

OUTLINE DEVELOPMENT PLAN

GERALDTON BUSINESS PARK

LOT 206 GERALDTON-MOUNT MAGNET ROAD, WOORREE



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I.0 Introduction

Greg Rowe and Associates acts on behalf of Commercial Properties Group Pty Ltd, the owners of Lot 206 Geraldton-Mount Magnet Road (now Horwood Road), Woorree.

This report has been prepared in support of an Outline Development Plan ('ODP') for the proposed Geraldton Business Park.

This report includes:

- » Description of the subject site;
- » Overview of relevant town planning considerations;
- » Detailed explanation of the proposed ODP;
- » Proposed Design Guidelines; and
- » Overview of traffic, parking and drainage considerations.

2.0 Description of Site

2.1 Location

Lot 206 is located in the Municipality of the City of Geraldton-Greenough ('City'), three kilometres east of Geraldton town centre, in the locality of Woorree. The land is located on the north side of Geraldton–Mount Magnet Road approximately 170 metres west of Edward Road.

The majority of the site's western boundary abuts the alignment of the proposed Geraldton North–South Highway ('GNSH'). An electricity sub-station abuts the sites northern boundary. The sub-station site includes two narrow strips of land, each 20 metres in width, which run south along part of the western boundary of Lot 206 and along the entire length of the eastern boundary of Lot 206. The strip of land on the western side of Lot 206 contains a gas pipeline and separates Lot 206 from Reserve 24569 – being vacant land vested in the City for recreation purposes. The strip of land on the eastern side of Lot 206 is vacant but abuts another 20 metre wide strip of land that contains overhead electrical transmission lines. Together, the sub-station land on the eastern side of Lot 206 has a total width of 40 metres and separates the subject site from the existing rural-residential area to the east.

2.2 Cadastral Information

The site is legally described as Lot 206 on Deposited Plan 40727 held on (freehold) Certificate of Title Volume 2595 Folio 770. The site is 10.7953 hectares in area with a frontage to Geraldton–Mount Magnet Road of 117.5 metres and a depth of approximately 500 metres. The site's frontage to the proposed GNSH is 326 metres. A 12.7 metre wide easement in favour of Western Power runs along the northern boundary of the site.

2.3 Existing Improvements

The site is currently occupied by a roadside cafe positioned at the southern end of Lot 206 adjacent to Geraldton-Mount Magnet Road. Access to the café site is obtained via three existing crossovers.

3.0 Town Planning

The majority of Lot 206 is zoned 'Highway Commercial' under the (Shire of Greenough) Town Planning Scheme No.4 ('TPS4'). A small portion of Lot 206, at the corner of Geraldton-Mount Magnet Road and the proposed GNSH, is set aside as an 'Important Regional Roads' Local Reserve under TPS4.

The land is similarly zoned under the City's draft Local Planning Scheme No.5 ('LPS5'), which upon gazettal, will replace TPS4. It is understood LPS5 is presently with the Minister for Planning awaiting final approval.

The purpose of reserving part of Lot 206 for 'Important Regional Roads' was to set aside land for a possible roundabout at the future intersection of Geraldton-Mount Magnet Road and the GNSH, however, Main Roads of Western Australia ('MRWA') has confirmed that a signalised intersection is now planned, meaning the additional land that was originally earmarked for a roundabout is no longer required. It is therefore anticipated that, upon gazettal of draft LPS5, an amendment will be progressed to remove the 'Important Regional Roads' reservation from Lot 206 and include the affected land in the 'Highway Commercial' zone.

The existing zoning of the land was introduced by Amendment 134 to TPS4, published in the Government Gazette on 8 September 2009. Amendment 134 introduced the 'Highway Commercial' zone to TPS4 and rezoned Lot 206 from its former 'Special Rural' zoning to its current zoning.

The 'Highway Commercial Zoning and Development Table' introduced to TPS4 by Amendment 134 states:

"Any development and/or subdivision will be in accordance with an Outline Development Plan (ODP) adopted by Council and endorsed by the WAPC. Amongst other things, the ODP will detail the proposed internal road network and ultimate and approved vehicle access arrangements to the Highway for each street block, to the satisfaction of Main Roads WA."

The proposed ODP has been prepared to satisfy the provisions of TPS4 with respect to the subdivision and development of land zoned 'Highway Commercial.'

The ODP, once adopted by the City and endorsed by the Western Australian Planning Commission ('WAPC'), will ensure the Geraldton Business Park on Lot 206 is developed in an orderly and proper manner.

4.0 Outline Development Plan

4.1 Objective

The objective of the ODP is to guide the development of a business park where a range of showroom, warehouse and large format retail outlets will be established to meet the (bulky goods) retail needs of residents in the Geraldton and wider Mid-West Region. It is not the intent of the ODP to accommodate the development of discount department stores.

The ODP seeks to establish a business park which is highly accessible from the regional road network, and internally, is legible and safe for vehicles, cyclists and pedestrians.

The ODP comprises three distinct precincts, connected by a network of public roads and pedestrian paths, which will progressively be developed commensurate with demand.

The ODP is contained in Appendix I.

4.2 Precincts

4.2.1 Precinct 1

Precinct 1 is situated at the southern end of the ODP and comprises four proposed development sites. Fronting Geraldton-Mount Magnet Road is a small development site designed to accommodate a low-rise (single-storey) building suitable for use as a take-away food outlet (or similar). To the north of this site is a large development site designed to accommodate a large-scale showroom / warehouse or bulky goods retail outlet that will act as an *anchor* tenant to the business park. The building will face west and be highly visible from the surrounding road network. On the western side of Precinct 1, abutting the proposed GNSH, is a small development site designed to accommodate a low-rise (single-storey) building suitable for use as a showroom or large-format retail store. At the south-west corner of Precinct 1 is a development site abutting the intersection of Geraldton-Mount Magnet Road and the proposed GNSH, intended to be used for open air display / sales purposes. Any buildings on this site would be limited in their size, such as a single-storey building of approximately 100 square metres, to maximise visual exposure of the *anchor* tenant from the surrounding road network.

4.2.2 Precinct 2

Precinct 2 is situated in the central part of Lot 206 and contains two development sites. The development site on the eastern side of Precinct 2 is designed to accommodate another *anchor* tenant and a series of smaller specialised tenancies, orientated toward the central parking areas. The building will be aligned with the main *anchor* tenant building in Precinct 1, to establish a strong linear edge to the business park. The second development site is a smaller site on the western side of Precinct 2 intended to accommodate a low-rise building providing a focus along the western side of the central parking area. It is envisaged the smaller development site will be occupied by multiple tenancies with the potential to have frontage toward the west and east, thereby creating an appropriate statement at the proposed GNSH entry to the ODP.

4.2.3 Precinct 3

Precinct 3 occupies the northern part of the site with future buildings facing inward toward the centre of the ODP area. Precinct 3 is likely to accommodate a survey-strata subdivision with development sites on individual survey-strata lots and the rear service vehicle driveway and central parking area held on common property.

The overall design retains a vista through the site from Geraldton-Mount Magnet Road, to maximise commercial exposure, with buildings aligned to create a cohesive development that will encourage pedestrian movement between precincts.

4.3 Subdivision

It is generally proposed to subdivide land within each Precinct into separate freehold title lots, commensurate with the requirements of occupiers. Proposed lot boundaries are not shown on the ODP because the exact location is subject to specific purchaser / occupier needs.

It is envisaged the two *anchor* tenant sites in Precincts 1 and 2, together with a proportion of the central car parking area (as described above), will be held on separate freehold title lots, each with direct frontage to proposed subdivisional roads within the ODP. The remaining development sites in Precincts 1 and 2 (including the open air display / sales site) are likely to be held on up to four individual freehold title lots, together with a share of the central parking area, depending on specific purchaser / occupier needs.

For Precinct 3, it is envisaged that just one freehold title lot will be created, with a Survey-Strata subdivision proposed at a later date to give effect to the envisaged pattern of development within Precinct 3.

All proposed freehold title lots will have legal frontage to either an existing or proposed public road, as shown on the ODP. Physical access to each freehold title lot will either be obtained direct from the proposed (internal) public roads shown on the ODP, or via suitable easements / rights of carriageway registered on Certificates of Title, to allow access in perpetuity to proposed (internal) public roads via other freehold title lots.

Similarly, it is evident that freehold lot boundaries will likely traverse aisles in the car park. To ensure legal access in perpetuity to all car parking bays and traffic aisles, reciprocal rights of carriageway and parking will be granted to each lot, with the necessary easements registered on the Certificates of Title, once created. Lot boundaries will not traverse actual car parking bays.

All necessary easements and rights of carriageway for access and parking can be achieved by imposition of suitable conditions of subdivision approval. As noted, it is not proposed to undertake a freehold title subdivision over Precinct 3, as it is envisaged Precinct 3 will accommodate a Survey-Strata subdivision, however, should a freehold subdivision of Precinct 3 occur, any necessary rights of carriageway will be created at the time of subdivision to allow for legal vehicle access and car parking throughout the Precinct.

4.4 Built Form

Consistent with the overall purpose and objective of the ODP, buildings will vary in scale and height to maximise commercial exposure to all development sites.

The largest buildings will be the two *anchor* sites in Precincts 1 and 2, situated on the eastern side of Lot 206, which will be visible from the surrounding road network and draw customers into the business park. To ensure these *anchor* sites remain highly visible, the small development sites along the southern and western edges of Precincts 1 and 2 will accommodate low-rise buildings only. Only minor development will be permitted within the open air display / sales site at the south-west corner of the ODP.

Within Precinct 3, single storey development is anticipated, with the facades of buildings designed with additional height to maximise visibility from the southern end of the ODP. Taller facades are anticipated toward the rear of Precinct 3, with building facades reducing in height along the west and east sides of Precinct 3.

Buildings will generally be orientated toward the centre of the site, to provide a cohesive frontage to the car parking area. For the small development sites within Precincts 1 and 2, buildings will also be designed to provide an appropriate interface to the abutting road network, which may include active frontages wherever possible. Where this is not possible, buildings will be finished to a high standard and incorporate suitable materials, colours, finishes, signage and screening.

The proposed road running along the eastern side of Precincts 1 and 2 will provide access to the loading areas at the rear of the two *anchor* sites. Consistent with discussions with abutting landowners, it is proposed to screen loading areas with a combination of landscaping (tree planting) and fencing, details of which will be provided at the Development Application stage. For Precinct 3, a rear service laneway is proposed to provide access to loading areas at the rear of buildings. The laneway is 8 metres in width to the west and east of the buildings in Precincts 3, with the section of the laneway parallel to the northern boundary of the ODP increased to 13 metres in width due to an existing easement (12.7 metres in width) registered on the Certificate of Title for the subject land.

Design Guidelines have been prepared to guide the built form (and other aspects) of the ODP.

The purposes of the Design Guidelines are to:

- » Ensure an appropriate development interface to Geraldton-Mount Magnet Road and the proposed GNSH; and
- » Guide the built form and general appearance of buildings, including building height and orientation, location and size of signage, façade treatments, materials and finishes.

The Design Guidelines are contained in Appendix 2 of this report and summarised on Sheet 2 of the ODP.

4.5 Traffic and Parking

4.5.1 Traffic and Parking Assessment

Riley Consulting, traffic engineers, has prepared a detailed Traffic and Parking Assessment for the ODP (refer Appendix 3).

The Traffic and Parking Assessment considers the surrounding road network, likely traffic generation and distribution, possible traffic impacts, vehicle access, car parking and pedestrian, cyclist and public transport facilities.

The most pertinent findings of the Traffic and Parking Assessment are as follows:

- » The forecast traffic increase as a result of all three Precincts being developed is unlikely to have a negative impact on the overall operation of the existing and future road network;
- » Analysis indicates that access to Geraldton-Mount Magnet Road will operate with “very good” Levels of Service with Precinct 1 developed, “acceptable” Levels of Service with Precincts 1 and 2 developed, and “poor” Levels of Service with all three Precincts developed;
- » Additional access to GNSH is recommended to support the development of Precinct 3;
- » In the longer term, with all three Precincts developed and GNSH constructed, analysis indicates that both access points to the ODP can be expected to operate with “good” Levels of Service; and
- » The level of parking available on the site is in excess to that required under LPS5 and provides flexibility should some land uses change.

Set out below is a general description of the proposed road network, means of vehicle access, car parking and pedestrian / cyclist facilities. This information should be read in conjunction with the attached Traffic and Parking Assessment.

4.5.2 Proposed Road Network

It is proposed to construct a public road through the ODP area to distribute traffic between the three development precincts, as depicted on the ODP.

Initially, access to Precincts 1 and 2 will be obtained via a new road off Geraldton-Mount Magnet Road. The proposed road is located adjacent to the eastern boundary of the site, to maximise the separation distance from the future Geraldton-Mount Magnet Road / GNSH intersection. This new road runs along the eastern side of Precincts 1 and 2, to the northern extent of Precinct 2, where the road then travels west between Precincts 2 and 3 toward a planned future intersection with the proposed GNSH.

The road system is a simple design that is intended to distribute traffic evenly throughout the ODP and make each precinct as accessible as possible.

4.5.3 Vehicle Access

Prior to construction of the GNSH, vehicle access will be obtained via Geraldton-Mount Magnet Road, from a new road positioned at the eastern end of the site. The intersection is envisaged to accommodate full vehicle movements, at least until the GNSH is constructed, at which point consideration will be given to a median strip to limit movements to left-in / left-out only. This is depicted on the ODP.

In addition, prior to construction of the GNSH, a second vehicle access point is proposed from Geraldton-Mount Magnet Road, in the form of a crossover leading to the main car park access driveway within Precinct 1. This crossover is approximately 70 metres west of the new internal public road on the site's eastern side.

The purpose of this secondary crossover is to provide customers with a direct means of access to the car park pending construction of a new access point from the proposed GNSH. In particular, the crossover will provide a convenient means of access for eastbound cars on Geraldton-Mount Magnet Road, enhancing access and exposure to the development. Otherwise, without this crossover, and prior to construction of the GNSH, eastbound vehicles would be travelling beyond the line of sight of the main *anchor* buildings before entering via the eastern most access point. The crossover also provides an opportunity to separate private cars from service vehicles, which will utilise the main (eastern most) road to access the loading bays at the rear of the main *anchor* buildings within Precincts 1 and 2. The crossover off Geraldton-Mount Magnet Road will be removed once the GNSH is constructed / opened (depending on the requirements of Main Roads WA). Upon closure of the crossover, the area will be landscaped and the footpath / kerb made good, to the specifications of the City.

A new intersection is proposed direct from the GNSH, once constructed. The new junction is over 300 metres north of the intersection of the GNSH with Geraldton-Mount Magnet Road, and is proposed to facilitate full vehicle movements. As evident, a central raised median is proposed internal to the ODP to ensure vehicles entering the site from the GNSH are given priority over other traffic, to prevent any queuing of vehicles external to the site. Prior to the opening of the GNSH, the carriageway of the new east-west public road will be constructed without the central median, to a point just inside the western boundary of the ODP, so that vehicles can access the road from the rear service lane within Precinct 3 and the driveway to the west of the small development site in Precinct 2. To coincide with the opening of the proposed GNSH, the median will be constructed and the carriageway extended to the western boundary of the ODP.

Internal to the ODP, access to car parking areas and service roads within each Precinct is proposed via a number of crossovers, as generally depicted on the ODP. Feature paving is proposed at key intersections to act as traffic calming devices and provide an entry statement to each Precinct.

All intersections and crossovers, including the proposed intersections of the new public road with Geraldton-Mount Magnet Road and the GNSH, are subject to detailed design and all necessary approvals being obtained from the City and MRWA (as applicable), prior to the subdivision and / or development of the ODP. Intersection treatments shown on this ODP, including medians, paving and kerb lines, are therefore indicative only and subject to detailed design.

The proposed public road system will be constructed at the subdivision stage, thereby providing each lot with legal and physical access to a public road, prior to commencement of development. With respect to staging, it is envisaged development within Precincts 1 and 2 will occur prior to completion of the GNSH, with Precinct 3 developed after completion, or upon opening, of the GNSH.

Ultimately, a new road link may be provided to Eighth Street, to the north of the ODP, via a new public road constructed through Reserves 24569 and 41503, and adjoining Lot 2. Construction of this new link road is subject to land owner consents and all necessary approvals being obtained. To ensure provision is made for this possible road link, an area on the western side of Precinct 3 has been embargoed (as shown on the ODP), pending decisions (if any) on the development of, and provision of a road link through, the adjacent land.

4.5.4 Car and Bicycle Parking

The ODP proposes a centrally located car park within each Precinct, with evenly spaced entry / exit points to facilitate convenient access and distribute traffic throughout the ODP.

The table below shows the Gross Floor Area ('GFA') and number of car and bicycle parking bays proposed within Precincts 1, 2 and 3 of the ODP.

Precinct	Gross Floor Area (m ²) ¹	Car Parking Bays	Bicycle Parking Bays	
			Public	Staff
1	12,500	337	8	17
2	14,700	264	10	20
3	18,500	399	12	25
Total	45,700	1,000	30	62

1. GFA is approximate only and subject to detailed design and approval of Development Applications. GFA for Precinct 1 includes the area of the open air display / sales site. GFA includes non-public / customer areas within tenancies, such as back-of-house administration and storage areas, loading bays and services.

As evident, a total of 1,000 car parking bays are proposed to meet car parking demand generated by the GFA to be developed within Precincts 1, 2 and 3 of the business park. With Precincts 1 and 2 likely to be developed concurrently, it is expected that approximately 601 bays will be established within the first stage of the development.

It is emphasised that the final number of car parking bays shown on the ODP is approximate only and subject to change, depending on factors such as landscaping, drainage, pedestrian and cyclist facilities, and provision of (large-format) car bays for trailers, parents with prams and people with disabilities. The maximum car parking variation contemplated is -10% (i.e. 900 bays).

Consideration has been given to the parking standards of draft LPS5 to guide the amount of car parking provided on-site. The parking standards of draft LPS5 are considered to more closely reflect contemporary parking expectations and commercial rates of parking supply, rather than the more onerous and outdated parking standards of TPS4. The provision of car parking is designed to exceed the minimum requirements of draft LPS5.

Car parking standards under LPS5 vary depending on land use. The following parking standards are considered to be the most relevant:

- » Warehouse 1 bay per 100m² GFA
- » Garden Centre 1 bay per 100m² GFA
- » Showroom 1 bay per 75m² GFA
- » Hire Service 1 bay per 50m² GFA
- » Video Sales / Hire 1 bay per 15m² GFA

As per the attached Traffic and Parking Assessment, the car parking standard for showroom uses is considered to represent an appropriate average rate of parking provision throughout the ODP. This is because the majority of the floor space will be occupied by showroom or large-format retail tenancies, with a smaller amount of floor space likely to be used for other purposes, such as warehousing, hire service, garden centre or fast-food.

On this basis, the table below shows the number of parking bays required and proposed in each Precinct.

Precinct	GFA (m ²)	Car Parking		
		Required (@1/75m ²)	Provided	Surplus
1	12,500	167	337	170
2	14,700	196	264	68
3	18,500	247	399	152
Total	45,700	610	1,000	390
Variance (-10%)			900	290

As evident, applying an average parking standard of 1 bay per 75 square metres GFA, a total of 610 bays are required. With 1,000 bays provided, a parking surplus of 390 car bays will eventuate. Even allowing for a -10% variance in the number of parking bays provided, a surplus of 290 car bays will remain.

Accordingly, a car parking rate of one bay for every 75 square metres GFA shall apply in perpetuity for all land uses within the ODP and change of land uses will not require any recalculation of car parking standards. In addition, the maximum number of car parking bays provided within the ODP shall not exceed 1,000.

Bicycle parking bays are proposed at a rate of one bicycle bay for public use for every 1,500 square metres GFA and 1 bicycle bay for staff use for every 750 square metres GFA. If in calculating the number of bicycle facilities the result is not a whole number, the required number of bicycle facilities is the nearest whole number. If the fraction is one-half, the requirement is the next whole number. This is considered to represent the minimum rate of provision and a greater number of bicycle bays may be provided should a Green Travel Plan for the ODP result in higher demand for cycling in the future.

A bicycle space for an employee must be provided either in a bicycle locker or at a bicycle rail in a lockable compound. A bicycle space for a customer must be provided in a bicycle rail.

The bicycle parking bays required within each Precinct are to be provided by the first Development Application within each Precinct and made available to employees and customers of subsequent Development Applications within the Precinct. Details of the location and number of bicycle parking bays are to be provided by the proponent of the first Development Application within the Precinct. It is acknowledged the City may impose conditions of planning approval, relating to the provision of bicycle parking bays in accordance with this ODP.

4.5.5 End-of-Journey Cyclist Facilities

In addition to bicycle parking bays, end-of-journey cyclist facilities are to be provided for employees within each Precinct at a rate of one unisex shower / change room for the first five staff bicycle bays provided and one unisex shower / change room for every ten staff bicycle bays provided thereafter within that Precinct. This is considered to represent the minimum rate of provision and a greater number of shower / change room facilities may be provided should a Green Travel Plan for the ODP result in higher demand for cycling in the future.

The end-of-journey cyclist facilities required within each Precinct are to be provided by the first Development Application within each Precinct and made available to all employees within the Precinct, including employees of subsequent Development Applications within the Precinct. Details of end-of-journey cyclist facilities are to be provided by the proponent of the first Development Application within the Precinct, including location, means of access and management of the facilities. It is acknowledged the City may impose conditions of planning approval, relating to the provision of end-of-journey cyclist facilities in accordance with this ODP.

4.5.6 Pedestrian Movement

The ODP shows paved areas depicting the primary pedestrian movement system. As expected, pedestrian movement will most likely occur in a north-south direction along the active frontages of buildings, however, due to the length of these frontages, it is anticipated that there will be a fair amount of east-west pedestrian movement through the central car park. For this reason, a series of dedicated and equally-spaced east-west pedestrian paths are proposed through the car park, as shown on the ODP. Where these paths occur, car bays have been removed to establish dedicated pedestrian zones in front of buildings.

A pedestrian footpath is also proposed within the reserve of the east-west (internal) public road, to provide a further means of east-west pedestrian movement across the ODP. A pedestrian path is not proposed within the reserve of the north-south public road on the ODP's eastern boundary as it is not anticipated that there will be any significant pedestrian movement in this location. A pedestrian path is proposed adjacent to the interim entry / exit driveway from Geraldton-Mount Magnet Road, where it will link into the public pedestrian footpath network.

In addition, a dual use path (minimum width of 3 metres) will be required at the subdivision stage to link with the existing pedestrian network at the junction of Utakarra Road and Alexander Street. The path is to be provided on the western boundary of the ODP, adjacent to the proposed GNSH.

All pedestrian and dual use paths are to have a minimum width of 3 metres.

Where footpaths cross roads and car parking aisles, feature paving will be used. The design of all pedestrian areas, including paving, kerbs, hand rails and wheelchair access ramps, will be detailed at the time of construction, in accordance with relevant applicable standards.

4.5.7 Public Transport

The site is located close to rural-residential and residential areas which presently generate a level of public transport (bus) passenger demand. It is anticipated the ODP, once developed, will also generate a level of passenger demand.

Tran-Geraldton Service 101 is a weekday (four times daily) circular service between the centre of Geraldton and the suburbs of Utakarra, Karloo and Rangeway. The service passes within approximately 150 metres of the site, at the junction of Utakarra Road and Alexander Street.

It is possible this bus service could be diverted through the ODP in the future. For this reason, provision is made for a future bus stop in the reserve of the proposed east-west road running through the ODP.

The City may require the submission of a green travel smart plan as and when Development Applications are made.

4.6 Other Considerations

4.6.1 Signage

Two locations have been identified for the provision of pylon signs: one adjacent to the entry from the future GNSH and one adjacent to the Geraldton-Mount Magnet Road entry. The pylon signs will display the name of the business park and the main tenants / occupiers therein. A separate Development Application will be submitted for the pylon signs in due course.

The Design Guidelines accompanying the ODP provide further guidance for the installation of signage to individual tenancies and buildings.

4.6.2 Landscaping

Tree planting is proposed through the car parking areas to provide shade and *soften* the visual appearance of the development.

Landscaping is proposed along the Geraldton-Mount Magnet Road and proposed GNSH frontages of the site. These areas will predominantly comprise low-level ground covers and will likely also provide a drainage function during storm events (refer below). Some tree planting may occur within these areas, however, plant selection along street frontages will be designed to maintain good sight lines through the site to maximise exposure to passing trade.

Conversely, along the eastern boundary of the site, dense planting is proposed to assist with screening the development from neighbouring rural-residential properties to the east. Details of landscaping will be provided at the Development Application stage.

4.6.3 Urban Water Management

JDSI, consulting engineers, has provided a Preliminary Drainage Assessment (refer Appendix 4). The drainage philosophy for the ODP is as follows:

“JDSi’s intended drainage philosophy for this site would be to direct stormwater on paved areas to gully pits / soakwells, allowing direct infiltration into the ground for the minor storm events (1 in 1 year). All stormwater events greater than the 1 in 1 year events will be diverted to the landscaped areas on the perimeter of the development where these areas will be used for storage and soakage. Storage and soakage up to the 1 in 10 year event will be maintained on site. By strategically balancing the overflow catchments, optimised usage of the landscaped areas for this site can be achieved.

JDSi will design best practice, and encourage Water Sensitive Urban Design (WSUD) principles into this development. The WSUD principals should be considered for both the trafficable areas and buildings.

JDSi is in preliminary discussions with MRWA with regards to creating a landscaped swale within the MRWA road reserve for overflow events. This will cater for both Lot 206 and a small catchment for the proposed Geraldton North – South Highway. This landscaped swale will provide both a visual amenity surrounding the site plus acting as a stormwater retention basin.”

The ODP depicts landscaped areas intended to cater for stormwater from the 1 in 10 year storm event described by JDSI.

Toward the south-west corner of the ODP, at the southern end of the open air display / sales site in Precinct 1, is a landscaped area intended to act as a drainage facility during a 1 in 10 year storm event. This area is contiguous with the landscape strip running along the site’s western boundary, which will act as a landscaped drainage swale to channel stormwater toward the southern end of the site.

It is anticipated that these landscaped drainage areas will be sufficient to accommodate stormwater in a 1 in 10 year storm event from Precincts 1, 2 and 3.

It is proposed to prepare and submit a more detailed Stormwater Management Plan, at subdivision stage, in accordance with a suitable condition of subdivision approval, to demonstrate the methodology for the collection and disposal of stormwater.

This will include investigating opportunities for the capture of rainwater from building roof areas for re-use within the ODP, such as for the irrigation of landscaped areas or as greywater in toilet flushing systems. An example of such rainwater re-use within a commercial environment can be found at the hardware store located in the Innaloo regional centre in the Perth metropolitan area, where the hardware store has installed rainwater tanks to collect rainwater from its vast roof structure.

The proponent of the ODP will be responsible for drainage from public roads, while individual lot owners / developers will be responsible for stormwater management on site. If necessary, drainage easements will be put in place should lot developers seek to share any drainage facilities.

5.0 Conclusion

This report describes the Outline Development Plan proposed to guide the development of the Geraldton Business Park situated at Lot 206 Geraldton-Mount Magnet Road, Woorree.

The ODP is a requirement of the provisions of TPS4, which require the endorsement of an ODP prior to subdivision and / or development.

The Objective of the ODP is to guide the development of a business park where a range of showroom, warehouse and large format retail outlets will be established to meet the (bulky goods) retail needs of residents in the Geraldton and wider Mid-West Region. The ODP seeks to establish a business park which is highly accessible from the regional road network, and internally, is legible and safe for vehicles, cyclists and pedestrians.

The ODP comprises three Precincts that will progressively be developed commensurate with demand. It is expected Precincts 1 and 2 (27,200 square metres GFA) will be developed concurrently, along with the proposed internal public road. Precinct 3 (18,500 square metres GFA) is not expected to be developed until such time as the proposed GNSH is constructed, at which point it is proposed to connect the internal public road with the GNSH, thereby providing access to Precinct 3. Development of a portion of Precinct 3 (as shown on the ODP) will be deferred pending further investigation of the likelihood of a new road link being created to Eighth Street to the north.

The ODP is designed to maximise exposure to passing trade – a pre-requisite to the success of any business park – but to establish a pedestrian-friendly environment within the ODP where pedestrians can move freely between retail outlets without conflict with cars and service vehicles. Bicycle parking and end-of-journey cyclist facilities are also proposed within each Precinct.

It is envisaged that a freehold title subdivision will occur to establish individual lots for *anchor* tenants. The exact position of lot boundaries is not shown on the ODP as it is subject to further negotiation with purchasers / tenants. Regardless, all proposed lots will have legal frontage to a public road and all necessary easements and rights of carriage way will be registered on the Certificates of Title to ensure access in perpetuity over driveways, car parking areas and pedestrian paths.

The enclosed Traffic and Parking Assessment demonstrates that the ODP will not have any adverse effect on the surrounding road network and that adequate car parking is provided to meet demand. The number of car bays proposed also exceeds the minimum standards of LPS5 (gazetted of which is imminent). The Assessment also recommends that the intersection of the proposed public road with the GNSH be provided prior to development of Precinct 3. Discussions with MRWA are continuing and the ODP appropriately annotates the vehicle access arrangements proposed for the ODP.

Investigations by JDSI suggest the ODP is capable of accommodating stormwater from a 1 in 10 year storm event on-site, with overflow from more severe events to be evaluated by a Stormwater Management Plan. This will include drainage / groundwater permeability calculations and may include a cost share arrangement with MRWA to develop retention basins in the GNSH reserve. The Stormwater Management Plan will be prepared at the time of subdivision and any required easements for drainage will be identified.

The ODP and accompanying Design Guidelines will ensure the Geraldton Business Park is developed in an orderly and proper manner.

APPENDIX I

OUTLINE DEVELOPMENT PLAN

GERALDTON BUSINESS PARK OUTLINE DEVELOPMENT PLAN (Sheet 1 of 2)

LEGEND

- ■ ■ ■ ■ ODP BOUNDARY
- PRECINCT BOUNDARY
- INDICATIVE LOT BOUNDARY
- NATURAL GAS PIPELINE
- INDICATIVE BUILDING ENVELOPES
- OPEN AIR DISPLAY / SALES
- LANDSCAPING / DRAINAGE
- FEATURE PAVING / TRAFFIC CALMING / PEDESTRIAN PATHS
- ★ PYLON SIGN LOCATIONS

BUILT FORM

The purposes of these Design Guidelines for the ODP are to:

- Ensure an appropriate development interface to Geraldton-Mount Magnet Road and the proposed GNSH;
- Ensure the built form and general appearance of buildings is of a high standard, commensurate with the intent of the Geraldton Commercial Park.

The Design Guidelines comprise:

- Design Principles (Sheet 2 of the ODP);
- Design Elements, which elaborate on the Design Principles.

VEHICLE ACCESS

Precincts 1 and 2

Vehicle access for Precincts 1 and 2 will be obtained from a new intersection off Geraldton-Mount Magnet Road, adjacent to the eastern boundary of the ODP, as shown.

An interim crossover is proposed to provide a second point of vehicle access from Geraldton-Mount Magnet Road. The interim crossover will remain in use pending construction and / or completion of the GNSH, at which point the crossover is to be removed.

Precinct 3

Upon completion of the GNSH, and subject to the approval of Main Roads WA, a new intersection from the GNSH is proposed, as shown on the ODP. This new intersection will provide a second point of vehicle access to the ODP area and is required to accommodate traffic generated by the development of Precinct 3.

Intersection Designs

All intersections and vehicle crossovers are subject to detailed design and all necessary approvals being obtained from the City of Geraldton-Greenough and Main Roads WA (as applicable), prior to the subdivision and / or development of the ODP.

Vehicle Access to Eighth Street

Ultimately, a new road link may be provided to Eighth Street, to the north of the ODP, via a new public road constructed through Reserves 24569 and 41503, and adjoining Lot 2. Construction of this new link road is subject to land owner consents and all necessary approvals being obtained. Development of the portion of Precinct 3 highlighted on the ODP will be deferred pending further decisions (if any) on the development of, and provision of a road link through, the adjacent land.

PARKING

The table below shows the proposed Gross Floor Area (GFA) and number of car and bicycle parking bays.

Precinct	Gross Floor Area (m ²)	Car Parking Bays	Bicycle Parking Bays	
			Public	Staff
1	12,500	337	8	17
2	14,700	264	10	20
3	18,500	399	12	25
Total	45,700	1,000	30	62

The GFA shown is approximate only and subject to detailed design and approval of Development Applications.

The final number of car parking bays is approximate only and may vary depending on further detailed design. The maximum car parking variation contemplated is - 10% (i.e. 900 bays).

The maximum number of car parking bays provided within the ODP shall not exceed 1,000. For the purpose of assessing land use applications, a parking standard of 1 bay per 75 square metres GFA shall apply.

Bicycle parking is to be provided at a rate of 1 bicycle bay for public use for every 1,500 square metres GFA and 1 bicycle bay for staff use for every 750 square metres GFA.

END-OF-JOURNEY CYCLIST FACILITIES

End-of-journey cyclist facilities to be provided in each Precinct at a rate of 1 unisex shower / change room for the first 5 staff bicycle bays provided and 1 unisex shower / change room for every 10 staff bicycle bays provided thereafter in that Precinct.

Details of end-of-journey cyclist facilities, including location, access and management, to be provided at the Development Application stage, in accordance with suitable conditions of planning approval.

DRAINAGE

Stormwater from a 1 in 1 year storm event to be retained on site. Gully pits / soakwells to be used for run-off from paved areas.

Stormwater from greater than a 1 in 1 year storm event, up to a 1 in 10 year storm event, will be diverted to the landscaped areas on the perimeter of the ODP where these areas will be used for storage and soakage.

For overflow of stormwater from greater than a 1 in 10 year storm event, a landscaped drainage swale in the reserve of the proposed GNSH may be provided in association with Main Roads WA.

A Stormwater Management Plan is to be provided at subdivision stage, in accordance with a suitable condition of subdivision approval, to demonstrate the methodology for collection and disposal of stormwater.

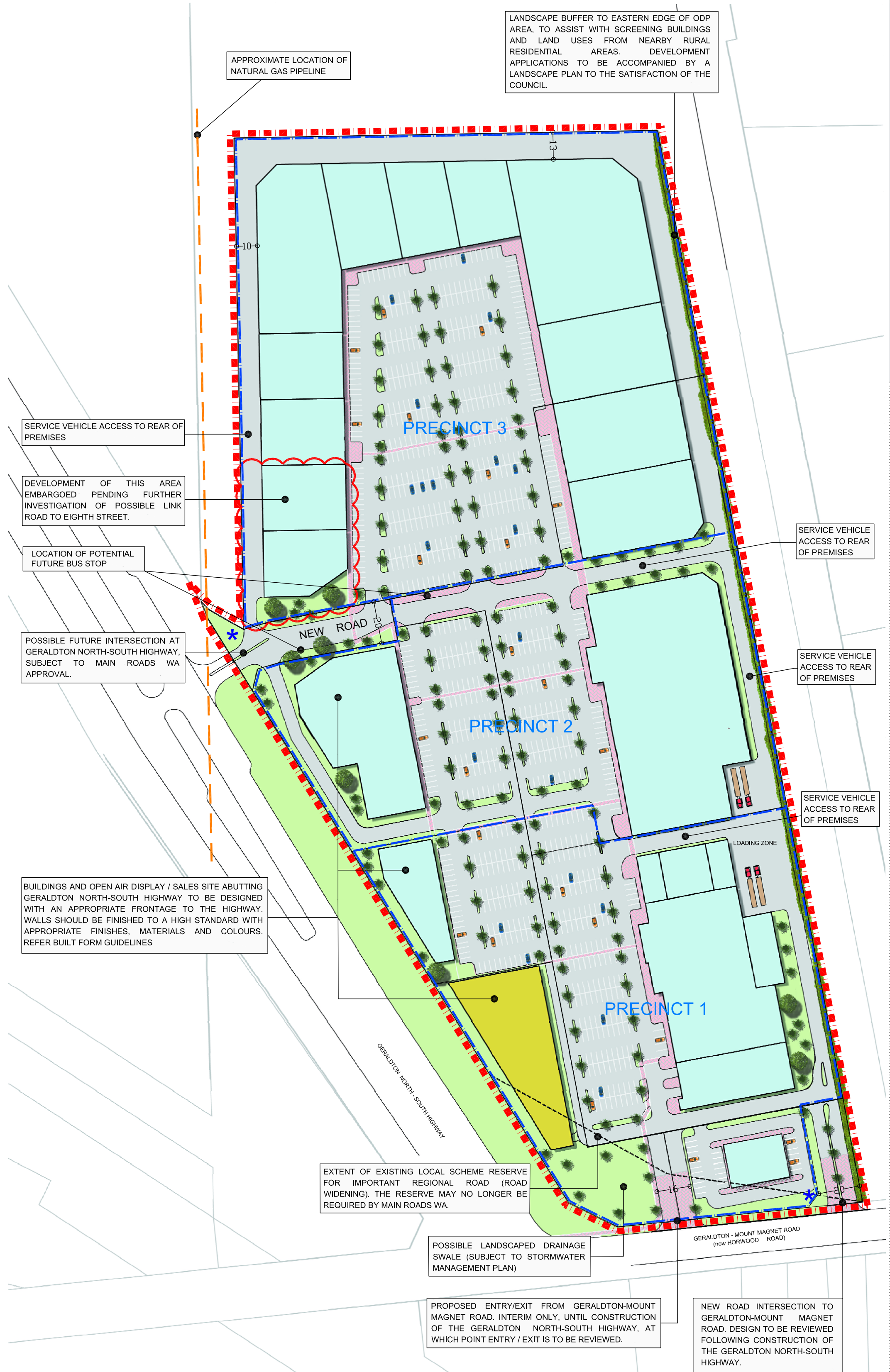
The Stormwater Management Plan is to incorporate Water Sensitive Urban Design principles, wherever possible, including installation of rainwater tanks to collect run-off from roofs for water re-use within the ODP.

SUBDIVISION

It is proposed to subdivide land within the ODP into separate freehold title lots. Indicative lot boundaries are shown on the ODP. The exact location of lot boundaries is subject to approval and specific purchaser / tenant needs.

All lots will have legal frontage to an existing or proposed public road.

All necessary easements for vehicle access, car parking and drainage will be registered on the Certificates of Title for the proposed lots, as required, pursuant to a suitable condition of subdivision approval.



FINAL APPROVAL

Adopted for final approval by resolution of the City of Geraldton - Greenough at the Ordinary meeting of the council held on the ____ day of _____ and the Common Seal of the City of Geraldton - Greenough was hereunto affixed by the authority of a resolution of the Council in the presence of:

MAYOR

CHIEF EXECUTIVE OFFICER

date	20 May 2010	job no.	5494
scale	1:1500@A2	e-ref	051001
designer	A Stewart	drawn	D McCulloch
client	CPG Pty Ltd		

title geraldton business park
outline development plan
address lot 206 mount magnet road,
woorree

GREG ROWE & associates
FOCUSSED ON ACHIEVEMENT

Level 3, 369 Newcastle Street, Northbridge, Western Australia, 6003
email | gra@greg-rowe.com | web | greg-rowe.com
tel | (08) 9221 1991 | fax | (08) 9221 1919

Level 2, 69 Pinjarra road, Mandurah, Western Australia, 6210
email | mandurah@greg-rowe.com | web | greg-rowe.com
tel | (08) 9582 8288 | fax | (08) 9581 2588

291 Marine Terrace, Geraldton, Western Australia, 6530
email | geraldton@greg-rowe.com | web | greg-rowe.com
tel | (08) 9221 1991 | fax | (08) 9221 1919



APPENDIX 2

DESIGN GUIDELINES

ODP DESIGN GUIDELINES

GERALDTON BUSINESS PARK

LOT 206 GERALDTON-MOUNT MAGNET ROAD, WOORREE



CONTENTS

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I.0 Introduction

The Geraldton Business Park is proposed to be established on the land situated at Lot 206 Geraldton-Mount Magnet Road, Woorree.

The site is zoned 'Highway Commercial' under City of Geraldton-Greenough Town Planning Scheme No.4 ('TPS4'). The Zoning and Development Table in TPS4 for the Highway Commercial zone states:

"Any development and/or subdivision will be in accordance with an Outline Development Plan (ODP) adopted by Council and endorsed by the WAPC. Amongst other things, the ODP will detail the proposed internal road network and ultimate and approved vehicle access arrangements to the Highway for each street block, to the satisfaction of Main Roads WA."

An Outline Development Plan ('ODP') has been prepared to satisfy the provisions of TPS4 with respect to the subdivision and development of land zoned 'Highway Commercial.'

The Objective of the ODP is to guide the development of a business park where a range of showroom, warehouse and large format retail outlets will be established to meet the (bulky goods) retail needs of residents in the Geraldton and wider Mid-West Region.

The purposes of these Design Guidelines for the ODP are to:

- » Ensure an appropriate development interface to Geraldton-Mount Magnet Road and the proposed GNSH;
- » Ensure the built form and general appearance of buildings is of a high standard, commensurate with the intent of the Geraldton Business Park.

The Design Guidelines are not intended to be prescriptive. Where it can be demonstrated that the intent of the Design Guidelines can be achieved in a different manner to that shown in the Design Guidelines, the Local Authority should be flexible and consider the merits of the proposal.

The Design Guidelines comprise:

- » Design Principles (Sheet 2 of the ODP);
- » Design Elements, which elaborate on the Design Principles.

The Design Guidelines are set out below.

2.0 Design Principles

Sheet 2 of the ODP (attached) contains Design Principles illustrating the preferred form of development in the Geraldton Business Park.

3.0 Design Elements

The Design Elements elaborate on the Design Principles and are set out below.

3.1 Aesthetic

Aesthetic refers to the visual appearance and architectural character of buildings.

Buildings should have a consistent and contemporary architectural style that suggests 'permanency' and a retail/commercial aesthetic rather than an industrial one.

The main entrance to buildings and tenancies is to be clearly visible and designed to enhance the pedestrian footpath network shown on the ODP.

Architectural form and character should avoid large unrelieved expanses of wall or roof.

3.2 Materials, Colours and Finishes

The use of texture and colour is encouraged.

In general, neutral shades of grey's, creams and whites are encouraged for major areas of walling with features expressed in panels of strong, bold colours.

Roof cladding should be non-reflective. Zinalume should not be approved unless treated with non-reflective finishes, concealed from view, or finished at a low roof pitch.

3.3 Building Setbacks and Frontages

Building envelopes are shown on the ODP.

Buildings are expected to have a nil setback to building envelope boundaries, especially for building frontages that face the central parking / pedestrian spine of the ODP.

Active frontages are to be orientated toward the central parking / pedestrian spine shown on the ODP.

Buildings abutting Geraldton North-South Highway are encouraged to have dual frontages, if possible. Where dual frontage is not possible, the inactivated facade should be finished to a high standard.

The open air display / sales site in Precinct I should be orientated to take advantage of the high level of visibility and exposure to the surrounding road network.

3.4 Building Heights

3.4.1 Precincts 1 and 2

Buildings fronting the proposed Geraldton North-South Highway and Geraldton-Mount Magnet Road are to be restricted to single storey and the parapet or roof (which ever is greater) should not exceed 7 metres in height, to maintain visual connection with developments on the east side of the site.

Buildings on the open air display / sales site are to be limited in size and positioned so as to maximise visibility of the Business Park from surrounding roads.

Buildings on the east side of Precincts 1 and 2 are expected to have a bulk and scale commensurate with their role as the *anchor* bulky-retail stores within the ODP. Taller facades, up to a height of approximately 10 to 12 metres, are anticipated, to accommodate ground level showroom / warehouse areas with upper level (mezzanine) administration areas, if required.

Buildings should create a strong physical edge to the central car park / pedestrian spine and be clearly visible throughout the ODP area, as well as from surrounding roads.

3.4.2 Precinct 3

Buildings within Precinct 3 are expected to have a height of one storey, however, taller façade / parapet wall elements are encouraged to enhance visibility from Precincts 1 and 2 and surrounding roads.

Building heights within Precinct 3 are expected to be in the order of 7 to 10 metres.

3.5 External Service and Storage Areas

Service, storage and bin areas should be located at the rear of buildings and screened from public view.

Plant and equipment should be hidden from view from public areas and roads.

Landscaping to achieve visual screening is acceptable.

Solid forms of screening, such as fencing and walls, are encouraged, and should be designed as an integral part of buildings.

3.6 Lighting

All public areas within Precincts 1, 2 and 3 should be well lit, especially through the central car parking area and along the pedestrian paths shown on the ODP.

Internal lighting from premises can assist with lighting external places after hours, provided security shutters to windows are visually permeable.

Lighting to service roads, loading areas and the rear of buildings should be designed to minimise light spill to adjacent properties, especially along the eastern boundary of the ODP.

The Local Authority may require, as a condition of planning approval, the submission and approval of a Lighting Plan prior to issue of a Building Licence.

3.7 Landscaping and Public Art

High quality landscaping is expected throughout the ODP.

Shade trees shall be provided in the central car parking area at a rate of 1 tree per 15 car bays.

Planting in the landscape strip abutting Geraldton-Mount Magnet Road and the proposed Geraldton North-South Highway should be designed to maximise visibility of the Business Park from surrounding roads.

A landscape strip is required along the eastern boundary of the ODP (as shown) to assist with screening buildings, especially vehicle loading / unloading areas, from the adjacent rural-residential area to the east.

Lawn areas shall be minimised and be low water tolerant.

The Local Authority may require, as a condition of planning approval, the submission and approval of a Landscape Plan prior to issue of a Building Licence.

The proponent of the ODP will make a contribution of \$15,000 toward the provision of public art within the ODP, upon endorsement of the ODP but prior to commencement of development within each Precinct.

3.8 Signage

The signage element of the Design Guidelines seeks to meet the signage visibility needs of tenants while maximising and standardising the design aesthetics of the ODP.

The Local Authority may require, as a condition of planning approval, the submission and approval of a Signage Strategy prior to issue of a Building Licence.

3.8.1 Pylon Signs

Pylon signs are to be located as shown on the ODP. The pylon signs may include the name of the 'Geraldton Business Park' and tenancies therein.

3.8.2 Building Signs

Building signage should contain the business name and/or corporate logo (only).

Signage on the street front parapet of buildings is to be integrated into the overall building design.

Only one (1) tenant sign per building is permitted except for buildings with more than one street frontage where an additional sign may be permitted at the discretion of the City.

Signs must be built and maintained to a high standard, with 3 dimensional approach preferred (rather than a flat sign). Laser cut raised lettering is encouraged.

All building signage facing streets should be illuminated continuously each night (either face lit or internally lit) to enhance the overall presentation of the area and help support security.

Under-awning signage should be restricted to one sign per tenancy and located above the primary entrance. Additional under-awning signage may be supported for tenancies with more than one entry or an extensive frontage.

3.8.3 Street Signs

Only street names will appear on street signs. No tenant names or additional directions will be permitted.

3.8.4 Other Signage

Apart from signage on buildings, the only other signage permitted must relate to provided services/facilities (e.g. water, power), perimeter requirements (e.g. 'Electric Fence') and mandated OH&S requirements (eg. standardised warning signs).

Free-standing street edge signs are discouraged.

The only signs to be used in car parks are those for vehicle/pedestrian directions.



AESTHETIC

- Buildings should have a consistent architectural style, material and colour palette.
- Built form should suggest 'permanency', with a retail/commercial aesthetic rather than an industrial one.

Primary material palette;

- Masonry (eg brick face, rendered brick, stone feature walls)
- Concrete
- Glass

Secondary material palette (used as a highlight only)

- Corrugated iron
- Timber



Awnings and architectural detailing can create interest on an inactivated facade.



Graphic product advertisements provide interest and activation on facades.



Large blank walls are to be avoided.

SIGNAGE

Signage is to be restricted to the following:

- Pylon signage to be located as indicated on the Outline Development Plan.
- Signage on the street front parapet of buildings to be consistent in size, shape and form or treated in a consistent architectural manner between different tenancies.
- Under awning signage to be consistent in size, shape and form. Under awning signage should be restricted to one per tenancy and be located above the primary entrance.
- Additional street edge signage is not permitted.

DUAL FRONTAGES

- Developments fronting the Proposed Geraldton North-South Highway are encouraged to have dual active frontages.
- Where dual frontage is not possible, the inactivated facade should be finished to a high standard. Suitable architectural treatments include the use of different colours, materials and textures, recessed/extruded panels, awnings, lighting or window displays.

SERVICE AREAS

- Loading and servicing areas should be located at the rear of buildings and screened from direct view where possible.

BUILDING HEIGHTS

- Buildings fronting the proposed Geraldton North-South Highway are restricted to single storey and the parapet or roof (which ever is greater) is not to exceed 7m in order to maintain visual connection with developments on the east side of the site.

PEDESTRIAN PATHS

- All pedestrian and dual use paths to have a minimum width of 3 metres.



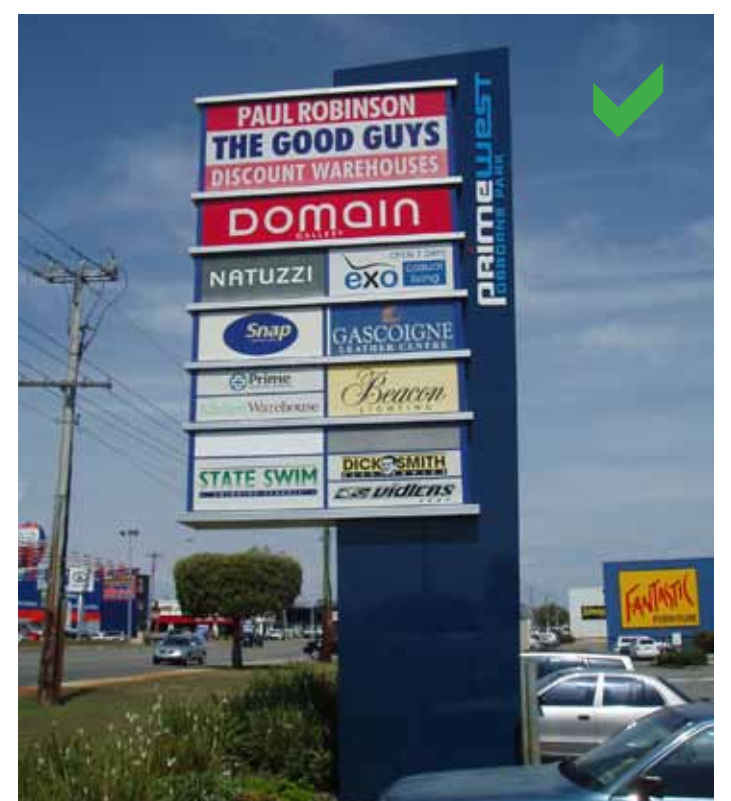
Product displays behind glass provide interest and activation to the street facade.



Retail outlets given their own individual appearance through signage/colour whilst maintaining a regular and consistent architectural form.



Service areas beyond the front facade.



Pylon/podium signage on the street edge.



Service areas should be screened from road or parking areas.



PEDESTRIAN PATHS



Example of a well designed pedestrian path within a car park. Path is approximately 3 metres wide and incorporates landscaping, lighting, signage, and a clearly defined 'zebra' crossing over the driveway.



Example of a badly designed footpath within a car park. The path is narrow adjacent to the car bays and devoid of landscaping / shading.

**GERALDTON BUSINESS PARK
ODP DESIGN GUIDELINES
DESIGN PRINCIPLES
(Sheet 2 of 2)**

date 20 May 2010 job no. 5494
scale 1:2000@A3 e-ref I10902
designer A Stewart drawn M Winfield
client CPG Pty Ltd

Level 3, 369 Newcastle Street, Northbridge, Western Australia, 6003
email | gra@greg-rowse.com | web | greg-rowse.com
tel | (08) 9221 1991 | fax | (08) 9221 1919

title geraldton business park
outline development plan
address lot 206 mount magnet road,
woorree

Level 2, 69 Pinjarra road, Mandurah, Western Australia, 6210
email | mandurah@greg-rowse.com | web | greg-rowse.com
tel | (08) 9582 8288 | fax | (08) 9581 2588

GREG ROWE & associates
FOCUSSED ON ACHIEVEMENT

291 Marine Terrace, Geraldton, Western Australia, 6530
email | geraldton@greg-rowse.com | web | greg-rowse.com
tel | (08) 9221 1991 | fax | (08) 9221 1919



APPENDIX 3

TRAFFIC AND PARKING ASSESSMENT

COMMERCIAL PROPERTIES GROUP
LOT 206 GERALDTON – MOUNT MAGNET ROAD
TRAFFIC AND PARKING ASSESSMENT

March 2010



2/2 Sherwood Court

Perth WA 6000

08 9225 6774 Phone/Fax

0413 607 779 Mobile

Issued on	4 th March 2010	Amendments
Version	3	V2 ODP plan amendment
Reference	600	Parking; Pedestrians, Cyclists and Public Transport

CONTENTS

- 1.0 EXECUTIVE SUMMARY
- 2.0 THE SITE AND SURROUNDING ROAD NETWORK
- 3.0 TRAFFIC GENERATION AND DISTRIBUTION
- 4.0 TRAFFIC IMPACT
- 5.0 ACCESS
- 6.0 PARKING
- 7.0 PEDESTRIANS, CYCLISTS AND PUBLIC TRANSPORT

1.0 EXECUTIVE SUMMARY

Since the preparation of this report the ODP has been amended to reflect comments made by the City of Geraldton–Greenough. As a result of these amendments the expected gross floor area for Precincts 1 and 2 has reduced by about 9%. However, the forecast gross floor area for all 3 precincts remains as originally proposed at 45,700m². As this report has been issued for comment, the interim calculation of traffic movements (Precincts 1 and 2) has not been amended and thus this report will reflect a more robust assessment of the interim impacts.

The calculation of parking requirements has been amended to reflect the current ODP precinct gross floor areas.

Riley Consulting has been commissioned by Commercial Properties Group to consider the traffic issues associated with the proposed Outline Development Plan (ODP) for Lot 206 Geraldton-Mount Magnet Road, Geraldton. The analysis undertaken in this report indicates the following:

- The site is currently occupied by a roadside café accommodating large B-double trucks. No existing traffic data is available for the current land use, but reference to trip generation data would suggest an attraction of about 280 vehicle movements per day.
- Assessment of the future traffic associated with the subject land suggests that Precinct 1 will generate about 1,930 vehicle movements per day. Precinct 2 will increase the site traffic generation to about 3,810 vehicle movements per day and the ultimate development of Precinct 3 will result in approximately 5,950 vehicle movements per day associated with the subject land.
- It is considered that the forecast traffic increases as a result of all three Precincts being developed is unlikely to have a negative impact to the overall operation of the existing and future road network.
- Analysis of the access to Geraldton-Mount Magnet Road has been undertaken to determine the expected Levels of Service during peak periods. The analysis indicates that:

- Access to Geraldton-Mount Magnet Road will operate with very good Levels of Service with Precinct 1.
 - Access to Geraldton-Mount Magnet Road will operate with acceptable Levels of Service with Precincts 1 and 2.
 - Access to Geraldton-Mount Magnet Road will operate with poor Levels of Service with all three Precincts. Additional access to Geraldton North South Highway is recommended to support the development of Precinct 3.
-
- Analysis has been undertaken of the operation of access to the subject land for the longer term scenario of the development of all three Precincts and the construction of the Geraldton North South Highway. As no traffic data is available for the Geraldton North South Highway, analysis has assumed 20,000 vehicles per day (vpd) using this new link. It is considered that this is unlikely to occur for many years and provides a very robust assessment of the access operation. The analysis indicates that both access points can be expected to operate with good Levels of Service.

 - Parking within the subject land has been considered with regard to the City of Geraldton-Greenough Local Planning Scheme No. 5 (Greenough), which indicates that 610 parking bays need to be provided. An assessment of the parking potential shown on the Outline Development Plan (refer Figure 4) indicates that 1,000 parking bays can be accommodated. The level of parking available on the site is in excess to that required and provides flexibility should some land uses change.

2.0 THE SITE AND SURROUNDING ROAD NETWORK

The site is located to the north side of Geraldton–Mount Magnet Road as shown indicatively in Figure 1 below.



Figure 1 Site Location (Source Google Maps)

Roads of significance to the development site are considered below.

Geraldton–Mount Magnet Road

Geraldton–Mount Magnet Road bounds the southern side of the subject land and access is currently provided at three locations. Figure 2 shows an aerial photograph of the existing access to Geraldton–Mount Magnet Road. The road is currently constructed as a single carriageway two lane road with a merging lane provided for traffic entering from Edward Road. Adjacent to the site, a right turn lane for Edward Road begins and is shown in Figure 2. A separation of approximately 190 metres exists between the eastern boundary of the subject site and Edward Road.

Geraldton-Mount Magnet Road is a road train route, but the construction of the Southern Transport Corridor has introduced signage that requires all road trains to use Edward Road when heading east. It was indicated by Main Roads WA (MRWA) that road trains of 52 metres are no longer permitted to use Geraldton-Mount Magnet Road in this locality.

Traffic data from May 2009 has been provided by Main Roads showing a two-way flow of 9,572 vehicles on a Thursday and 6,921 vehicles on a Saturday. Data from July 2008 has also been provided showing flows by direction with slightly lower overall flows. However, given the different months of the surveys, a slight difference would be expected.



Figure 2 Existing Accesses to Geraldton-Mount Magnet Road

It is expected that traffic on Geraldton-Mount Magnet Road should decrease as a result of the construction of the Geraldton Southern Transport Corridor. However, at the time of writing this report, no definitive future traffic forecasts could be obtained, so current traffic flows have been used for the purpose of analysis.

Geraldton Southern Transport Corridor

The Geraldton Southern Transport Corridor opened to traffic on Sunday 7th December 2009, approximately 2 months earlier than planned. This new strategic link provides a high quality link between Geraldton Port, Brand Highway, North West Coastal Highway, Edward Road, Walkaway Road and Geraldton-Mount Magnet Road close to Geraldton Airport. It has been constructed as a single carriageway two-lane road with earthworks undertaken for future dualling. The link can be expected to provide significant easterly access to the Port and areas south of Geraldton townsite. Figure 3 shows the alignment of the link.

The construction of the Southern Transport Corridor can be expected to reduce current traffic movements on Geraldton-Mount Magnet Road and a reduction of 20% to 40% is feasible.



Figure 3 Geraldton Southern Transport Corridor (MRWA website brochure)

Future Geraldton North South Highway

An alignment has been selected for the future Geraldton North South Highway which will bound the western side of the subject land. At the present time funding has not been allocated for this important north-south link, but it is expected to be funded within the next few years.

Traffic forecasts for the Geraldton North South Highway appear to be unavailable (at the time of writing this report) and published reports on the web have not included traffic forecast plots (as stated by the text). However, a table in the body of the *Geraldton Primary North South Road Alignment Selection Report*, prepared by Western Infrastructure, suggests forecast volumes of 16,900vpd to 34,900vpd for Option 4A, but no further detail is provided. It is considered that this is a very long term traffic forecast which without substantiation is questionable. MRWA has also provided data indicating a range of forecast flows from 6,000vpd to 20,000vpd close to Phelps Road. As no proper forecast data is available, a forecast volume of 20,000vpd has been used for the Geraldton North South Highway to assess the site access operation.

Edward Road

Edward Road provides an existing north-south link between Geraldton–Mount Magnet Road and the Geraldton Southern Transport Corridor, which opened in early December 2009. It is constructed as a single carriageway two lane road with turn lanes provided at key intersections. It is currently designated as a road train route.

Traffic data supplied by MRWA indicates a typical daily flow of 5,900 vehicles.

Figure 4 shows the Outline Development Plan used for this report.

GERALDTON BUSINESS PARK OUTLINE DEVELOPMENT PLAN (Sheet 1 of 2)

LEGEND

- ODP BOUNDARY
- INDICATIVE BUILDING ENVELOPES
- OPEN AIR DISPLAY / SALES
- LANDSCAPING / DRAINAGE
- PYLON SIGN LOCATIONS
- FEATURE PAVING / TRAFFIC CALMING / PEDESTRIAN PATHS

BUILT FORM

The purposes of these Design Guidelines for the ODP are to:

- Develop an appropriate development interface to Geraldton-Mount Magnet Road and the proposed ODP;
- Secure the full form and management of building is of a high standard, commensurate with the intent of the Geraldton Commercial Act.

The Design Guidelines comprise:

- Design Principles (Sheet 2 of the ODP);
- Design Elements, which elaborate on the Design Principles.

VEHICLE ACCESS

Precedents 1 and 2

Vehicle access for Precedents 1 and 2 will be obtained from a new intersection off Geraldton-Mount Magnet Road, adjacent to the western boundary of the ODP, as shown.

An interim crossover is proposed to provide a second point of vehicle access from Geraldton-Mount Magnet Road. The interim crossover will remain in use pending construction and/or completion of the ODP, at which point the crossover is to be removed.

Precedent 3

Upon completion of the ODP and subject to the approval of Main Roads WA, a new intersection from the ODP is proposed, as shown on the ODP. This new intersection will provide a second point of vehicle access to the ODP area and is required to accommodate traffic generated by the development of Precedent 3.

Intersection Design

All intersections and vehicle crossovers are subject to detailed design and all necessary approvals being obtained from the City of Geraldton-Greenough and Main Roads WA (as applicable) prior to the subdivision and/or development of the ODP.

Vehicle Access to Eighth Street

Ultimately, a new road link may be provided to Eighth Street, to the north of the ODP, via a new public road constructed through Reserves 24567 and 41503, and adjoining Lot 2. Construction of this new road is subject to land owner consent and all necessary approvals being obtained. Development of the portion of the road highlighted on the ODP will be deferred pending further decisions (if any) on the development of, and provision of a road link through, the adjacent land.

PARKING

The table below shows the proposed Gross Floor Area (GFA) and number of car and bicycle parking bays:

Precedent	Gross Floor Area (m ²)	Car Parking Bays	Bicycle Parking Bays
1	12,500	230	17
2	14,700	344	13
3	18,500	398	20
Total	45,700	1,000	30

The GFA shown is approximate only and subject to detailed design and approval of Development Applications.

The final number of car parking bays is approximate only and may vary depending on further detailed design. The maximum car parking variation contemplated is -10% (to 900 bays).

Bicycle parking is to be provided at a rate of 1 bicycle bay for every 20 car bays. Not less than 30 bicycle bays will be provided, regardless of any variance to the number of onsite car parking bays. Details of the location and number of bicycle parking bays will be provided at the Development Application stage.

END OF JOURNEY FACILITIES

End-of-journey facilities for cyclists include lockers and male and female showers / change rooms.

End-of-journey cyclist facilities to be provided in each Precedent at a rate of 1 locker for every 5 bicycle bays provided in that Precedent and 1 male and 1 female shower / change room for every 10 bicycle bays provided in that Precedent, to a maximum of 4 lockers and 2 male and 2 female shower / change rooms in each Precedent.

Details of end-of-journey cyclist facilities including location, access and management, to be provided at the Development Application stage, in accordance with suitable conditions of planning approval.

DRAINAGE

Stormwater from a 1 in 1 year storm event to be retained on-site. Gully pits / vaults will be used for run-off from paved areas.

Stormwater from greater than a 1 in 1 year storm event, up to a 10 year storm event, will be diverted to the landscaped areas on the perimeter of the ODP where these areas will be used for storage and soakage.

For overflow of stormwater from greater than a 1 in 10 year storm event, a landscaped drainage swale in the reserve of the proposed ODP may be provided in accordance with Main Roads WA.

A Stormwater Management Plan is to be provided at subdivision stage, in accordance with a suitable condition of subdivision approval, to demonstrate the methodology for collection and disposal of stormwater.

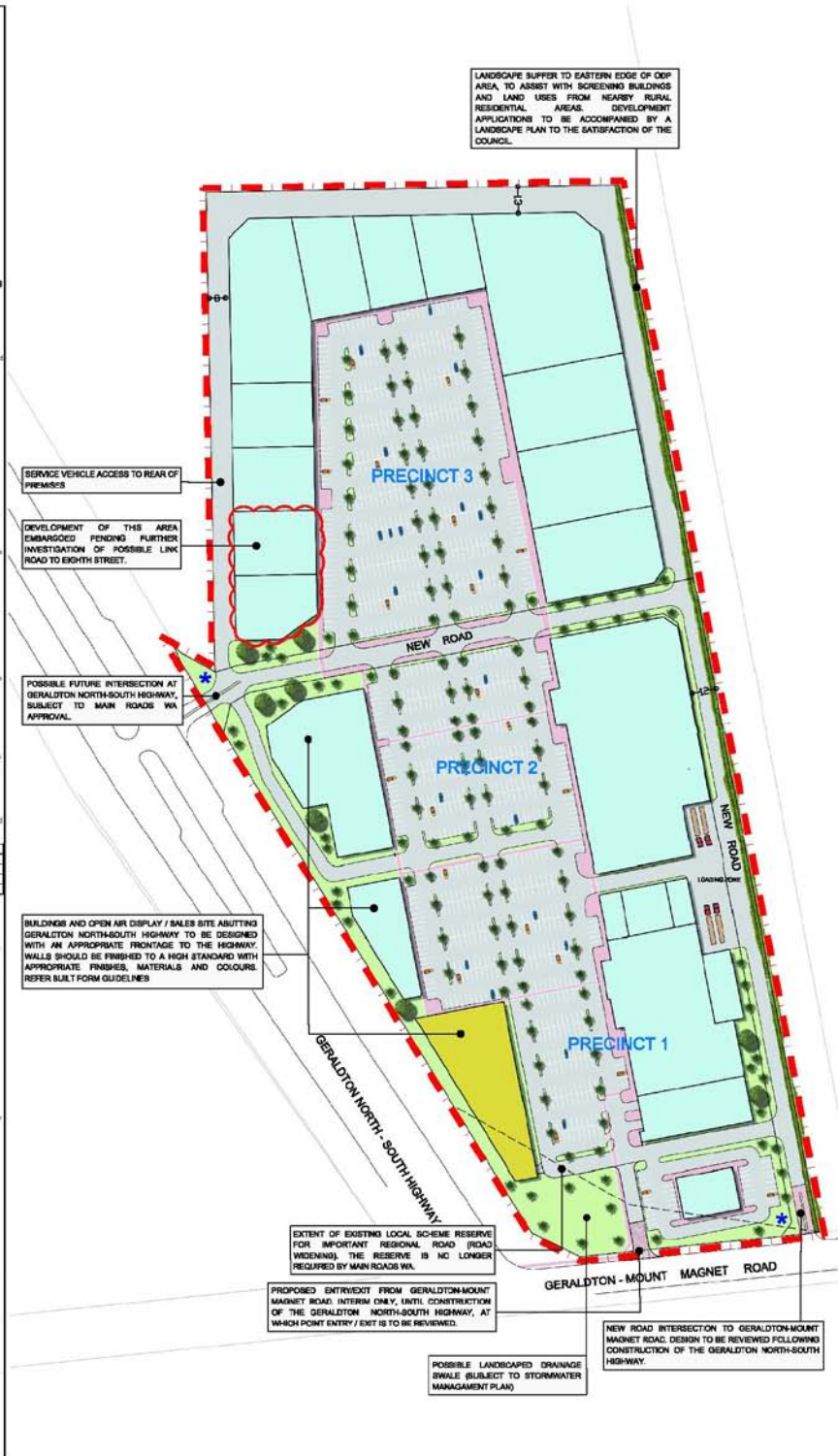
The Stormwater Management Plan is to incorporate Water Sensitive Urban Design principles, wherever possible, including installation of rainwater tanks to collect run-off from roofs for water re-use within the ODP.

SUBDIVISION

It is proposed to subdivide land within the ODP into separate freehold title lots. Proposed lot boundaries are not shown ODP because the exact location is subject to local purchaser / tenant needs.

All lots will have legal frontage to an existing or proposed public road.

All necessary easements for vehicle access, car parking and drainage will be registered on the Certificates of Title for the proposed lots, as required, pursuant to a suitable condition of subdivision approval.



TOWN PLANNING

MASTER PLANNING

URBAN DESIGN

PROJECT MANAGEMENT

date	22 January '10	job no.	5494	title	geraldton business park outline development plan	GREG ROWE & associates FOCUSED ON ACHIEVEMENT
site	E2000@A3	ref	011002	address	lot 206 mount magnet road, wootter	
designer	A. Stewart	drawn	S. Jelicic	author	Lot 2, 61 Phipps Road, Perth, Western Australia, 6000 email: gregor@gregrowe.com.au www.gregrowe.com tel: (08) 9221 1911 fax: (08) 9221 1919	271 Parry Terrace, Geraldton, Western Australia, 6530 email: gregor@gregrowe.com.au www.gregrowe.com tel: (08) 9221 1911 fax: (08) 9221 1919
client	CRG Pty Ltd	project	CRG Pty Ltd	author	Lot 2, 61 Phipps Road, Perth, Western Australia, 6000 email: gregor@gregrowe.com.au www.gregrowe.com tel: (08) 9221 1911 fax: (08) 9221 1919	271 Parry Terrace, Geraldton, Western Australia, 6530 email: gregor@gregrowe.com.au www.gregrowe.com tel: (08) 9221 1911 fax: (08) 9221 1919

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Figure 4 Outline Development Plan (refer to planner for detail)

3.0 TRAFFIC GENERATION AND DISTRIBUTION

Existing Land Uses

The subject site is currently occupied by a transport café that is often used by truck drivers. No traffic attraction data is available for the existing land use, but surveys of cafes in industrial areas indicate a traffic attraction of about 140 vehicles (280 vehicle movements) per day. This would not be considered unreasonable to apply to the existing land use.

The existing land use is expected to generate 280 vehicle movements per day

As this data cannot be confirmed the following assessment has not be reduced to reflect traffic currently associated with the site.

Estimation of Trip Generation

The ODP provides for a commercial centre consisting of bulky goods warehouses. These uses will commonly include home hardware outlets, indoor/outdoor furniture, electrical/white goods outlets, baby needs, beds and bedding and office supplies. Reference to the RTA *Guide to Traffic Generating Developments* indicates a range of trip rates from 2.5 trips per 100m² during the Thursday evening peak to 6.6 trips per 100m² during the Saturday peak period. However, this data is relatively old and does not consider Sunday trading of some stores, which would tend to lower the overall peak generation on a Saturday.

Further research on bulky goods stores was undertaken in the Brisbane area during 2003 by Adam Pekol Consulting. The conclusions of that research indicated that the 85thile trip generation rates for a stand alone store were:

- Thursday morning peak 3.76 trips per 100m² GFA
- Thursday evening peak 4.63 trips per 100m² GFA
- Saturday peak 5.76 trips per 100m² GFA

Appendix A reproduces a graph showing how the expected trip generation of a bulky goods site decreases as the floor area increases. The reason for this is that customers can be expected to visit multiple outlets and the more outlets that are provided, the higher the level of cross-visitation will be. This is demonstrated in the graph.

From Appendix A, it is estimated that a bulky goods outlet site of 13,500m² would generate 1.98 trips per 100m² GFA during the morning peak period and 2.8 trips per 100m² GFA during the evening peak. Based on the trip rates shown above, it is estimated that the

Saturday peak is approximately 32% higher than the Thursday evening peak, indicating a trip rate of 3.7 trips per 100m² GFA.

An outlet site of more than 20,000m² GFA can be expected to generate slightly less and Appendix A indicates 1.8 trips per 100m² GFA during the morning peak period and 2.6 trips per 100m² GFA during the evening peak. Applying a 32% increase for the Saturday peak indicates a trip rate of 3.4 trips per 100m² GFA.

Historical trip generation documents suggest that 20% of traffic associated with commercial developments can be expected during the peak periods. This would suggest a daily trip rate of 13 trips per 100m² on a Thursday and 17 trips per 100m² on a Saturday.

Since the preparation of this report the ODP has been amended to reflect comments made by the City of Geraldton–Greenough. As a result of these amendments the expected gross floor area for Precincts 1 and 2 has reduced by about 9%. As the reduction is less than 10% the calculations shown below have NOT been amended. As a result, the interim assessment of traffic movements (Precincts 1 and 2) will reflect a slightly more robust scenario. The size of the overall development remains the same.

The Proposed Development

The site is to be developed as three precincts as follows:

- Precinct 1 7 commercial buildings totalling 13,803m² gross floor area (now 12,500m²)
- Precinct 2 8 commercial buildings totalling 15,498m² gross floor area (now 14,700m²)
- Precinct 3 8 commercial buildings totalling 16,535m² gross floor area (now 18,500m²)

Traffic Generation of Precinct 1

Precinct 1 will be the first precinct developed and with a total floor area of 13,800m² can be expected to generate:

Thursday morning peak hour (1.98 trips per 100m ² GFA)	273 vehicle movements
Thursday evening peak hour (2.8 trips per 100m ² GFA)	386 vehicle movements
Saturday peak hour (3.7 trips per 100m ² GFA)	510 vehicle movements

The expected daily traffic generation would be 1,930 vehicle movements on a Thursday and 2,550 vehicle movements on a Saturday.

Precinct 1 will generate 1,930 vehicle movements on a typical Thursday

It is noted that local traffic flows are lower during the weekend and therefore the Thursday daily traffic generation is used for the purpose of assessing possible impacts.

Traffic Generation of Precinct 1 and Precinct 2

Precinct 2 will add a further 15,500m² of floor area, creating a precinct of 29,300m². In total the subject site can be expected to generate:

Thursday morning peak hour (1.8 trips per 100m ² GFA)	527 vehicle movements
Thursday evening peak hour (2.6 trips per 100m ² GFA)	762 vehicle movements
Saturday peak hour (3.4 trips per 100m ² GFA)	996 vehicle movements

The expected daily traffic generation would be 3,810 vehicle movements on a Thursday and 4,960 vehicle movements on a Saturday.

Precincts 1 and 2 will generate 3,810 vehicle movements on a typical Thursday

Traffic Generation of all three Precincts

Precinct 3 will add a further 16,500m² of floor area, creating a precinct of 45,800m² GFA. In total the subject site can be expected to generate:

Thursday morning peak hour (1.8 trips per 100m ² GFA)	824 vehicle movements
Thursday evening peak hour (2.6 trips per 100m ² GFA)	1,190 vehicle movements
Saturday peak hour (3.4 trips per 100m ² GFA)	1,557 vehicle movements

The expected daily traffic generation would be 5,950 vehicle movements on a Thursday and 7,785 vehicle movements on a Saturday.

The ultimate development of all three precincts can be expected to generate 5,950 vehicle movements on a typical Thursday

Distribution

Traffic travelling to and from the subject site will be attracted from the surrounding residential areas. To assess the likely attraction, reference is made to population figures provided on the ABS website for local suburbs. Based on the population data, the following attraction can be expected:

North	34.9%
East	3.8%
South	37.3%
West	24.0%

The distribution from the north has been segregated to reflect the likely redistribution of traffic as a result of the construction of the Geraldton North South Highway.

Based on the trip generation rates and the distribution assumptions used, Figure 5 shows the anticipated changes to local traffic movements as a result of the proposed development.

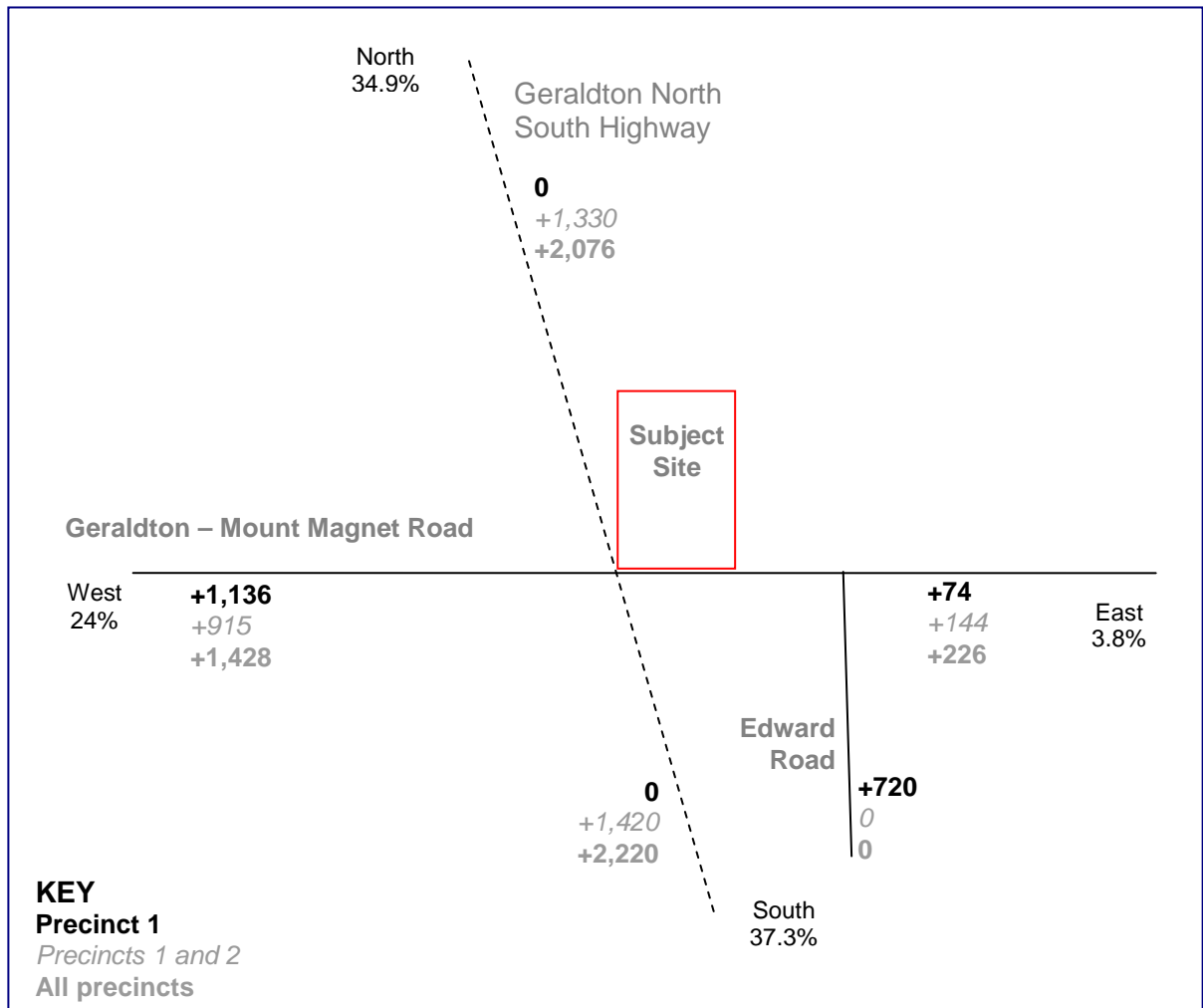


Figure 5 Forecast Daily Traffic Movements (Indicative Road Layout)

4.0 TRAFFIC IMPACT

Figure 5 indicates the anticipated traffic increases to the local road network assuming that the development traffic is 100% new to the road network. Table 1 provides a comparison of the existing daily traffic flows and the expected increases as a result of the development of Precinct 1. Based on the existing land uses generating about 280 movements per day, it can be expected that the proposed redevelopment of the site would increase local traffic flows less than shown in this report.

Table 1 Precinct 1 Increases to Local Road Network

Road	Daily Flow	Development	% change
Geraldton–Mount Magnet Road west	9,572	+1,136	+11.8%
Geraldton–Mount Magnet Road east	9,572	+74	<1%
Edward Road	5,900	+720	+12%
North South Highway	Assumed un-constructed		

Table 1 indicates that the expected traffic increases east of the subject site are likely to be low and less than a 1% increase to current daily movements. In traffic engineering terms it is recognised that daily traffic flows can vary by +/-5% and when a development increases the daily flow within this range it is considered to have no significant impact.

Table 2 Road Type Levels of Service (LoS) by Daily Volume

LOS	Single Carriageway ¹	2 Lane Boulevard ²	Dual Carriageway (4 Lanes) ³	Dual Carriageway (4 Lane Clearway) ³	Freeway per Lane ⁵
A	2,400vpd	2,600vpd	24,000vpd	27,000vpd	8,000
B	4,800vpd	5,300vpd	28,000vpd	31,500vpd	11,000
C	7,900vpd	8,700vpd	32,000vpd	36,000vpd	13,000
D	13,500vpd	15,000vpd	36,000vpd	40,500vpd	16,000
E	22,900vpd	25,200vpd ⁴	40,000vpd	45,000vpd	18,000
F	>22,900vpd	>25,200vpd ⁴	>40,000vpd	>45,000vpd	19,000

¹ Based on Table 3.9 Austroads - Guide to Traffic Engineering Practice Part 2

² Based on single carriageway +10% (supported by Table 3.1 Austroads - Guide to Traffic Engineering Practice Part 3) – Boulevard or division by medians.

³ Based on RRR Table 3.5 - mid-block service flow rates (SF.) for urban arterial roads with interrupted flow. Using 60/40 peak split.

⁴ Note James Street Guildford passes 28,000vpd.

⁵ Based on % of lane capacity at 2,000v/h where A =40% B=55%, C= 65% D=80%, E=90% F=>95%

Traffic flows west of the subject site can be expected to increase by less than 12% and would be considered significant. However, it is expected that traffic flow may be reducing as a result of the Southern Transport Corridor, so the expected increase may just result in

current conditions being maintained. To assess the possible impacts that the increase in traffic may have, Table 2 is provided and considers the daily traffic flow and the Level of Service that may be expected.

The current daily traffic flow on Geraldton-Mount Magnet Road is 9,572 vehicles and reference to Table 2 indicates that Level of Service C would be experienced. The increase of 1,136 vehicles per day could increase the flow to 10,708 vehicles per day. Reference to Table 2 indicates that Level of Service C would be maintained.

The increase to Edward Road is also 12% and whilst significant, reference to Table 2 indicates that Level of Service B would be maintained.

The development of Precinct 1 is unlikely to affect current Levels of Service experienced on the local road network

Future Impacts

Table 3 shows the impact of Precincts 1 and 2 and assumes that the Geraldton North South Highway is constructed. Table 4 shows the forecast traffic increases as a result of full development of the site.

Table 3 Precincts 1 and 2 Increases to Local Road Network

Road	Daily Flow	LoS	Development	% change	LoS
Geraldton–Mount Magnet Road east	9,572	D	+915	+9.5%	D
Geraldton–Mount Magnet Road west	9,572	D	+144	+1.5%	D
Edward Road	5,900	C	+0	0%	C
North-South Highway north	20,000	A	+1,330	+6.6%	A
North-South Highway south	20,000	A	+1,330	+6.6%	A

Table 4 Full Development Increases to Local Road Network

Road	Daily Flow	LoS	Development	% change	LoS
Geraldton–Mount Magnet Road east	9,572	D	+1,428	+14.9%	D
Geraldton–Mount Magnet Road west	9,572	D	+226	+2.3%	D
Edward Road	5,900	C	+0	0%	C
North-South Highway north	20,000	A	+2,076	+10.3%	A
North-South Highway south	20,000	A	+2,220	+11.1%	A

The assessment of the expected impacts to the surrounding road network can be seen to be significant in percentage terms. However, it can be seen that the forecast traffic increases are unlikely to affect the Levels of Service that affected road are expected to have. On this basis it is concluded that the proposed development is unlikely to have a significant negative impact to the local road network.

It is consider that full development of the subject land is unlikely to have a negative impact to the operation of the local road network

5.0 ACCESS

Access to the subject site is currently provided by two wide crossovers to Geraldton–Mount Magnet Road and an unmade crossover adjacent to the eastern boundary of the site. The existing crossovers provide access for road trains, but such large vehicles would not be expected to use the future land uses of the site.

The proposed access to the subject land is considered in two stages as the development of Precinct 3 is likely to occur after the construction of the Geraldton North South Highway. It is expected that the site will be developed to support continuing population growth of the region. Figure 2 shows the current access to the site.

Since the preparation of this report the ODP has been amended to reflect comments made by the City of Geraldton–Greenough. As a result of these amendments the expected gross floor area for Precincts 1 and 2 has reduced by about 9%. As the reduction is less than 10% the calculations shown below have NOT been amended. As a result, the interim assessment of traffic movements (Precincts 1 and 2) will reflect a slightly more robust scenario. The size of the overall development remains the same.

Development of Precinct 1

Initial development of the site will be for 13,800m² (now 12,500m²) of floor area comprising two major tenants and several minor tenancies. Access can only be made to Geraldton-Mount Magnet Road and the ODP indicates an access located to the western side of the site. For road safety reasons it is recommended to provide a right turn lane for traffic to enter the subject site and with a posted speed of 80kph, a deceleration length of 100m (including taper) is recommended by Austroads.

An existing turning lane has been provided to Edward Road, which is located approximately 200 metres east of the eastern site boundary. Currently road trains turn right into Edward Road and the use of a longer deceleration distance can be witnessed. A left turn acceleration lane is also provided for traffic entering Geraldton-Mount Magnet Road from Edward Road which reduces to a single lane at (approximately) the western boundary of the subject land. Therefore it is considered that the greater separation that can be achieved between Edward Road and the proposed main access to the site, the safer the operation of the access should be.

Figure 6 shows the proposed location of the main site access, which has an approximate separation of 180 metres from the start of the deceleration lane for Edward Road. The location of the delivery vehicle access is also shown and has a separation of approximately 30 metres from the Edward Road deceleration lane. The location of the access points is considered to give ample separation between site customer traffic and the turning requirements of 36 metre road trains using Edward Road.



Figure 6 Interim Access Location

Visibility

Photographs 1 and 2 show the visibility achieved along Geraldton-Mount Magnet Road from the subject site. Austroads suggests an approach sight distance of 115 metres for an 80kph speed environment, which is easily achieved for the proposed accesses.



Photo 1 Looking East



Photo 2 Looking West

Operational Assessment

The forecast peak period traffic flows have been calculated based on the trip generation rate and population distribution and are show in Appendix B. Analysis of the existing road and the proposed access with a right turn lane and left turn lane provided for the site has been undertaken using Sidra. The results of the analysis are shown in the following tables.

Table 5 Mount Magnet Road Access with Precinct 1

Approach	V/C	Average Delay	LoS
Thursday PM Peak Hour			
Mount Magnet Road East			
Ahead	0.126	10.7	A
Right	0.222	17.5	B
Site Access			
Left	0.163	17.2	B
Right	0.236	17.8	B
Mount Magnet Road West			
Left	0.065	10.9	A
Ahead	0.212	10.7	A
Saturday Peak Hour			
Mount Magnet Road East			
Ahead	0.92	10.7	A
Right	0.157	12.2	A
Site Access			
Left	0.191	16.2	B
Right	0.249	16.0	B
Mount Magnet Road West			
Left	0.085	10.9	A
Ahead	0.171	10.7	A

Where V/C = Volume / Capacity Delay = Average delay to vehicles LoS = Level of Service A= excellent, F= unacceptable (HCM Method)

Table 5 shows the Sidra summary analysis for the proposed site access operating with current traffic flows and the full development of Precinct 1. Current traffic volumes have been used as it is expected that the opening of the Geraldton Southern Transport Corridor would reduce traffic demand on Geraldton-Mount Magnet Road, however there is no data available to quantify if this is true. The table demonstrates that very good Levels of Service can be expected for all movements.

The proposed access will operate with very good Levels of Service with the development of Precinct 1

Further analysis is provided to consider the operation of the access with the development of Precincts 1 and 2, which may occur within 5 years. To provide robustness to the assessment, traffic growth at 3%pa has been applied.

Table 6 Mount Magnet Road Access with Precincts 1 and 2 (5 years growth)

Approach	V/C	Average Delay	LoS
Thursday PM Peak Hour			
Mount Magnet Road East			
Ahead	0.147	10.7	A
Right	0.608	31.8	C
Site Access			
Left	0.411	23.0	B
Right	0.591	26.3	B
Mount Magnet Road West			
Left	0.122	10.9	A
Ahead	0.245	10.7	A
Saturday Peak Hour			
Mount Magnet Road East			
Ahead	0.106	10.7	A
Right	0.854	50.3	D
Site Access			
Left	0.438	20.3	B
Right	0.619	23.2	B
Mount Magnet Road West			
Left	0.164	10.9	A
Ahead	0.198	10.7	A

Where V/C = Volume / Capacity Delay = Average delay to vehicles LoS = Level of Service A= excellent, F= unacceptable (HCM Method)

Table 6 shows the Sidra summary analysis for the proposed site access operating with current traffic flows with growth at 3%pa for 5 years and the full development of Precincts 1 and 2. The table demonstrates that good Levels of Service can be expected for all movements. The right turn entry to the site operates with Level of Service C on a Thursday evening peak and Level of Service D on Saturday. The forecast Levels of Service are acceptable. Better Levels of Service are likely to occur as traffic is unlikely to increase at the rate used for this assessment.

The development of Precincts 1 and 2 can be accommodated by the proposed access to Geraldton-Mount Magnet Road

Analysis is undertaken to assess the possible impact of all three Precincts being developed with access solely to Geraldton-Mount Magnet Road. A 10 year time frame has been used for this scenario with growth at 3%pa.

Table 7 Mount Magnet Road Access with All Precincts

Approach	V/C	Average Delay	LoS
Thursday PM Peak Hour			
Mount Magnet Road East			
Ahead	0.186	10.7	A
Right	1.289	326.6	F
Site Access			
Left	0.843	44.8	D
Right	1.282	297.1	F
Mount Magnet Road West			
Left	0.198	10.9	A
Ahead	0.285	10.7	A
Saturday Peak Hour			
Mount Magnet Road East			
Ahead	0.164	10.7	A
Right	1.324	364.2	F
Site Access			
Left	0.736	27.5	B
Right	1.115	146.6	F
Mount Magnet Road West			
Left	0.260	10.9	A
Ahead	0.231	10.7	A

Where V/C = Volume / Capacity Delay = Average delay to vehicles LoS = Level of Service A= excellent, F= unacceptable (HCM Method refer

Table 7 shows the Sidra summary analysis for the proposed site access operating with current traffic flows with growth at 3%pa for 10 years and the full development of all Precincts. The table shows that the right turn movements can be expected to operate with unacceptable Levels of Service. It is evident that additional access will be required to support the development of Precinct 3.

Additional access is required to support Precinct 3

Whilst the analysis indicates additional access is required to support Precinct 3, there will be 2 accesses to Geraldton-Mount Magnet Road prior to the Geraldton North South Highway construction. It could be expected therefore that the delays indicated would be shared and

the accesses may operate in an acceptable manner. Should the Geraldton North South Highway not be constructed prior to the development of Precinct 3 it is recommended that the access arrangements be reviewed.

Access with the Geraldton North South Highway

At some future time the Geraldton North South Highway will be constructed and traffic signals are expected to control its intersection with Geraldton-Mount Magnet Road. The access shown to serve the development of Precinct 1 will be too close to the traffic signals to allow right turn entry or exit in a safe and acceptable manner. At this time the access will be repositioned further east to the proposed delivery access point. It can be expected that traffic turning right to Edward Road will be redistributed to the Geraldton North South Highway and the provision of greater separation to the site access will no longer be an issue. A plan of the proposed future access arrangement has been prepared by Transcore and is attached as Appendix H.

It is proposed to take access to the Geraldton North South Highway using a standard priority controlled intersection (to MRWA design guidelines). The access is notionally shown to the northern boundary of the site and provides a separation of 300+ metres. The location of the proposed access is restricted by land ownership and the presence of a gas pipeline easement to the north of the subject land. Intersection spacing is typically governed by the necessity to provide turning lanes and in an 80kph environment a minimum spacing of 200 metres could be achieved. However, it is noted that MRWA view the Geraldton North South Highway as a major transport linkage and a greater separation is preferable. To this end, the ODP indicates access as far as possible from the proposed traffic signals at Geraldton-Mount Magnet Road. A plan of the proposed future access arrangement to the Highway has been prepared by Transcore and is attached as Appendix I.

The traffic movements have been reviewed to consider the likely redistribution of site traffic as a result of access to Geraldton North South Highway. Appendix J shows the expected traffic movements at each access. Table 8 shows the Thursday PM peak period analysis which assumes current traffic flows are maintained on Geraldton-Mount Magnet Road and Geraldton North South Highway carries 20,000vpd with 51% in the peak direction.

Table 8 Ultimate Development Access Operation Thursday PM Peak

Approach	V/C	Average Delay	LoS
Geraldton-Mount Magnet Road Access			
Mount Magnet Road East			
Ahead	0.123	10.5	A
Right	0.119	17.2	B
Site Access			
Left	0.077	16.1	B
Right	0.309	17.6	B
Mount Magnet Road West			
Left	0.093	10.9	A
Ahead	0.205	10.5	A
Geraldton North South Highway Access			
Geraldton NS Highway South			
Ahead	0.238	0	A
Right	0.405	20.3	B
Site Access			
Left	0.568	21.6	B
Right	0.879	33.6	B
Geraldton NS Highway North			
Left	0.183	11.8	A
Ahead	0.248	0	A

Where V/C = Volume / Capacity Delay = Average delay to vehicles LoS = Level of Service A= excellent, F= unacceptable (HCM Method)

The analysis indicates that both accesses can be expected to operate in an acceptable manner with the full development of the Outline Development Plan.

The ultimate development can be accommodated by the proposed accesses

Visibility to Geraldton North South Highway

The Geraldton North South Highway is unmade and would be constructed to current standards regarding its horizontal and vertical alignment. There can be no reason why any access to this new road would not achieve visibility to appropriate Austroads standards.

6.0 PARKING

Car parking is to be provided in accordance with the City of Geraldton–Greenough Local Planning Scheme No.5 (Greenough) as provided by the City of Geraldton. Planning Scheme No.5 sets out the following car parking requirements:

- Warehouse 1 bay per 100m² GFA
- Video sales / hire 1 bay per 15m² GFA
- Showroom 1 bay per 75m² GFA
- Hire service 1 bay per 50m² GFA

At this stage the ultimate uses of each building are unknown, but it is the intention that the precincts provide showroom / warehouse style opportunities to service Geraldton. On this basis the parking requirement for showroom uses provides a good average parking requirement to be applied to the subject site. The calculations provided below are based on the current ODP shown as Figure 4.

- Precinct 1 12,500m² gross floor area @ 1 per 75m² 167 bays
- Precinct 2 14,700m² gross floor area @ 1 per 75m² 196 bays
- Precinct 3 18,500m² gross floor area @ 1 per 75m² 247 bays

In total 610 car bays should be provided to accord with planning Scheme No 5.

Car parking shown on the ODP indicates the following:

- Precinct 1 337 bays
- Precinct 2 264 bays
- Precinct 3 399 bays

A total of 1,000 parking bays are shown by the ODP.

The Scheme is shown to require a total of 610 parking bays for the proposed floor area of showroom activity, the ODP shows 1,000. As a sensitivity test, the development is considered as hire services (1 bay per 50m²). Using this parking requirement a total of 914 bays would be required. Thus it can be seen that based on the current planning scheme, ample car parking can be provided over the site.

It can be further considered that should some units be used for uses other than showroom, then additional parking is unlikely to be required. This matter is only likely to have any significance at the time that Precinct 3 is developed and it would be possible to reassess the parking at that time.

A review of the car park layouts indicates general conformity to the requirements of AS2890.1, however this is subject to the development application.

7.0 PEDESTRIANS, CYCLISTS AND PUBLIC TRANSPORT

Pedestrians

The site is located approximately 3.5 kilometres east of Geraldton town centre and is surrounded by industrial land uses and rural residential lots. It is therefore unlikely that there will be a significant attraction for walking to and from the subject site.

However, pedestrian paths are provided through the site to ensure safe passage of pedestrians between each of the tenancies (refer to the ODP). Pedestrian movement will most likely occur in a north-south direction along the active frontages of buildings, however, due to the length of these frontages, it is anticipated that there will be a fair amount of east-west pedestrian movement through the central car park. For this reason, a series of dedicated and equally-spaced east-west pedestrian paths are proposed through the car park, as shown on the ODP. Where these paths occur, car bays have been removed to establish dedicated pedestrian zones in front of buildings.

A pedestrian footpath is also proposed within the reserve of the east-west (internal) public road, to provide a further means of east-west pedestrian movement across the ODP. A pedestrian path is not proposed within the reserve of the north-south public road on the ODP's eastern boundary as it is not anticipated that there will be any significant pedestrian movement in this location. A pedestrian path is proposed adjacent to the interim entry / exit driveway from Geraldton-Mount Magnet Road, where it will link into the public pedestrian footpath network.

In addition, the City has indicated a dual use path (minimum width of 3 metres) will be required at the subdivision stage to link with the existing pedestrian network at the junction of Utakarra Road and Alexander Street. The path is to be provided on the western boundary of the ODP, adjacent to the proposed Geraldton North South Highway.

As indicated in the planning report for the ODP, all pedestrian and dual use paths are to have a minimum width of 3 metres. Where footpaths cross roads and car parking aisles, feature paving will be used. The design of all pedestrian areas, including paving, kerbs, hand rails and wheelchair access ramps, will be detailed at the time of construction, in accordance with relevant applicable standards.

Cycling

The City of Geraldton-Greenough has adopted the International Charter for Walking and Cycling and to this end has requested the provision of cycle parking to complement the proposed development. It is possible that staff within the ODP may cycle to work. It is unlikely that customers of bulky goods outlets would cycle due to the nature of the retail activity. However, if a safe and appropriate path is provided, then the opportunity will exist.

The ODP has indicated a path linking the future traffic signals at Geraldton-Mount Magnet Road / Geraldton North South Highway intersection to the proposed development. Whilst cycling can be accommodated safely within the ODP, it is important that appropriate crossing facilities are provided at the future traffic signals. This is a matter the City of Geraldton-Greenough should discuss and pursue with MRWA.

There are few guidelines on the rate of provision of cycle parking, although research has identified the document from New South Wales attached as Appendix L. This guideline sets out bicycle parking levels for various land uses and generally suggests the provision of 3%-5% for staff cycle parking and 5%-10% cycle parking for customers. However, it is very subjective as to whether such a high level of cycle parking would be utilised at the subject site. It is suggested therefore that 5% of the car parking requirement set out for any development be additionally provided as cycle parking. Thus for every 100 car parking bays, 5 cycle racks should be provided.

Notwithstanding this advice, the City of Geraldton-Greenough has requested, and the ODP proposes, that bicycle parking be provided at the following rates:

- Public Use: 1 bay per 1,500 square metres GFA; and
- Staff Use: 1 bay per 750 square metres GFA.

Accordingly, the ODP proposes a total of 30 bicycle bays for public use and 62 bicycle bays for staff use. In addition, end-of-journey facilities (shower / change room) are proposed for staff use, at a rate of one unisex shower / change room for the first five staff bicycle bays and one unisex shower / change room for every ten staff bicycle bays provided thereafter. The ODP report acknowledges that this represents the minimum rate of provision and a greater number of end-of-journey facilities may be provided should a Green Travel Plan for the ODP result in higher demand for cycling in the future.

Any cycle parking must be located in high visibility areas to reduce vandalism and theft of cycles. A useful guide regarding cycle parking can be found at <http://www.vtpi.org/tdm>.

Bus Services

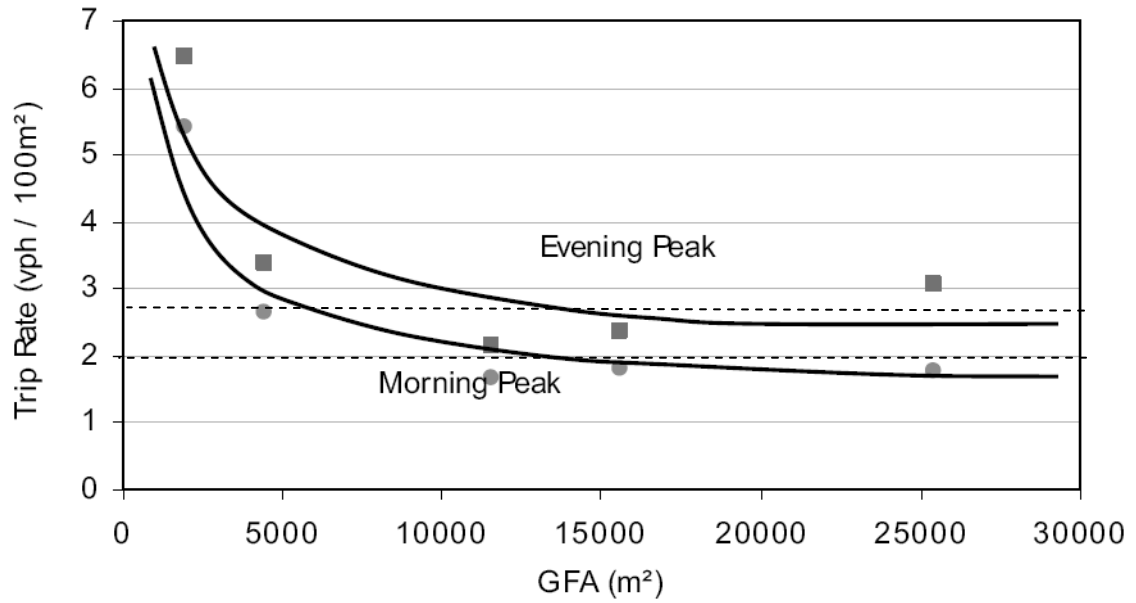
The site is located close to rural-residential and residential areas which presently generate a level of public transport (bus) passenger demand. It is anticipated the ODP, once developed, will also generate a level of passenger demand.

Tran-Geraldton Service 101 is a weekday (four times daily) circular service between the centre of Geraldton and the suburbs of Utaarra, Karloo and Rangeway. The service passes within approximately 150 metres of the site, at the junction of Utaarra Road and Alexander Street.

It is possible this bus service could be diverted through the ODP in the future. For this reason, provision is made for a future bus stop in the reserve of the proposed east-west road running through the ODP.

The City may require the submission of a Green Travel Smart Plan as and when Development Applications are made.

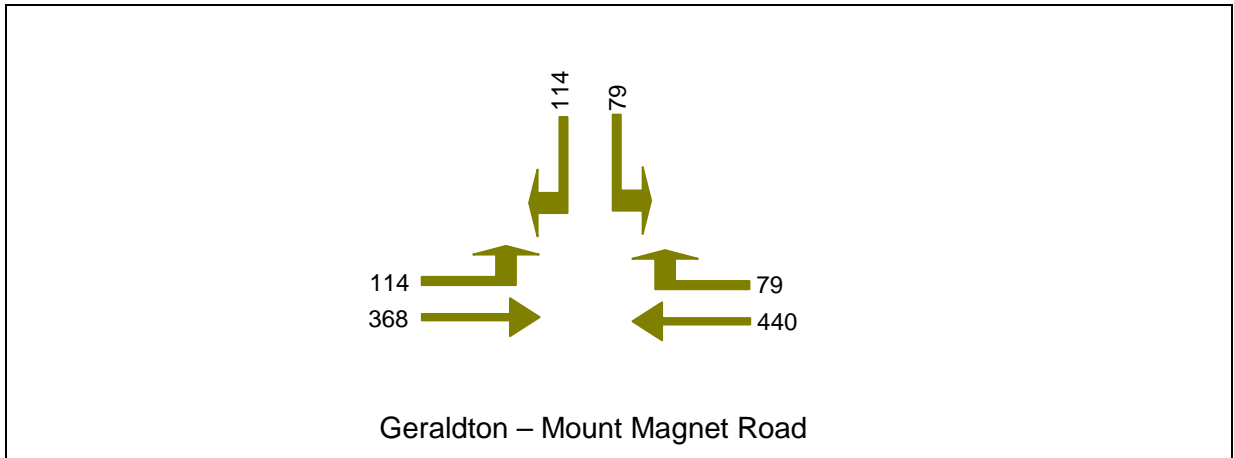
APPENDIX A
Recommended Bulky Goods Site Trip Generation



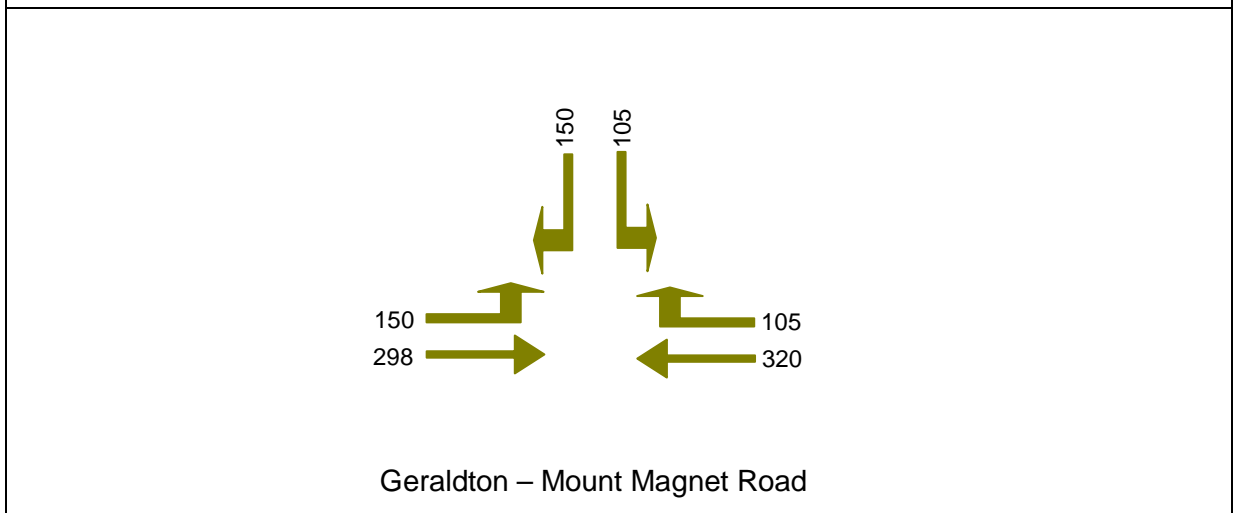
Taken from: *Does size matter? – bulky goods retail trip generation and car parking demands* researched and published by Adam Pekol Consulting.

APPENDIX B

Peak Period Access Flows



PM Peak Period (5pm to 6pm) Interim Access



Saturday Peak Period (11am to 12pm)

APPENDIX C

GERALDTON-MOUNT MAGNET ROAD INTERIM ACCESS ANALYSIS

**Geraldton-Mount Magnet Road
Interim Access Thursday PM Peak
Give-Way Sign Controlled Intersection**

Table S.15 - CAPACITY AND LEVEL OF SERVICE

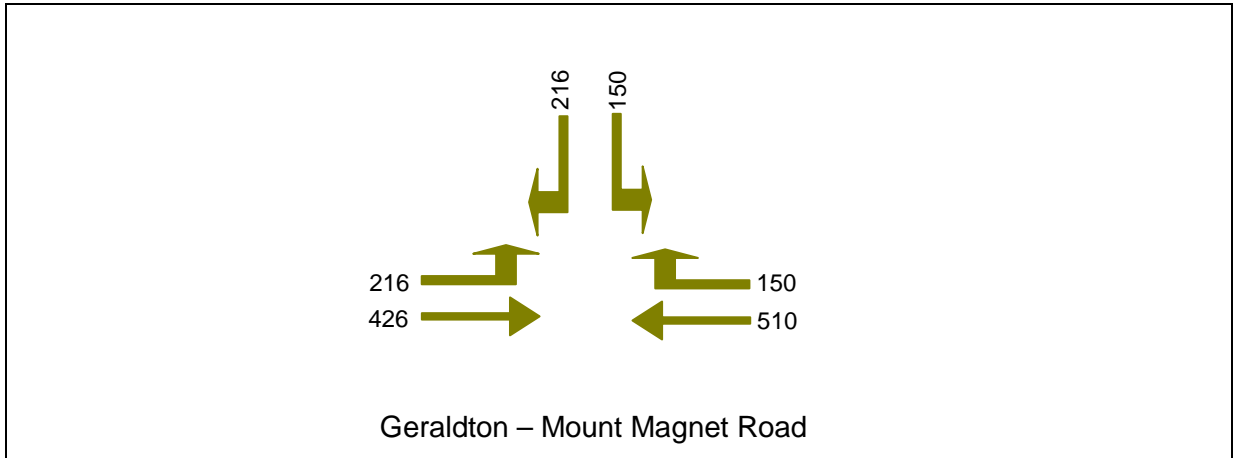
Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	(m)
East: Mount Magnet Road East								
4	T	463	3663	0.126	10.7	A	0.0	0
5	R	83	374	0.222	17.5	B	1.1	8
		546		0.222	11.8	A	1.1	8
North: Site Access								
7	L	83	508	0.163	17.2	B	0.8	5
8	R	120	508	0.236*	17.8	B	1.2	8
		203		0.236	17.6	B	1.2	8
West: Mount Magnet Road West								
10	L	120	1857	0.065	10.9	A	0.0	0
11	T	388	1830	0.212	10.7	A	0.0	0
		508		0.212	10.8	A	0.0	0
ALL VEHICLES:		1257		0.236	12.3	NA	1.2	8

**Geraldton-Mount Magnet Road
Interim Access Saturday Peak 11AM to 12PM
Give-Way Sign Controlled Intersection**

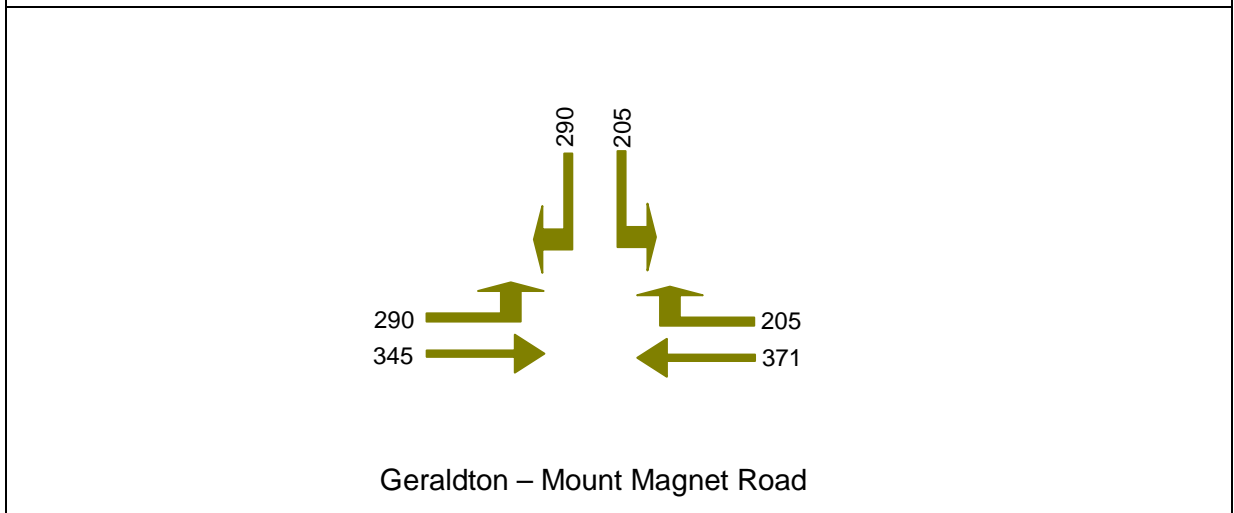
Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	(m)
East: Mount Magnet Road East								
4	T	337	3660	0.092	10.7	A	0.0	0
5	R	111	705	0.157	12.2	A	0.7	5
		448		0.157	3.0	A	0.7	5
North: Site Access								
7	L	111	581	0.191	16.2	B	0.9	7
8	R	158	635	0.249*	16.0	B	1.3	9
		269		0.249	16.1	B	1.3	9
West: Mount Magnet Road West								
10	L	158	1857	0.085	10.9	A	0.0	0
11	T	313	1832	0.171	10.7	A	0.0	0
		471		0.171	3.7	A	0.0	0
ALL VEHICLES:		1188		0.249	6.2	NA	1.3	9

APPENDIX D
Peak Period Access Flows Precinct 1 and Precinct 2 Interim Access



PM Peak Period (5pm to 6pm) Interim Access



Saturday Peak Period (11am to 12pm)

APPENDIX E

GERALDTON-MOUNT MAGNET ROAD INTERIM ACCESS PRECINCTS 1 AND 2

**Geraldton-Mount Magnet Road 5yr growth @3%pa
Precincts 1 and 2 Serviced From Interim Access Thursday PM Peak
Give-Way Sign Controlled Intersection**

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	Queue (m)

East: Mount Magnet Road East								
4	T	537	3661	0.147	10.7	A	0.0	0
5	R	158	260	0.608*	31.8	C	4.2	30
		695		0.608	15.5	B	4.2	30

North: Site Access								
7	L	158	384	0.411	23.0	B	2.3	16
8	R	227	384	0.591	26.3	B	4.0	28
		385		0.591	24.9	B	4.0	28

West: Mount Magnet Road West								
10	L	227	1857	0.122	10.9	A	0.0	0
11	T	449	1831	0.245	10.7	A	0.0	0
		676		0.245	10.8	A	0.0	0

ALL VEHICLES:		1756		0.608	15.8	NA	4.2	30

**Geraldton-Mount Magnet Road with 5yr growth @3%pa
Interim Access Saturday Peak 11AM to 12PM Precincts 1 and 2
Give-Way Sign Controlled Intersection**

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	Queue (m)

East: Mount Magnet Road East								
4	T	390	3662	0.106	10.7	A	0.0	0
5	R	216	253	0.854*	50.3	D	9.2	64
		606		0.854	24.8	B	9.2	64

North: Site Access								
7	L	216	493	0.438	20.3	B	2.8	19
8	R	305	493	0.619	23.2	B	4.8	34
		521		0.619	22.0	B	4.8	34

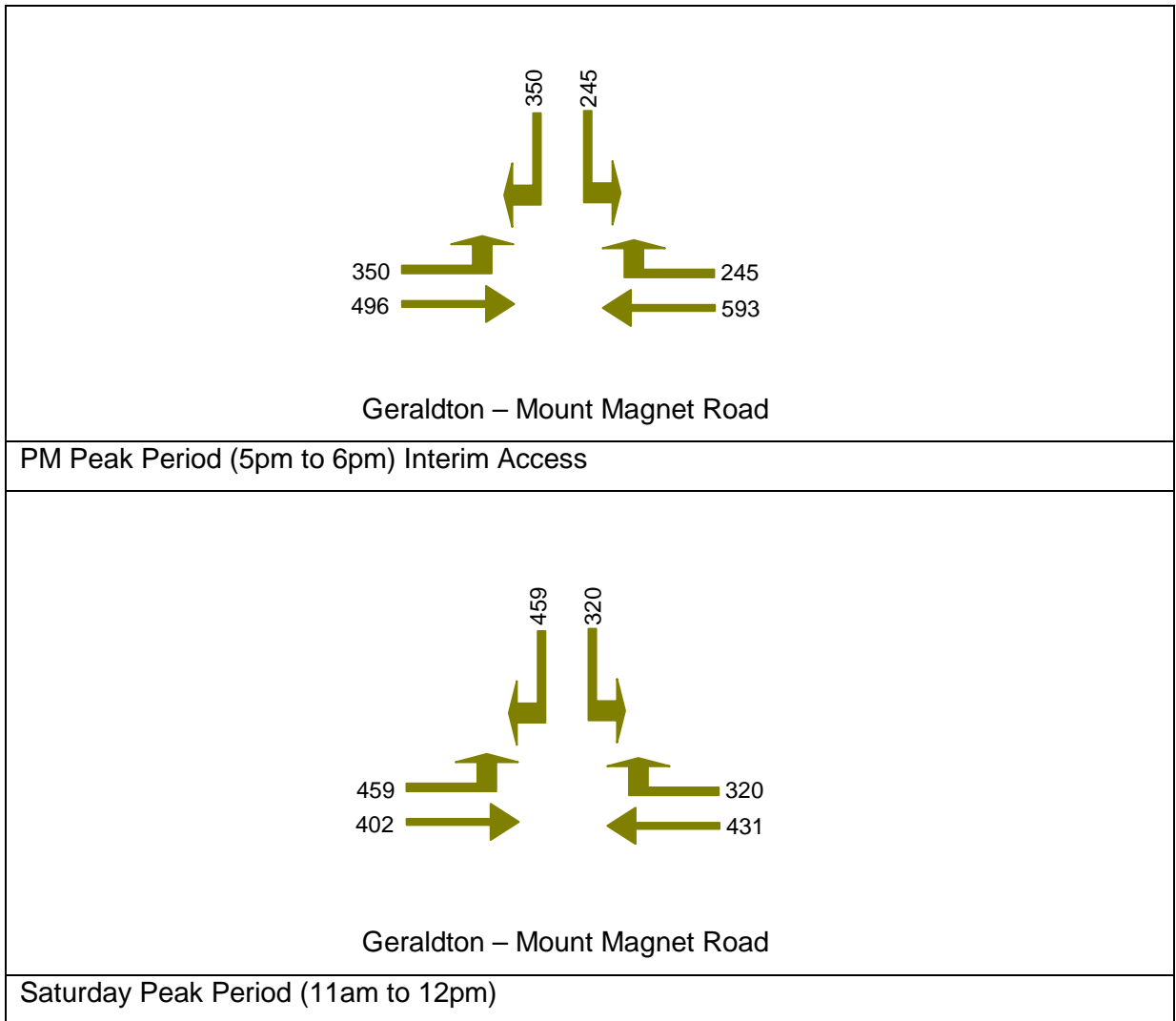
West: Mount Magnet Road West								
10	L	305	1857	0.164	10.9	A	0.0	0
11	T	363	1832	0.198	10.7	A	0.0	0
		668		0.198	10.8	A	0.0	0

ALL VEHICLES:		1795		0.854	18.8	NA	9.2	64

APPENDIX F

Peak Period Access Flows All Precincts Interim Access

Traffic growth 10 years @ 3%pa



APPENDIX G

Geraldton-Mount Magnet Road Interim Access All Precincts

**Geraldton-Mount Magnet Road 10yr growth @3%pa
All Precincts Serviced From Interim Access Thursday PM Peak
Give-Way Sign Controlled Intersection**

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	Queue (m)

East: Mount Magnet Road East								
4	TR	681E	3668	0.186	10.7	A	0.0	0
5	R	201	156	1.289*	326.6	F	37.4	262
		882		1.289	82.7	F	37.4	262

North: Site Access								
7	L	258	306	0.843	44.8	D	7.8	55
8	R	368	287	1.282	297.1	F	59.8	419
		626		1.282	193.2	F	59.8	419

West: Mount Magnet Road West								
10	L	368	1857	0.198	10.9	A	0.0	0
11	T	522	1831	0.285	10.7	A	0.0	0
		890		0.285	10.8	A	0.0	0

ALL VEHICLES:		2398		1.289	84.9	NA	59.8	419

**Geraldton-Mount Magnet Road with 10yr growth @3%pa
Interim Access Saturday Peak 11AM to 12PM All Precincts
Give-Way Sign Controlled Intersection**

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	Queue (m)

East: Mount Magnet Road East								
4	TR	605E	3676	0.164	10.7	A	0.0	0
5	R	185	140	1.324*	364.2	F	37.4	262
		790		1.324	93.7	F	37.4	262

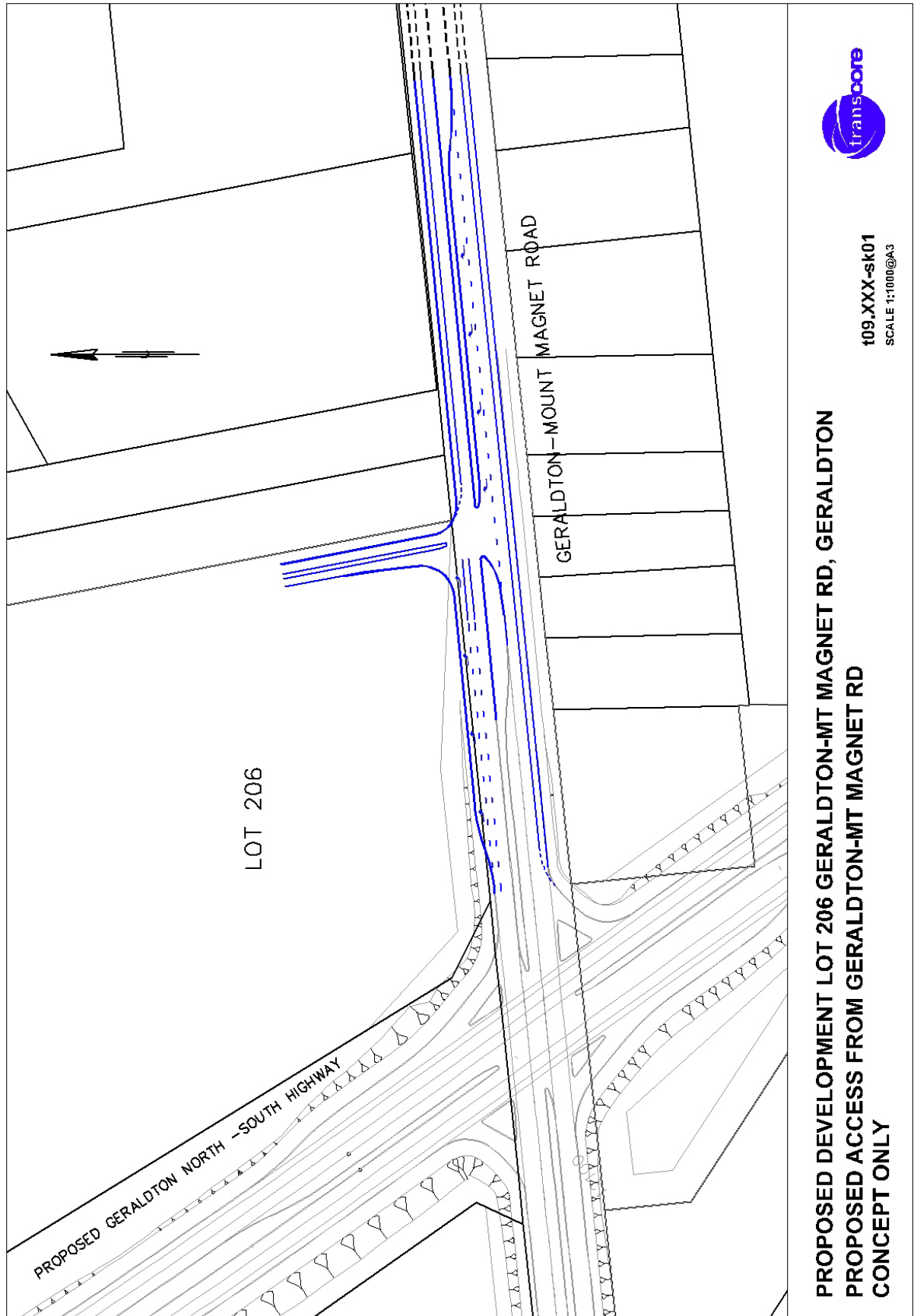
North: Site Access								
7	L	337	458	0.736	27.5	B	6.6	46
8	R	483	433	1.115	146.6	F	45.6	319
		820		1.115	97.7	F	45.6	319

West: Mount Magnet Road West								
10	L	483	1857	0.260	10.9	A	0.0	0
11	T	423	1832	0.231	10.7	A	0.0	0
		906		0.260	10.8	A	0.0	0

ALL VEHICLES:		2516		1.324	65.1	NA	45.6	319

APPENDIX H

Geraldton-Mount Magnet Road Future Access Layout

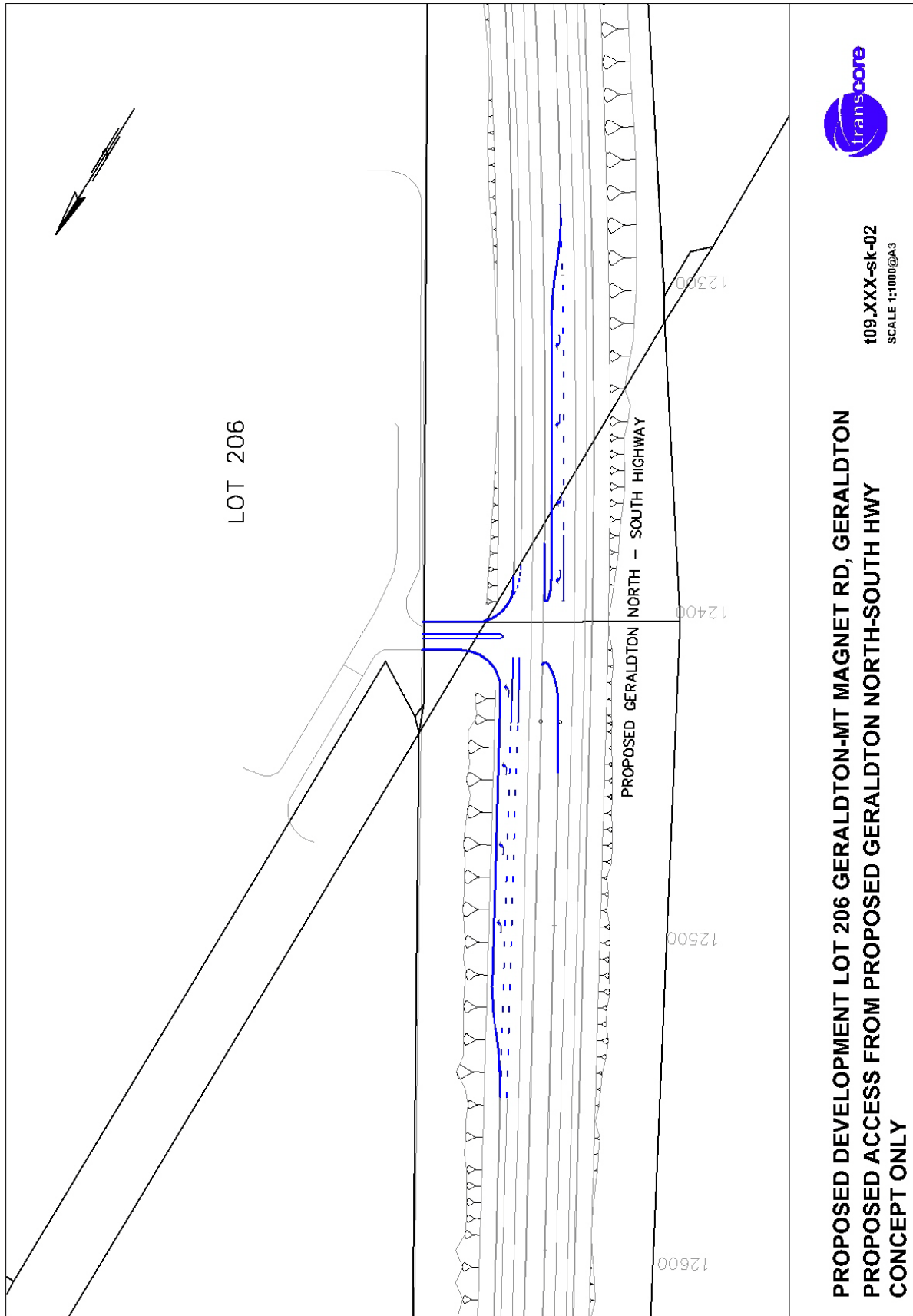


109.XXX-sk01
SCALE 1:1000@A3

**PROPOSED DEVELOPMENT LOT 206 GERALDTON-MT MAGNET RD, GERALDTON
PROPOSED ACCESS FROM GERALDTON-MT MAGNET RD
CONCEPT ONLY**

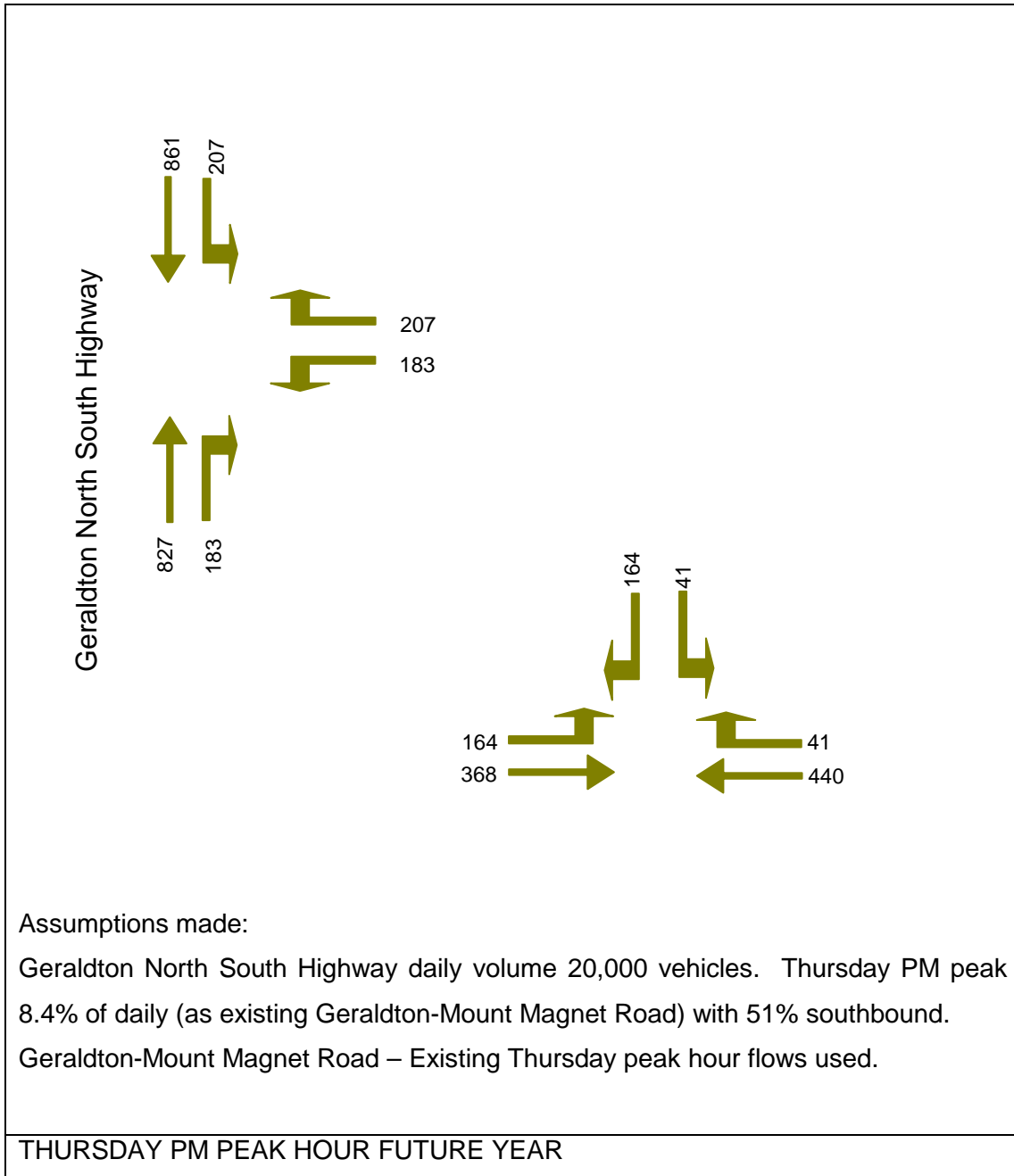
APPENDIX I

Geraldton North South Highway Future Access Layout



APPENDIX J

Peak Hour Turning Movements



APPENDIX K

Ultimate Development Access Analysis

**Geraldton-Mount Magnet Road
Ultimate Development Thursday PM Peak3
Give-Way Sign Controlled Intersection**

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	Queue (m)
East: Mount Magnet Road East								
4	T	463	3778	0.123	10.5	A	0.0	0
5	R	43	361	0.119	17.2	B	0.6	4
		506		0.123	11.0	A	0.6	4
North: Site Access								
7	L	43	559	0.077	16.1	B	0.4	3
8	R	173	559	0.309*	17.6	B	1.8	12
		216		0.309	17.3	B	1.8	12
West: Mount Magnet Road West								
10	L	173	1857	0.093	10.9	A	0.0	0
11	T	387	1890	0.205	10.5	A	0.0	0
		560		0.205	10.6	A	0.0	0
ALL VEHICLES:		1282		0.309	11.9	NA	1.8	12

**Geraldton North South Highway Access
Full Development Thursday PM Peak
Give-Way Sign Controlled Intersection**

Table S.15 - CAPACITY AND LEVEL OF SERVICE

Mov No.	Mov Typ	Total Flow (veh /h)	Total Cap. (veh /h)	Deg. of Satn (v/c)	Aver. Delay (sec)	LOS	Longest Queue 95% Back (vehs)	Queue (m)
South: GNS South								
2	T	870	3662	0.238	0.0	A	0.0	0
3	R	193	476	0.405	20.3	B	2.4	17
		1063		0.405	3.7	A	2.4	17
East: Site Access								
4	L	193	340	0.568	21.6	B	3.5	25
6	R	218	248	0.879*	33.6	C	4.9	34
		411		0.879	28.0	B	4.9	34
North: GNS North								
7	L	218	1193	0.183	11.8	A	1.0	7
8	T	907	3661	0.248	0.0	A	0.0	0
		1125		0.248	2.3	A	1.0	7
ALL VEHICLES:		2599		0.879	6.9	NA	4.9	34

APPENDIX L

Bicycle Parking Guide

Table 1. Suggested bicycle parking provision rates for different land-use types

Key to source of data underlying rate (shown as a superscript in columns two and three):

- | | |
|--|---------------------------------------|
| 1. 3–5% of journey-to-work trips
(also consistent with Lake Macquarie DCP 1) (Ref 7.21) | 3. Austroads <i>Part 14</i> (Ref 2.3) |
| 2. 5–10% of non-work-related trips, e.g. recreation and entertainment | 4. South Sydney DCP (Ref 7.22) |
| | 5. Canada Bay DCP (Ref 7.23) |

Land-use type	Resident/staff (Long-term use)	Customer/visitor (Short-term use)
Residential housing and casual accommodation		
Single dwelling houses and terraces	1/D ^b	3–5%D 1 Min ^b
Houses with >2 individual dwellings	1/D ^b	3–5%D 1 Min ^b
1-bedroom units/flats and bed-sitters	20–30%U	5–10%U
2- or more bedroom units/flats	20–30%U	5–10%U
Aged or disabled self-contained housing	3–5%U ^c	3–5%U ^{3,b}
Boarding houses	5–10%R	3–5%R
Tourist hotels, serviced apartments	3–5%R	3–5%R
Backpacker hotels	5–10%B	3–5%B
Motels	3–5%R	–
Key: D—Dwelling houses, terraces and townhouses; J—Units and apartments; R—Rooms; B—Beds; Min—minimum; Max—Maximum; *Type of unit not specified in source document		
Office, commercial and industry		
Commercial offices, auction/sale rooms	3–5%S [*]	5–10%S
Retail shops	3–5%S [*]	5–10%S
Banks, service centres	3–5%S [*]	5–10%S
Retail and bulky goods showrooms	3–5%S [*]	5–10%S
Major shopping centres and markets	3–5%S [*]	5–10%S
Car showrooms and repair centres	3–5%S [*]	5–10%S
Service stations (service industry)	3–5%S [*]	5–10%S
Hire equipment and car rental offices	3–5%S [*]	5–10%S
Industrial and warehousing	3–5%S [*]	5–10%S
General industry	3–5%S [*]	5–10%S
Key: S—Staff; G _a —Gross floor area; G—Guests, visitors or spectators		
Food, entertainment and recreation		
Cafes and restaurants	3–5%S [*]	3–5%Sc
Licensed clubs and hotels (pubs)	3–5%S [*]	3–5%Sc
Drive-in takeaway with seating	3–5%S [*]	3–5%Sc
Reception and conference centres	3–5%S [*]	3–5%Sc
Take-away food shops (>20 seating)	3–5%S [*]	3–5%Sc
Amusement centres, bowling alleys	3–5%S [*]	3–5%Sc
Theme park, fun park	3–5%S [*]	3–5%Sc
Cinemas, theatres, brothels	3–5%S [*]	3–5%Sc
Gyms, indoor sport/recreation	3–5%S [*]	5–10%S
Squash and tennis courts	3–5%S [*]	5–10%S
Sports arena	3–5%S [*]	3–5%Sc
Swimming pools	3–5%S [*]	5–10%S
Key: S—Staff; G _a —Gross floor area; G _{sa} —Sales floor area; G _{ba} —Bar floor area; G _{ba} —Beer garden floor area; Pa—Public area; G—Guests, visitors or spectators; P _{sa} —Pool surface area; Sc—Seating capacity		
Health, education, community and cultural facilities		
Hospitals — doctors and staff	5–10%S or 10–15%B ³	5–10%S
Health and medical centres	5–10%P ³	5–10%S
Professional consulting rooms	5–10%P ³	5–10%S
Nursing/convalescent homes	3–5%S [*]	5–10%S
Childcare centres	3–5%S [*]	5–10%S
Primary schools	3–5%S [*]	5–10%S
Secondary schools	3–5%S [*]	5–10%S
Tertiary education establishments, Universities/ IALs	3–5%S [*] 5–10%I ts ²	5–10%S
Business and language schools	3–5%S [*] 5–10%I ts ²	5–10%S
Museums and art galleries	3–5%S [*]	5–10%S
Libraries and community centres	3–5%S [*]	5–10%S
Places of assembly and worship	3–5%S [*]	5–10%S
Public/town halls	3–5%S [*]	5–10%S
Key: S—Staff; G _a —Gross floor area; I ts—Full time students; P ts—Part time students; P—Practitioners, professional; B—Beds		

APPENDIX 4

PRELIMINARY DRAINAGE ASSESSMENT

23 February 2010

Commercial Properties Group
20 Kings Park Road
WEST PERTH WA 6005

Dear Mike,

**LOT 206 MOUNT MAGNET ROAD, WOORREE
PRELIMINARY DRAINAGE ASSESSMENT**

As requested, JDSi have completed a preliminary review of the proposed ODP layout for the Geraldton Business Park (Lot 206 Mount Magnet Road, Woorree), to assess the opportunities to retain stormwater runoff on site.

JDSi has assumed the proposed development will have a relatively good rate of infiltration that is consistent with the Geraldton region; this will need to be confirmed by the geotechnical consultant prior to detailed design occurring.

JDSi's intended drainage philosophy for this site would be to direct stormwater on paved areas to gully pits / soakwells, allowing direct infiltration into the ground for the minor storm events (1 in 1 year). All stormwater events greater than the 1 in 1 year events will be diverted to the landscaped areas on the perimeter of the development where these areas will be used for storage and soakage. Storage and soakage up to the 1 in 10 year event will be maintained on site. By strategically balancing the overflow catchments, optimised usage of the landscaped areas for this site can be achieved.

Water sensitive urban design principles will be incorporated into the drainage strategy for the commercial park.

JDSi is in preliminary discussions with MRWA with regards to creating a landscaped swale within the MRWA road reserve for overflow events. This will cater for both Lot 206 and a small catchment for the proposed Geraldton North – South Highway. This landscaped swale will provide both a visual amenity surrounding the site plus acting as a stormwater retention basin.

JDSi will provide all necessary drainage calculations to the City of Geraldton – Greenough once detailed designs have been completed.

Please contact me if you have any queries.

Yours faithfully,



Steven Foley
Director
JDSi Consulting Engineers