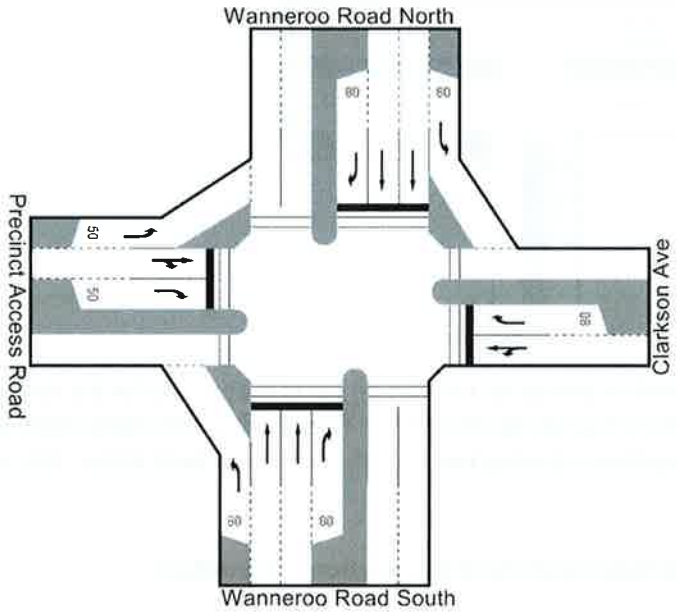
4.6.3 Clarkson Avenue/Wanneroo Road Intersection – Signalised



Sidra analysis indicates a poor level of service at peak times at this signalised intersection based on current volumes on Wanneroo Road and forecast traffic volumes from the precinct. An intersection LoS of D/E is forecast at peak times and the through movements on Wanneroo Road do not clear the intersection in one cycle; however the analysis indicates that most other movements will generally clear in one cycle.

It should be noted that a general trip rate of 2.5 trips per $100m^2$ of gross leasable floor area has been used however the likely land uses vary considerably and this trip rate is likely to be a worst case scenario. The actual intersection performance is therefore likely to be better than the analysis indicates.

Further analysis has been undertaken incorporating a double right turn from the precinct.



2010

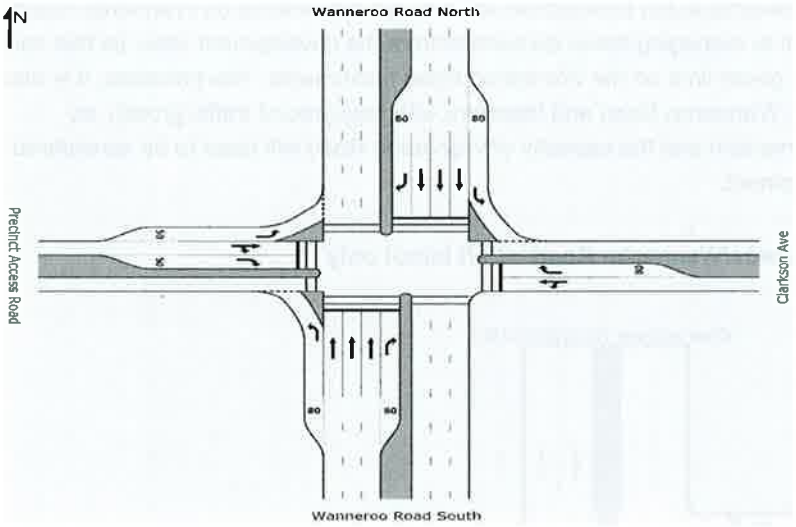
Significant improvement is made to 'Stop Rates' if a double right turn is implemented in the Precinct access road approach using current volumes. An intersection LoS of D is forecast and queues of around 200m on Wanneroo Road. Traffic is forecast to clear the intersection in a single cycle.

2021

The 2021 models show that queue lengths reach 726.1 metres in the AM peak and 739.5 metres in the PM peak, in each case on through movements on Wanneroo Road. Again, effective stop rates exceed 1 on several movements although average delays are less severe – up to 142.7 seconds in the AM peak and up to 141.8 seconds in the PM peak. Analysis indicates the operation is unacceptable.

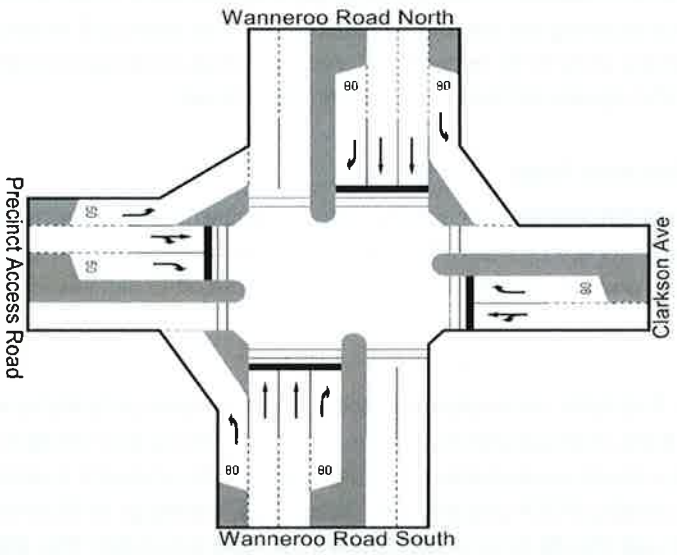
Analysis has also been undertaken for 2021 adding an additional northbound and southbound through lane on Wanneroo Road (geometry shown below refers) – AM analysis indicates a maximum queue

length of 300 to 350 metres on Wanneroo Road and the average stop rate is 1.07. PM analysis indicates maximum queue length of 350m on Wanneroo Road south and an average stop rate of 0.94.



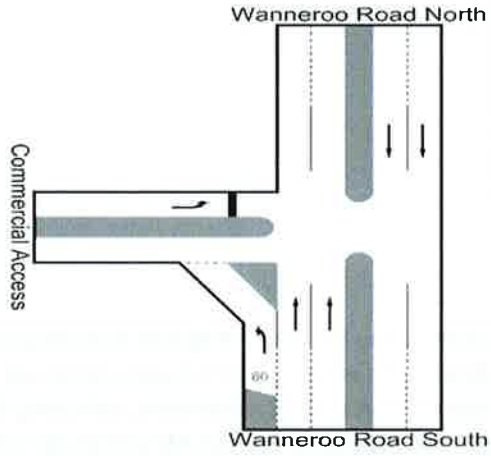
2031

Traffic volumes have also been factored to 2031 (using the updated factors and the geometry below) and queue lengths on Wanneroo Road are predicted to be around 2,777.5 metres (AM) and 827.2 metres (PM). In both periods, effective stop rates exceed 1 on several movements, indicating that traffic will not clear the intersection in a single cycle. Delays are quite severe in the AM period, up to 663.5 seconds average delay on Wanneroo Road North. Clearly the operation is unacceptable.



It is therefore recommended that further investigation is made into options for this access, together with consideration of alternative extra accesses and demand-management measures to limit car use. While the worst performing movements of the intersection are through movements on Wanneroo Road, there would still be some benefit to managing travel demand to/from the development sites, as this could free up capacity to allow more green time on the Wanneroo Road movements. Nevertheless, it is also clear that the main issue is with Wanneroo Road and therefore with background traffic growth, so improvements to this intersection and the capacity of Wanneroo Road will need to be considered irrespective of the development.

4.6.4 Commercial Access/Wanneroo Road – Left in/out only



Sidra analysis based on current volumes on Wanneroo Road and forecast precinct volumes indicates a good LoS for most movements during the am and pm peak hours. The worst LoS is forecast to be D for the left turn out, however this is likely to be better than forecast in view of the gaps created in the traffic stream by the proposed traffic signals at Clarkson Ave/Wanneroo Road.

4.6.5 Ashley Road/Wanneroo Road

Traffic data is not available at this intersection; details of the currently proposed 4-way traffic signals are shown in Appendix E. In order for the Drovers Place precinct to operate efficiently it is considered that this intersection may need to provide a key function together with the other signalised intersections.

4.6.6 FESA Access

It is clear from the analysis that traffic associated with the school has some potential to impact on the FESA access if additional traffic management measures, including pick-up and set-down facilities, are not considered carefully. It is therefore recommended that a new FESA access is formed to Joondalup Drive directly opposite the existing FESA property with 'Keep Clear' markings on Drovers Place and Joondalup Drive. A median gap should be provided to allow the right turn in/out. The access and median gap would require appropriate signage and road surface delineation to eliminate use by other traffic. If these measures are adopted impacts to emergency services will be minimised. There will however be

some delay for the westbound movement due to queuing at the new signals; therefore a sensor/transponder will need to be incorporated into the system to give priority to FESA and allow the queue to clear in the event of an emergency.

4.7 Public Transport

As indicated in Section 2 PTA has formally responded to the Draft Structure Plan as follows:

- Generally supportive of the Structure Plan.
- Support traffic signals on Joondalup Drive to serve school bus access to the proposed school and request that bus access is considered in the design of the local access road.

Bus stops and embayments are currently located in Joondalup Drive adjacent to the site and opposite the site. The paths adjacent to the embayments could be extended to facilitate passengers both boarding and alighting a bus. Pedestrian crossing facilities are provided on Joondalup Drive.

The current configuration of Wanneroo Road includes bus embayments and stops north of the commercial access and south of Clarkson Ave on both sides of Wanneroo Road. Pedestrian paths are provided.

4.8 Department for Planning

An extract from the relevant Development Control Policy relating to schools is shown as follows:

'Development Control Policy 2.4

3.2 Location of Schools Within Catchments

3.2.3 Secondary schools service larger catchments and rely more on public transport, both scheduled and chartered services, and accessibility is, therefore, of even greater importance. Centrality within those catchments, although desirable, is secondary to access. Because secondary schools are more reliant upon vehicular transport and cater for a large number of students, their impact upon local residential amenity is greater, as is the need for sensitivity of siting. While centrality remains important within those catchments, ease of access is also an important consideration. Given this, secondary school sites should be set aside with accessibility as an important consideration, not only for those students arriving by public transport and private cars but also those travelling to school by bicycle or on foot. Careful design and siting of secondary school sites and the location of buildings on them can help to minimise their impact upon the amenity of nearby residential properties.

3.5 Access issues

3.5.1 School and TAFE college sites should be provided with frontage access to through roads constructed on at least two sides. These roads must be designed (with an appropriate carriageway width and traffic management devices as set out in Policy DC 2.6.(Residential Road Planning) to allow for the safe pick-up and set-down of students from both private cars and public transport systems within the road reserve. Culs-de-sac or underwidth roads are not acceptable for this purpose.

3.5.2 While facilities to pick up and set down should be within the road reserve, any additional associated land requirement should be provided from the land allocated for the school site and provided by the school authority. On-site parking may need to be provided within the school site or on an adjacent reserve.

3.5.3 Road carriageways and traffic management devices (including on-street embayments and raised pedestrian crossings) should be provided by the subdivider at the time of subdivision to the satisfaction of the local government, and also the Education Department in the case of government schools. The cost of on-street embayments and raised pedestrian crossings should be shared on a 50/50 basis by the subdivider and the school authority. The sharing of costs by subdividers may be spread across the catchment area of the school. Where subdivisions occur well ahead of the establishment of the school (i.e. high school sites) the subdivider will normally be required to deposit a cash equivalent for the construction with the local government.

3.5.4 Apart from accessibility by road, school sites should also provide a strong local focus for pedestrian and cycleway systems in the neighbourhood. Preferably these systems should lead as directly, conveniently and safely as possible to the school. Where there is a need to cross significant distributor roads, careful consideration should be given to the nature of the crossing, whether it be by grade separation, controlled lights, intersection separation, manned crossing or other acceptable alternatives.

3.5.5 The vehicle/pedestrian/cycle access and road safety needs of schools should be considered at the local structure planning stage. The Guidelines for the Preparation of Local Structure Plans for Urban Release Areas, included elsewhere in this DC2.6, incorporate the principles that should be applied'

4.9 Conclusions

The following conclusions are drawn from the investigation and analysis:

- The capacity of a dual carriageway, two lanes in each direction, is 38,000 vpd; forecast traffic on Wanneroo Road in 2021 is 45,300 vpd, and on Joondalup Drive is 56,200 vpd. It is clear therefore that major road upgrade is likely to be required by 2021.
- In view of the high peak hour traffic volumes forecast to be generated by the Catholic School within the western precinct it is likely to be necessary to maximise capacity at a new signalised intersection with Joondalup Drive to include an additional eastbound and westbound through lane.
- Queuing back to Burns Beach Roundabout is likely without major upgrade of Joondalup Drive.
- The analysis indicates that it is possible to achieve *reasonable* operating conditions for both 2010 and anticipated 2031 traffic volumes subject to an appropriate intersection configuration at the Joondalup Drive / Precinct access intersection, and upgrade of Joondalup Drive to three lanes in each direction, although delays will occur and traffic is unlikely to all clear in one cycle. However, the main issue is with background traffic growth, so improvements to this intersection and Joondalup Drive will need to be considered irrespective of the Precinct development.
- Measures to reduce the traffic generated by the planned school could be considered to minimise impacts at the planed signalised intersection with Joondalup Drive
- The Wanneroo Road / Clarkson Avenue intersection is forecast to suffer severe delays in 2021 and 2031 and results indicate that 3 lanes in each direction on Wannerro Road are likely to be required. It is therefore recommended that further investigation is made into options for this access, together with consideration of alternative extra accesses and demand-management measures to limit car use. However, the main issue is with background traffic growth, so improvements to this intersection and Wanneroo Road will need to be considered irrespective of the Precinct development.

- The current traffic volumes on Joondalup Drive are estimated to be in excess of 40,000 vpd and peak hourly volumes are close to capacity. Traffic volumes are forecast to increase to 56,200 AAWT by 2021 and 57,400 AAWT by 2031 (source Main Roads WA).
- The current traffic volumes on Wanneroo Road, adjacent to the site, are around 27,000 vpd and are forecast to increase to around 45,300 AAWT by 2021 and 47,800 AAWT by 2031.
- Looking at the analysis of the Joondalup Drive intersections alone indicates a need for a good road connection to be available to the central precinct and southern precinct to distribute traffic volumes from the western precinct and Catholic School, to include a road connection on the east side of the school site connecting to Drovers Place and Drovers Place connecting through to Clarkson Ave signals and Ashley Road signals. However, given the severe delays forecast for the Clarkson Avenue intersection, this needs to be looked at holistically – it would be appropriate to model all the intersections as a network, i.e. using LINSIG or VISSIM, in order to determine the operation of the intersections as a linked network (including pedestrian phases also). This should be undertaken before looking further at options for these intersections.
- As well as the intersections, LINSIG or VISSIM modelling will also have an influence on the arrangement of internal roads and parking areas, due to the effects on traffic distribution and assignment. This includes the links between the different Precincts.
- An additional access to Joondalup Drive incorporating left in/out to allow some redistribution of school traffic at peak times, whilst desirable is not supported by Main Roads WA in view of a proposed free flow left turn lane from Wanneroo Road south associated with a proposed interchange.
- It is necessary to provide a separate FESA access onto Drovers Place and Joondalup Drive with appropriate treatment to overcome impacts of likely congestion at school peak times. It is likely to be necessary to incorporate transponder/sensor into the traffic signal system. This will need to be incorporated within the LINSIG analysis referred to above.
- The LINSIG or VISSIM analysis should include the school bus movements also.
- It is considered important to maintain a left in/out access (existing) to Wanneroo Road from the Growers Market.
- Existing and forecast traffic volumes are summarised in the following table.

Locations	2010 (vpd)	2021 (AAWT)	2031 (AAWT)
Joondalup Dr, west of Wanneroo Rd	**41,000**	**56,200**	**57,400**
Wanneroo Rd, south of Joondalup Dr	**27,000**	**45,300**	**47,800**

- The analysis is for the peak school periods and traffic generated by the various precincts will be considerably less during the day outside of peak hours and therefore the operation of the access points and intersections is likely to be significantly improved at off-peak times. However peak traffic on the adjacent roads extends over a number of hours i.e. 7-9am and 3-6pm.
- Pedestrian facilities will need to be included at new traffic signals.

- The structure plan area is currently well served by public transport and the planned signalised intersections into the precinct could facilitate future bus movements associated with the school.
- Initiatives to increase bus patronage of school buses should be pursued to reduce the number of students arriving by car.
- The impact of any queuing in the longer term on the operation of the Burns Beach roundabout has not been included in the scope for this study and should be considered as part of any future major upgrade to Joondalup Drive.
- The study confirms the need to upgrade the adjacent regional roads to allow the Drovers' Place Precinct Structure Plan area to function satisfactorily in the longer term.

5. Recommendations

The previous GHD Report – "Report for Drovers' Place Precinct, Traffic Study Version 2, Additional Lane on Joondalup Drive" – was issued in May 2010.

Since then, the ROM Model has been updated, and this Report is an update of the previous report, to reflect the new data.

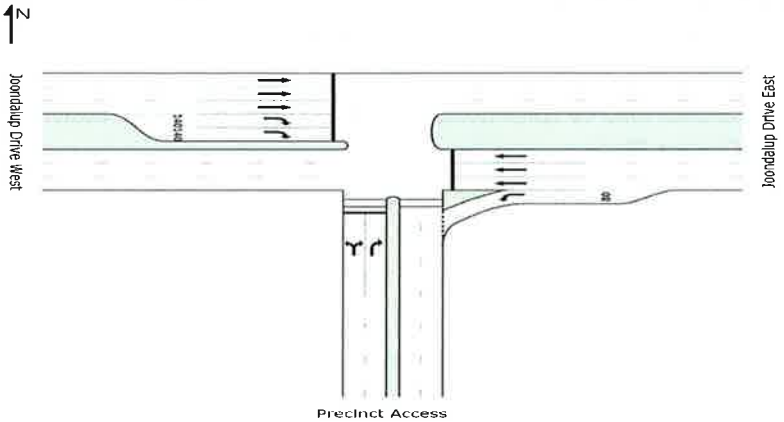
The updated data, and therefore modelling results, have significantly altered the conclusions of the analysis and therefore many of the previous recommendations need to be revised. The main new recommendation is that, due to the severe delays forecast for the Wanneroo Road / Clarkson Avenue intersection, further investigation of access options, internal roads, parking areas and pedestrian crossing facilities **etc.** should be undertaken. Changes at one intersection will impact on the other intersections, so a co-ordinated network model should be created, using LINSIG/Vissim.

It is also clear that both Joondalup Drive and Wanneroo Road will need three lanes in each direction.

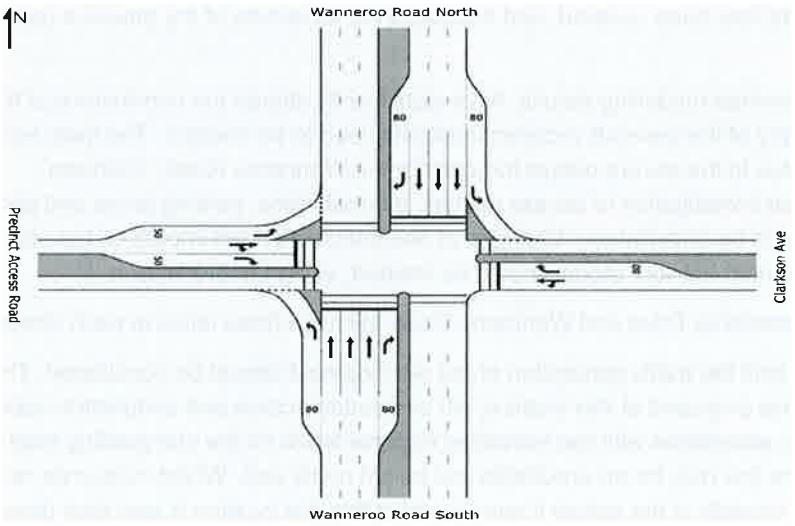
Additionally, measures to limit the traffic generation of the development should be considered. The high traffic-generating school use proposed at this location will compound access and congestion issues in and around the precinct in association with the increased regional traffic on the surrounding road network and is considered therefore this may be an unsuitable use based on its size. Whilst measures can be developed to mitigate the impacts of the school it remains clear that the location is less than desirable for this use.

Some of the previous Report's recommendations are still appropriate, as listed below. These recommendations were made to achieve a preferred access strategy based on the current Structure Plan. It is considered that these recommendations below may still be appropriate **subject to being considered in conjunction with the results of LINSIG or VISSIM network modelling:**

- It is recommended that traffic signals be provided at the location of the Drovers Place cul de sac and incorporate double right turns into and out of the site together with the provision of additional eastbound and westbound lanes on Joondalup Drive.



- It is recommended that traffic signals be provided at the Wanneroo Road/Clarkson Avenue intersection to incorporate a double right turn from the development and ultimate upgrade of Wanneroo Road.



- It is recommended that a traffic management plan be prepared for the proposed Catholic School as part of the detailed planning to minimise queuing within Drovers Place and adjacent to the FESA access, to include adequate drop-off and pick-up facilities and circulation roads.
- It is recommended that a special access be provided for FESA to access Joondalup Drive at peak school activity times to include 'Keep Clear' markings in Drovers Place adjacent to their access and in Joondalup Drive together with a driveway across the verge to Joondalup Drive and a median gap. A transponder/sensor should also be included into the traffic signals system at the new intersection with Joondalup Drive to facilitate emergency vehicle access.
- It is recommended that an access road be constructed along the proposed school's eastern boundary to intersect with Drovers Place.
- It is recommended that access be available from the central precinct to the southern precinct and traffic signals at Ashley Road to allow distribution of traffic at peak times.
- It is recommended that the existing commercial access to Wanneroo Road be retained to operate left in/out only.
- It is recommended that traffic signals be installed at the proposed 4-way intersection with Ashley Road to facilitate all movements.
- It is recommended that the link between the central precinct and the southern precinct be traffic-calmed to discourage traffic other than Drovers precinct traffic.

- It is recommended that the network modelling includes three lanes in each direction on Joondalup Drive and Wanneroo Road, the operation of the Burns Beach Road / Joondalup Drive intersection, and also Joondalup Drive / Wanneroo Road interchange.
- It is recommended that both Joondalup Drive and Wanneroo Road are upgraded to include three lanes in each direction.

APPENDIX E

State Government Correspondence

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Paul Miles MLA

Your State Member for **Wanneroo**

13 December 2012

Tracey Roberts
Mayor
City of Wanneroo
GPO Box 1
WANNEROO WA 6946

Dear ~~Mayor~~ TRACEY

Re: Proposed traffic signals - intersection of Wanneroo Rd and Clarkson Ave

I write in relation to the need for the installation of traffic signals at the above mentioned intersection given the traffic issues occurring on Wanneroo Road in the vicinity of Joondalup Drive and also the proposed residential development west of this current T junction.

Recently I attended a site visit of Wanneroo Road, in this vicinity, which was attended by a Mr Des Snook, Executive Director – Road Network Services of Main Roads W.A and officers from the office of the Minister for Transport, the Hon Troy Buswell MLA, where it was noted that one of Main Roads main concerns for this area was the need for the installation of traffic signals at the intersection of Wanneroo Rd and Clarkson Ave.

As indicated in the attached letter from the Minister for Transport, the Hon Troy Buswell MLA, given that the installation of the proposed signals will provide benefits for traffic on Wanneroo Road, access to Council's Clarkson Avenue and its residents, as well as direct access to the commercial precinct on the western side of Wanneroo Road, Council may wish to explore a possible tri-partite funding arrangement to enable this project to proceed.

In this regard the State would be willing to consider any proposal in this regard under a future budget process.

I would therefore be grateful if you could please investigate this proposal with a view to approaching Main Roads W.A with a tri-partite funding arrangement between the City of Wanneroo, the State Government and Lakewide Pty Ltd (the developers of the proposed residential development west of the intersection) so this project can proceed.

I look forward to your favourable response in due course.

Yours sincerely

Paul

PAUL MILES MLA
MEMBER FOR WANNEROO

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Treasurer; Minister for Transport; Emergency Services

Our Ref: 30-32370

COPY

Mr Paul Miles MLA
Member for Wanneroo
PO Box 225
WANNEROO WA 6946

Dear Mr Miles

I refer to our previous discussions and site visit in regard to traffic issues on Wanneroo Road in the vicinity of Joondalup Drive.

One of the issues you raised on behalf of your constituents was the need for traffic signals to be installed on Wanneroo Road at the T junction with Clarkson Avenue, and the potential for improved traffic management and access if this intersection was upgraded to a four way signalised intersection.

I understand that the City of Wanneroo is progressing plans in this regard and has approached the owner of the property which would contain the new western leg seeking a funding contribution.

Given that the installation of signals at this location will provide benefits for traffic on Wanneroo Road, access to Council's Clarkson Avenue and its residents, as well as direct access to the commercial precinct on the western side of Wanneroo Road, Council may wish to explore a possible tri-partite funding arrangement to enable this project to proceed. The State would be willing to consider any proposal in this regard under a future Budget process.

As always, Council is welcome to liaise with Main Roads on any technical aspects or advice in regard to the development of this project.

Thank you again for your continued efforts on behalf of your community.

Yours sincerely

Hon Troy Buswell MLA
MINISTER FOR TRANSPORT

CC: Mehran Zan

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