

Proposed Subdivision

Lot 302 Mandurah Road & Lot 309 Kerosene Lane

TRANSPORT IMPACT ASSESSMENT

FINAL REPORT – V1

Prepared for: Masterplan.

Prepared by: Move Consultants



Move consultants

Moving People Moving Commerce

P.O. BOX 525

APPLECROSS WA

AUSTRALIA 6953

P: +61 434 189 788

Abn 14 102 899 517

e-mail: heidi.herget@moveconsultants.com.au

www.moveconsultants.com.au

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1. SUMMARY

A Local Structure Plan was developed by Masterplan Town Planners for Lot 1, Mandurah Road and Lot 9, Kerosene Lane, Baldivis in the City of Rockingham and was approved by the WAPC in early 2018. This assessment follows on from the assessment issued in 2017 for the approved LSP.

This Transport Assessment has been prepared by Move Consultants to support the proposed subdivision of Lots 302 and 309 and outlines the likely impacts associated with the proposed subdivision on the boundary movement network – namely network traffic flows, safe and efficient access to and from the lands, pedestrian and cycling facilities and public transport.

The proposed land uses within the subject lands comprise 130 residential dwellings laid out in a permeable local road network to be served by local access points to the boundary road network via the adjacent approved structure plan on Lots 5 to 8 Kerosene Lane. Two shared access points will provide direct access to the north via Kerosene Lane and a third access point to the east will provide direct access via the adjacent urban development cell. The internal road network has been designed in an efficient permeable layout so as to allow for effective and safe ingress from and egress to the local road network for maximal efficient distribution of locally-generated traffic. The proposed subdivision is attached in Appendix A.

Proposed access points to the primary boundary road system to serve the subdivision plan area consist of the following:

- Two primary access points to be shared with the adjacent approved structure plan and residential subdivision on Lots 5 to 8 Kerosene Lane to the south side of Kerosene Lane, east of Mandurah Road; and
- A third access point via the lands on Lots 5 to 8 Kerosene Lane to the east to the future local road network.

No direct access is proposed via Mandurah Road; however, it should be noted that the north-south road adjacent to the Parmelia Gas Pipeline, on its west side assists in connecting the south-western portion of the Baldivis North DSP to the overall locality.

The internal road network is to consist of a series of an efficient orthogonally arranged internal access road providing direct access to all the proposed residential dwellings. This proposed internal road network has been designed in a permeable grid fashion to allow for maximal efficient distribution of site-generated traffic.

This assessment has been prepared in a format suitable for submission to the City of Rockingham as well as the Department of Transport, Main Roads Western Australia, the Public Transport Authority and the Western Australian Planning Commission. This assessment has been prepared in accordance with the WAPC Guidelines for *Transport Assessment – Volume 3: Subdivisions* and the City of Rockingham's *Town Planning Scheme No. 2* and other relevant district planning policies.

Trip generation rates were applied using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 8th Edition*. The category chosen for the assessment was *Single Family Dwelling* (Category 210) for the proposed land uses within the subdivision area. Based upon the proposed land uses, it has therefore been estimated that the subject lands would generate in the order of 1,250 vpd on a typical weekday, with approximately 100 vph (25 inbound and 75 outbound) and 130 (80 inbound and 50 outbound) vehicle trips during both the a.m. and p.m. weekday peak hours, respectively. The total traffic generation associated with the subject lands and the adjacent urban cell on Lots 5 to 8 to the north, which will share road connections to the boundary road network, are estimated to be 2,550 vpd with approximately 200 vph (50 inbound and 150 outbound) during the a.m. peak hour and 270 vph (170 inbound and 100 outbound) during the p.m. peak hour, respectively.

The results of the assessment indicate that the additional site-generated traffic associated with the subject lands can be accommodated within the practical road capacities of the public road network with a limited impact to the boundary road network with the majority of traffic destined to and originating from Kerosene Lane and Mandurah Road. The traffic generated by the subject lands was not significant enough to warrant additional detailed intersection analysis, as noted in Table 6.1 of the Austroads *Guide to Traffic Management: Part 3 – Traffic Studies and Analysis* with no safety or operational issues expected.

As a result, the subject lands-generated traffic associated with the proposal can be accommodated by the existing and future planned boundary road network with no major road improvements required. Upgrades to the Mandurah Road/Kerosene Lane intersection to modify the existing unsignalised traffic control will be undertaken as part of the broader delivery of upgrades and intersection works to road infrastructure in the area. The approved Local Structure Plan area contributes 1.5m of road width along the 90 metres of road section to the west of the Paradiso Estate along the central east-west road to a width of a maximum of 17.9m.

Details associated with the design of any required intersection treatments at the primary road network will be identified and concept designs will be prepared during the detailed design stages of the development, in consultation with the City of Rockingham.

All intersections internal to the subject lands will be basic priority-controlled T-intersections due to the relatively low traffic volumes.

While it is recognised that internal private local road traffic volumes along the internal road network are relatively low, in order to minimise conflict and maximise safety within the proposed development, Local Area Traffic Management measures may be implemented. Details relating to line marking, intersection control and local area traffic management measures will be addressed during the detailed design stages of the project.

Footpaths will be implemented on at least one side of all local roads within the subdivision and will connect to planned local roads within Lots 5 to 8 to the north. No internal dedicated cycling facilities will be required.

A review of the overall movement network proposal indicated that no specific safety or operational issues have been identified which would impact the risk profile.

The proposed future urban development within the subdivision area is not likely to generate any traffic noise or vibration issues.

2. INTRODUCTION AND BACKGROUND

2.1. OBJECTIVE

Move Consultants has been commissioned to prepare a Transport Impact and Parking Assessment for the proposed subdivision of Lot 302 Mandurah Road and Lot 309 Kerosene Lane structure plan to be located at the south-east corner of Mandurah Road and Kerosene Lane, Baldivis in the City of Rockingham. Existing and future residential development abuts the subject lands to the east, Mandurah Road to the west, Kerosene Lane to the north and generally rural and residential uses to the south

2.2. TRANSPORT STATEMENT OBJECTIVE

This Transport Assessment outlines the expected impacts to the movement network within and external to the proposed subdivision plan on road network flows, safe and efficient access to and from the subject lands, pedestrian and cycling facilities and local amenity and safety. As part of the assessment, Move Consultants has considered the likely vehicular traffic demands associated with future urban development within the LSP area as well as potential impacts to the rest of the existing and planned movement network.

The assessment considers aspects associated with:

- Traffic generation and impacts to the existing and future base traffic volumes;
- Integration with the surrounding land uses;
- Use of public and other transport modes such as walking, cycling and public transport; and
- Safety and access issues.

2.3. SITE LOCATION

Figure 1 shows the local context of the site and Figure 2 shows the broader metropolitan context of the site.



Figure 1: Location of Subject Lands – Local Context



Figure 2: Metropolitan Context

2.4. SURROUNDING MAJOR ATTRACTORS AND GENERATORS

The large-format Spud Shed supermarket is located on Kerosene Lane to the east of the lands with Stockland Baldvis Shopping Centre located on Safety Bay Road approximately 7 km to the south of the site via Mandurah Road and Baldvis Road. The Kwinana Freeway interchange with Mundijong Road is located approximately 3km to the north-east of the lands. The Rockingham City Centre is located approximately 8km to the north-west.

3. EXISTING TRANSPORT NETWORK

The subject lands are located on the south side of Kerosene Lane, east of Mandurah Road, Baldivis in the City of Rockingham. The subject lands are located approximately 5.3km south-east of the Rockingham City Centre within the suburb of Baldivis.

3.1. ROAD NETWORK

Mandurah Road has been classified as a Primary Distributor road, under the Main Roads Western Australia Functional Road Hierarchy, and has been defined as “...[providing] for major regional and inter-regional traffic movement and carry large volumes of generally fast moving traffic with some roads [designated] as strategic freight routes, with all designated as National or State roads and managed by Main Roads Western Australia.” It has been constructed as a dual divided carriageway along the western frontage of the site with a 16 to 17m fixed central median. Mandurah Road operates under a posted speed limit of 80kph in the vicinity of the site and is owned, operated and maintained by Main Roads WA. The most recent available traffic volumes for Mandurah Road in the vicinity of the site are in the order of 10,500 vpd (2008); however, due to the significant urban development in the Baldivis Cell further to the east, it is estimated that the existing volumes are in the order of 13,000 to 15,000 vpd.

Kerosene Lane, along the northern frontage of the site, has been constructed as a single undivided carriageway and provides a direct connection into the northern urban development cells within Baldivis. It is classified as an Access Road under the Main Roads Functional Road Hierarchy and is defined as a road which “...provides access to abutting properties with amenity, safety and aesthetic aspects having priority over the vehicle movement function and is bicycle and pedestrian friendly. These roads are managed by Local Government.” Kerosene Lane operates under a transitional posted speed limit of 80kph to the west of the primary Kerosene Lane frontage, transitioning to 60kph and then 80kph further east. As part of the delivery of urban infrastructure within the Baldivis Cell, Kerosene Lane will be upgraded to an urban cross-section reflective of a Local Distributor (Neighbourhood Connector A) or District Distributor B (Integrator Arterial B) classification. It currently carries in the order of 5,500 to 7,000 vpd of daily traffic and under future operating conditions, will have a practical capacity of 7,000 to 12,000 vpd. Kerosene Lane is owned, operated and maintained by the City of Rockingham. It is currently operating near the upper limit of its existing desired practical capacity; however, upgrades of this road will be undertaken as part of the build-out of urban development in the area.

Figure 3 shows the local road network abutting the subject site in the context of the Main Roads Western Australia Functional Road Hierarchy.

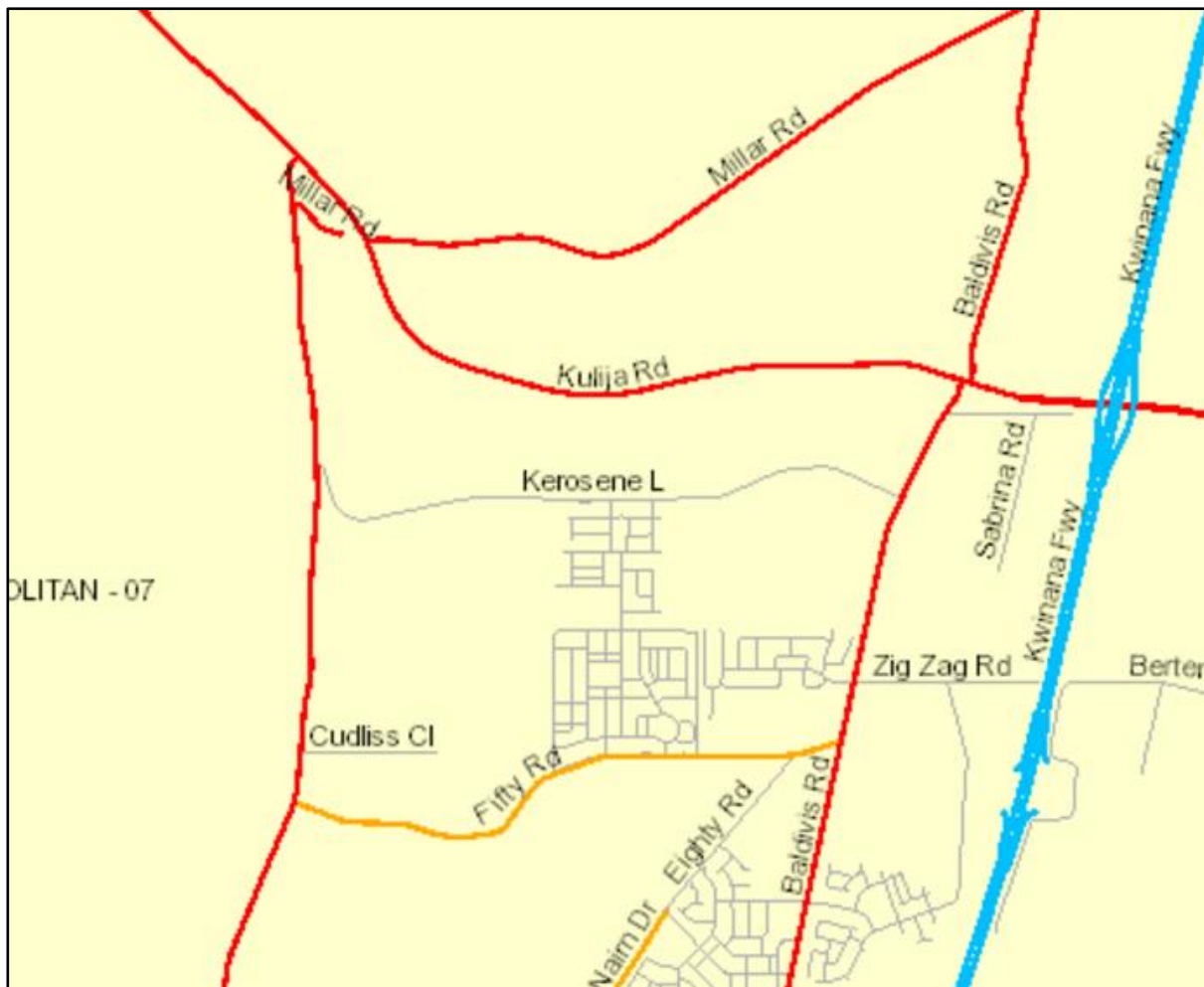


Figure 4: Metropolitan Functional Road Hierarchy

3.2. EXISTING PUBLIC TRANSPORT NETWORK

No local bus service is currently in place in walking distance to the subject lands with the Warnbro Railway Station located approximately 4km due south-west and the Rockingham Railway Station due north-west via Ennis Avenue. As urban development continues to progress within the broader Baldvis Cell, the Public Transport Authority will either introduce additional line haul bus services and/or expand the existing service within the Baldvis Town Centre to serve the subject lands and abutting urban development to provide direct connections to local railway stations. This line haul service is likely to function as a line haul service either along Kerosene Lane to the north or more locally via designated *Neighbourhood Connector A/B* routes within the urban cells to the east.

3.3. EXISTING PEDESTRIAN AND CYCLING NETWORK

No dedicated pedestrian or cycling infrastructure is currently in place in the vicinity of the site; however, planning of the Perth Bicycle Network is ongoing and consideration will likely be given to upgrading the external pedestrian and cycling facilities along Kerosene Lane and Mandurah, particularly in the context of ongoing urban development and increases in public transport services.

4. SUBDIVISION PROPOSAL

The proposed land uses within the subject lands comprise 131 residential dwellings laid out in a permeable local road network to be served by local access points to the boundary road network via the adjacent structure plan on Lots 5 to 8 Kerosene Lane. Two shared access points will provide direct access to the north via Kerosene Lane and a third access point to the east will provide direct access via the adjacent urban development cell. The internal road network has been designed in an efficient permeable layout so as to allow for effective and safe ingress from and egress to the local road network for maximal efficient distribution of locally-generated traffic.

The proposed subdivision plan is attached in Appendix A.

Proposed access points to the primary boundary road system to serve the subdivision area consist of the following:

- Two primary access points to be shared with the adjacent structure plan and residential subdivision on Lots 5 to 8 Kerosene Lane to the south side of Kerosene Lane, east of Mandurah Road;
- A third access point via the lands on Lots 5 to 8 Kerosene Lane to the east to the future local road network;
- The north-south road, adjacent to the Parmelia Gas Pipeline on its western side, will provide a direct connection to and from the south-western portion of the Baldivis North DSP;
- The approved LSP for the area will contribute an additional 1.5m in road reservation width to the central east-west road located immediately north in the adjacent approved LSP (Lots 5 to 8, Kerosene Lane) for a distance of 90m to the west of the Paradiso Estate; and
- No direct access is proposed via Mandurah Road.

The internal road network is to consist of a series of an efficient orthogonally arranged internal access road providing direct access to all of the proposed residential dwellings. This proposed internal road network has been designed in a permeable grid fashion to allow for maximal efficient distribution of site-generated traffic.

This assessment has been prepared in a format suitable for submission to the City of Rockingham as well as the Department of Transport, Main Roads Western Australia, the Public Transport Authority and the Western Australian Planning Commission. This assessment has been prepared in accordance with the WAPC *Guidelines for Transport Assessment – Volume 3: Subdivisions* and the City of Rockingham's *Town Planning Scheme No. 2* and other relevant district planning policies.

5. CHANGES TO EXTERNAL TRANSPORT NETWORKS

A 2.2 metre road widening is proposed for Kerosene Lane along the northern frontage of the lands and it is expected that this will be adopted for all urban development flanking Kerosene Lane, east of Mandurah Road. An additional 1.5m in width will be contributed, as consistent with the approved LSP, to the central east-west road located immediately north within the approved Lots 5 to 8 Kerosene Lane LSP area for a length of 90m to the west of the Paradiso Estate resulting in a total road reservation of 17.9m along this section of road.

6. TRANSPORT ANALYSIS

In order to assess the potential traffic impacts associated with the proposed uses detailed on the subdivision plan on the boundary road network, a traffic generation and distribution exercise was undertaken. The aim of this exercise was to establish the anticipated traffic volumes which would be generated from the proposed development of the site in order to quantify the effect that the additional traffic has on the boundary road network, specifically on the operations of the nearby intersections.

6.1. ASSESSMENT PERIOD

The time periods chosen for assessment have been based upon full development of the lands under a 2031 traffic demand scenario.

6.2. TRIP GENERATION

Trip generation rates were applied using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*. The category chosen for the assessment was *Single Family Dwelling (Category 210)* for the proposed land uses within the subdivision area.

Based upon the proposed land uses, it has therefore been estimated that the subject lands would generate in the order of 1,250 vpd on a typical weekday, with approximately 100 vph (25 inbound and 75 outbound) and 130 (80 inbound and 50 outbound) vehicle trips during both the a.m. and p.m. weekday peak hours, respectively. The total traffic generation associated with the subject lands and the adjacent urban cell on Lots 5 to 8 to the north, which will share road connections to the boundary road network, are estimated to be 2,550 vpd with approximately 200 vph (50 inbound and 150 outbound) during the a.m. peak hour and 270 vph (170 inbound and 100 outbound) during the p.m. peak hour, respectively.

6.3. TRIP DISTRIBUTION AND ASSIGNMENT

Based on the layout and connectivity of the surrounding road network, the spatial distribution of abutting land uses, existing travel patterns on the boundary road network and future road infrastructure upgrades, the following assumptions have been made for the distribution of the site-generated traffic:

- 40% of the subject land-generated trips entering and exiting the lands to and from the north travelling west towards Mandurah Road, with:
 - 30% of these trips travelling northbound on Mandurah Road; and
 - 10% of these travelling southbound on Mandurah Road.
- 50% of the subject land-generated trips entering and exiting the lands to and from the north travelling east on Kerosene Lane; and
- 10% of the subject-land generated trips entering and exiting the lands via the internal local road network.

The following results illustrate the total anticipated daily traffic volumes on the boundary road network after the proposed development of the subject lands. The additional site-generated traffic associated with the subject lands can be accommodated within the practical road capacities of the public road network with a limited impact to the boundary road network with the majority of traffic destined to and originating from Kerosene Lane and Mandurah Road. Figure 5 shows the assigned volumes to the internal road network.

Mandurah Road (North):

- Daily: +375 vehicle trips
- A.M. Peak Hour: +30 vehicle trips
- P.M. Peak Hour: +42 vehicle trips

Mandurah Road (South):

- Daily: +125 vehicle trips
- A.M. Peak Hour: +10 vehicle trips
- P.M. Peak Hour: +13 vehicle trips

Kerosene Lane (West):

- Daily: +500 vehicle trips
- A.M. Peak Hour: +40 vehicle trips
- P.M. Peak Hour: +52 vehicle trips

Kerosene Lane (East):

- Daily: +750 vehicle trips
- A.M. Peak Hour: +50 vehicle trips
- P.M. Peak Hour: +65 vehicle trips

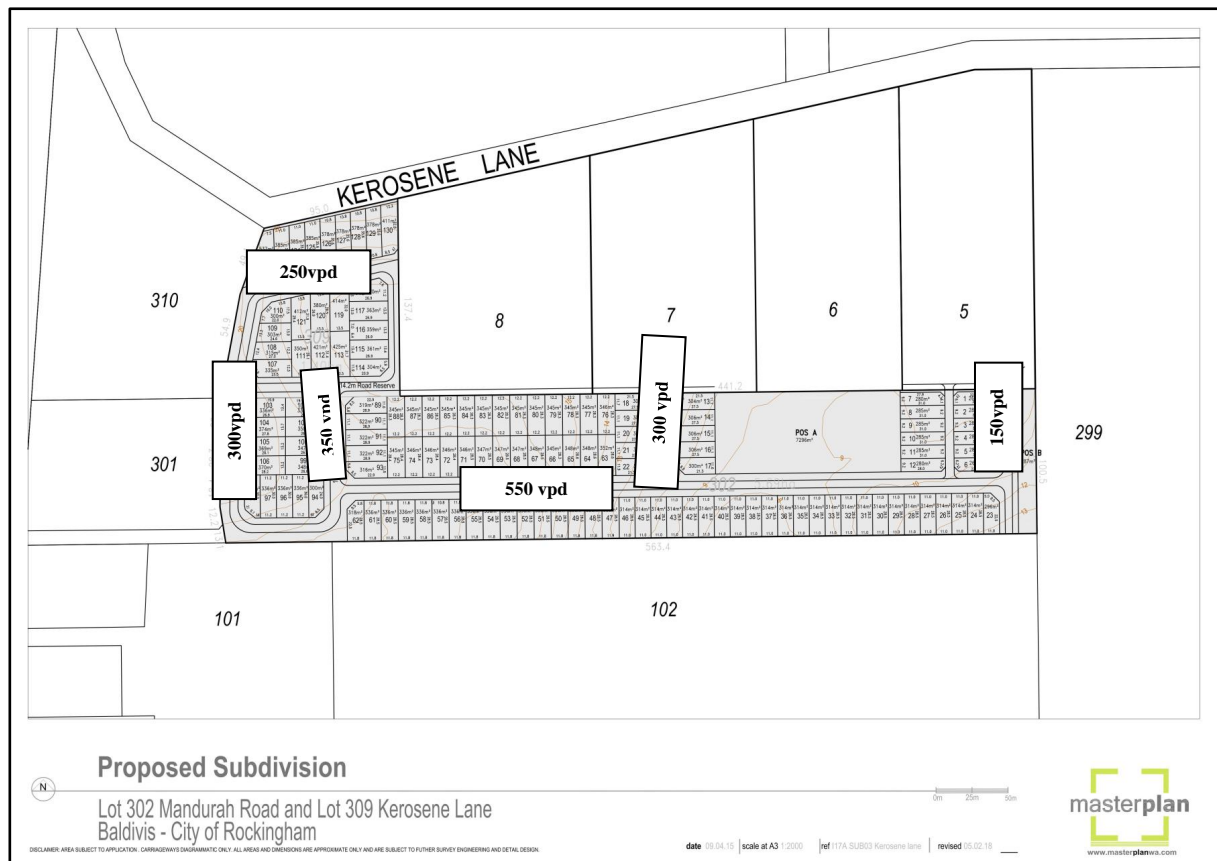


Figure 5: Subdivision Plan Daily Traffic Volumes

As a result, the subject lands-generated traffic associated with the proposal can be accommodated by the existing and future planned boundary road network with no major road improvements required with each of the internal roads assigned an *Access Road* classification with a maximum practical capacity of between 1,500 and 3,000 vpd. Upgrades to the Mandurah Road/Kerosene Lane intersection to modify the existing unsignalised traffic control will be undertaken as part of the broader delivery of upgrades and intersection works to road infrastructure in the area.

Details associated with the design of any required intersection treatments at the primary road network will be identified and concept designs will be prepared during the detailed design stages of the development, in consultation with the City of Rockingham.

A review of the crash history on the adjacent established road network for the 5-year reporting period 2012-2016 a high rate of right-angle crashes at the unsignalised T-intersection of Mandurah Road/Kerosene Lane with this intersection control to be upgraded to either a roundabout or traffic signal in the future. The very low volume of traffic which will utilise this intersection during weekday peak periods does not trigger the warrants for these upgrades. An extremely low incidence of crashes along the mid-block frontage of the site indicates that the risk profile will not be impact with the additional traffic generated by the subject lands.

7. ROADS AND INTERSECTION ROAD NETWORK

7.1. INTERNAL TRANSPORT NETWORKS

All intersections internal to the subject lands will be basic priority-controlled T-intersections due to the relatively low traffic volumes.

While it is recognised that internal private local road traffic volumes along the internal road network are relatively low, in order to minimise conflict and maximise safety within the proposed development, Local Area Traffic Management measures may be implemented. Details relating to line marking, intersection control and local area traffic management measures will be addressed during the detailed development stages of the project.

7.2 REVIEW OF INTERNAL ROAD RESERVATIONS, SERVICE AND DELIVERY ARRANGEMENTS AND CAR PARKING

The proposed public road network within the subject site area will typically consist of a minimum 6m seal which will accommodate both passenger vehicles and Council rubbish collection vehicles. Due to low anticipated volumes and direct frontage for the majority of the proposed dwellings, it is proposed that all of the internal local roads typically be classified as *Access Roads C and D*, as per *Liveable Neighbourhoods Guidelines*, with a minimum road reservation of 13.2m (adjacent to POS) to 15.5m in width. The westernmost north-south road is proposed to be an *Access Road A* with a typical road cross-section of approximately 17.0m with a 90m section of the central east-west road, adjacent to the Paradiso Estate, to be 17.9m in width (*Access Road B*). Typical road cross-sections within the internal road network are shown below in Figure 6 to Figure 8.

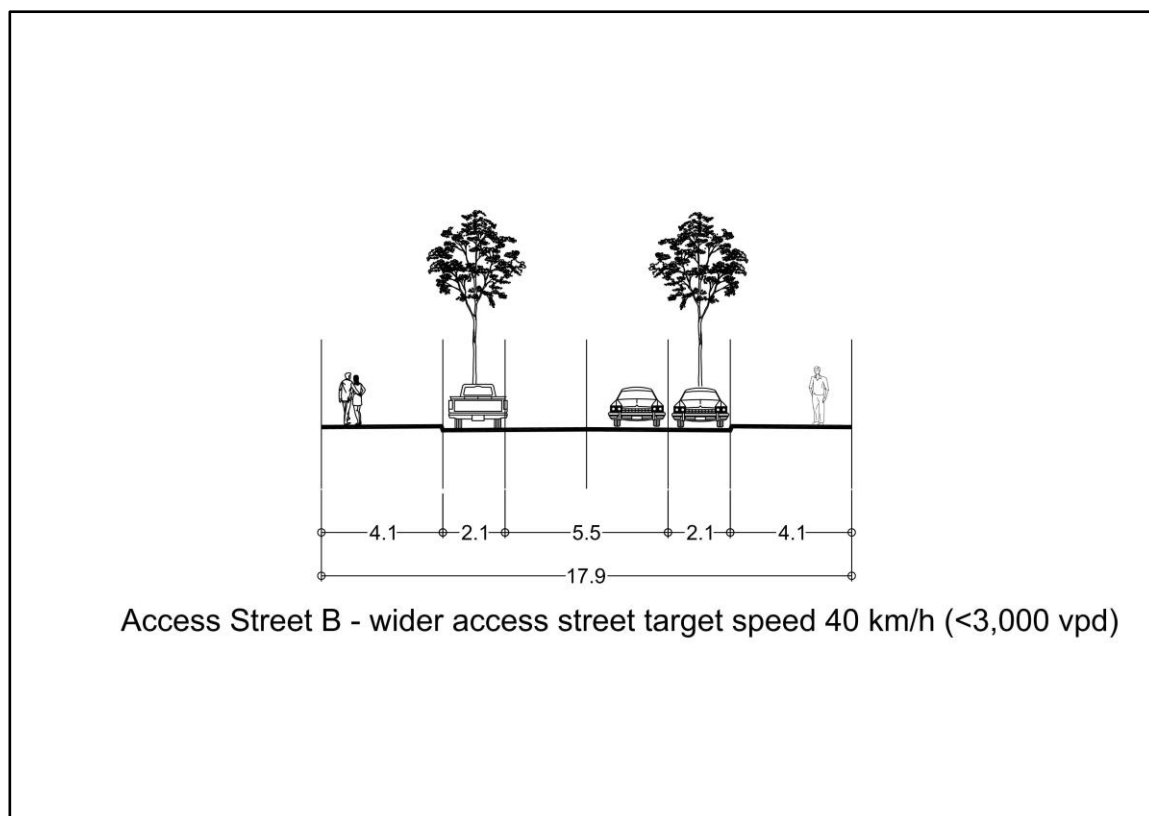
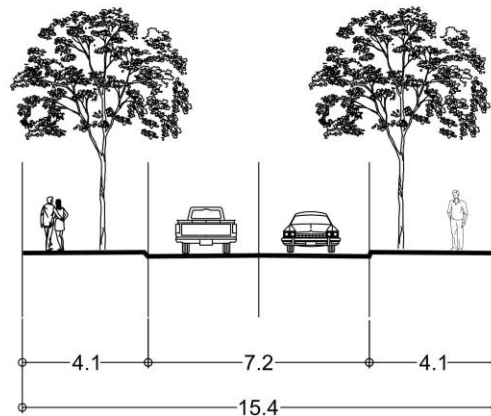
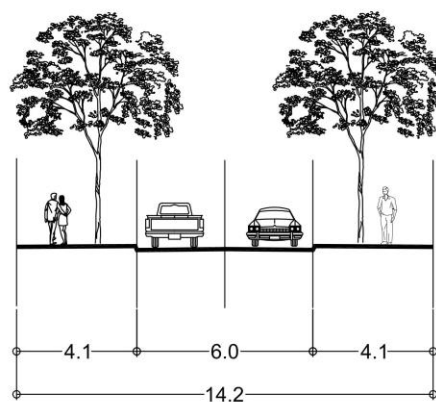


Figure 6: Access Street B (Liveable Neighbourhoods) – Typical Cross-Section



Access Street C - yield (or give way) street target speed 40 km/h (<3,000 vpd)

Figure 7: Access Street C (Liveable Neighbourhoods) – Typical Cross-Section



Access Street D - narrow yield (or give way) street target speed 30 km/h (<1,000 vpd)

Figure 8: Access Street D (Liveable Neighbourhoods) – Typical Cross-Section

7.3 INTERSECTION ANALYSIS

Internal peak hour volumes within the subdivision area are generally very low and will result in a negligible impact to the external boundary road network. Warrants for additional detailed analysis as shown below in Table 1, derived from Austroads *Guide to Traffic Management – Part 3: Traffic Studies and Analysis*, were applied and it was determined that no intersections required detailed analysis. Peak hour traffic volumes have been assumed to be approximately 10% of predicated daily traffic volumes.

Table 1; Austroads Intersection Analysis Warrants

Intersection	Hourly volume major road	Hourly volume minor road	Comment.
Warrants as per Table 6.1 of Austroads Guide to Traffic Management Part 3, Traffic Studies and Analysis - Two Lane Major Road Cross Road	400 vph 500 vph 650 vph	250 vph 200 vph 100 vph	Table details flows that initiate intersection analysis. As major flows increase, there is reduced capacity to accept minor flows.
Kerosene Lane - Road C	350	37	3 way intersection – Analysis not required.
Kerosene Lane - Road F	350	47	3 way intersection – Analysis not required.
All others intersections	<100	<100	Analysis not required.

7.4. PEDESTRIAN AND CYCLING TREATMENTS

Footpaths will be implemented on at least one side of all local roads within the subdivision and will connect to planned local roads within the adjacent LSP on Lots 5 to 8 to the north. No internal dedicated cycling facilities will be required.

7.5. PUBLIC TRANSPORT FACILITIES

As noted previously in this assessment, there are limited public transport services in the area; however, Kerosene Lane has been identified as a line haul bus route in the *Baldivis North District Structure Plan* as shown in Figure 9.

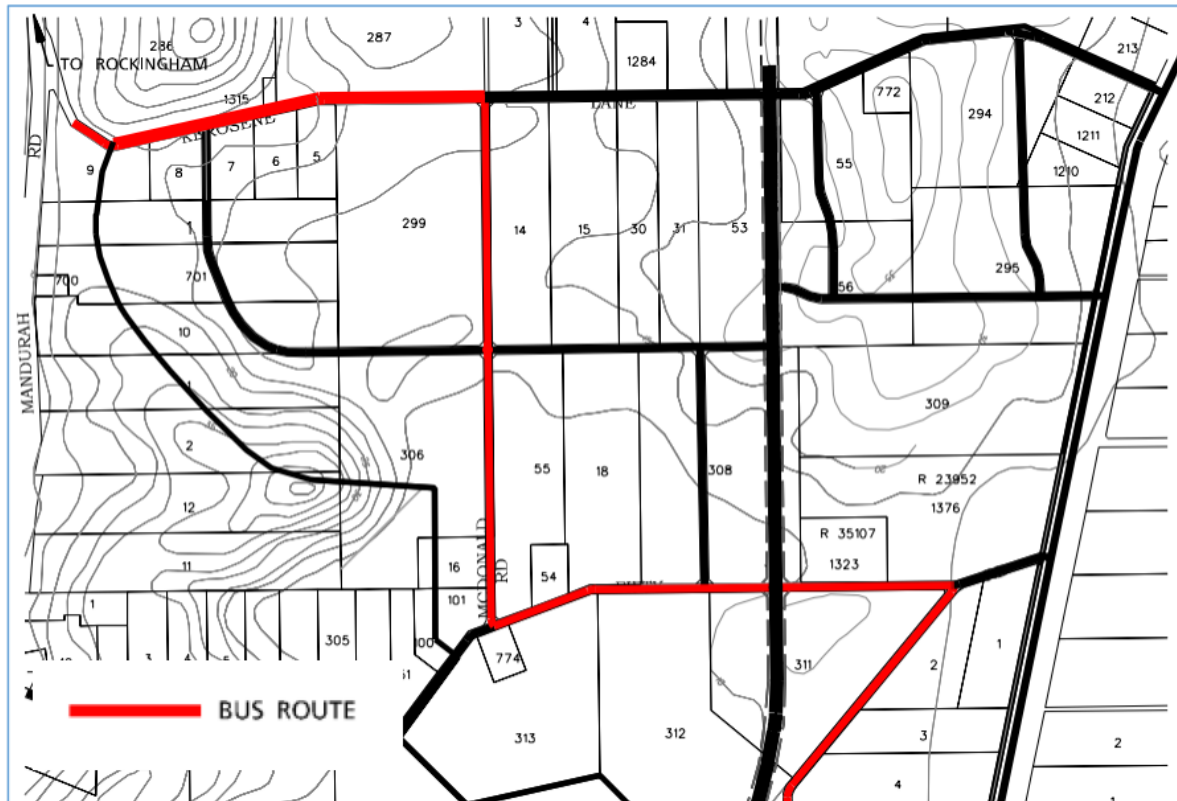


Figure 9: Proposed Future Public Transport Services – Baldivis North District Structure Plan

A brief review of the internal road layout indicates that Council rubbish collection vehicles can enter and exit the development using the proposed permeable local road network. Details relating to the waste management arrangements associated with the development will be addressed directly with Council.

7.6. SAFETY ISSUES

A review of the crash history on the adjacent established road network for the 5-year reporting period 2012-2016 a high rate of right-angle crashes at the unsignalised T-intersection of Mandurah Road/Kerosene Lane with this intersection control to be upgraded to either a roundabout or traffic signal in the future. The very low volume of traffic which will utilise this intersection during weekday peak periods does not trigger the warrants for these upgrades. An extremely low incidence of crashes along the mid-block frontage of the site indicates that the risk profile will not be impacted by the additional traffic generated by the subject lands.

7.7. NOISE

The proposed subdivision is not likely to generate any unacceptable traffic noise or vibration.

8. CONCLUSIONS

Move Consultants has been commissioned to prepare a Transport Impact and Parking Assessment for the proposed subdivision to be located at the south-east corner of Mandurah Road and Kerosene Lane, Baldivis on Lot 302 Mandurah Road and Lot 309 Kerosene Lane, Baldivis in the City of Rockingham. Existing and future residential development abuts the subject lands to the east, Mandurah Road to the west, Kerosene Lane to the north and generally rural and residential uses to the south

Proposed access points to the primary boundary road system to serve the subdivision area consist of the following:

- Two primary access points to be shared with the adjacent structure plan and residential subdivision on Lots 5 to 8 Kerosene Lane to the south side of Kerosene Lane, east of Mandurah Road; and
- A third access point via the lands on Lots 5 to 8 Kerosene Lane to the east to the future local road network.

No direct access is proposed via Mandurah Road.

Based upon the proposed land uses, it has therefore been estimated that the subject lands would generate in the order of 1,250 vpd on a typical weekday, with approximately 100 vph (25 inbound and 75 outbound) and 130 (80 inbound and 50 outbound) vehicle trips during both the a.m. and p.m. weekday peak hours, respectively. The total traffic generation associated with the subject lands and the adjacent urban cell on Lots 5 to 8 to the north, which will share road connections to the boundary road network, are estimated to be 2,550 vpd with approximately 200 vph (50 inbound and 150 outbound) during the a.m. peak hour and 270 vph (170 inbound and 100 outbound) during the p.m. peak hour, respectively. The anticipated traffic generated by the lands can be accommodated within the practical capacities of the future planned road network.

A review of the crash history on the adjacent established road network for the 5-year reporting period 2012-2016 a high rate of right-angle crashes at the unsignalised T-intersection of Mandurah Road/Kerosene Lane with this intersection control to be upgraded to either a roundabout or traffic signal in the future. The very low volume of traffic which will utilise this intersection during weekday peak periods does not trigger the warrants for these upgrades. An extremely low incidence of crashes along the mid-block frontage of the site indicates that the risk profile will not be impact with the additional traffic generated by the subject lands.

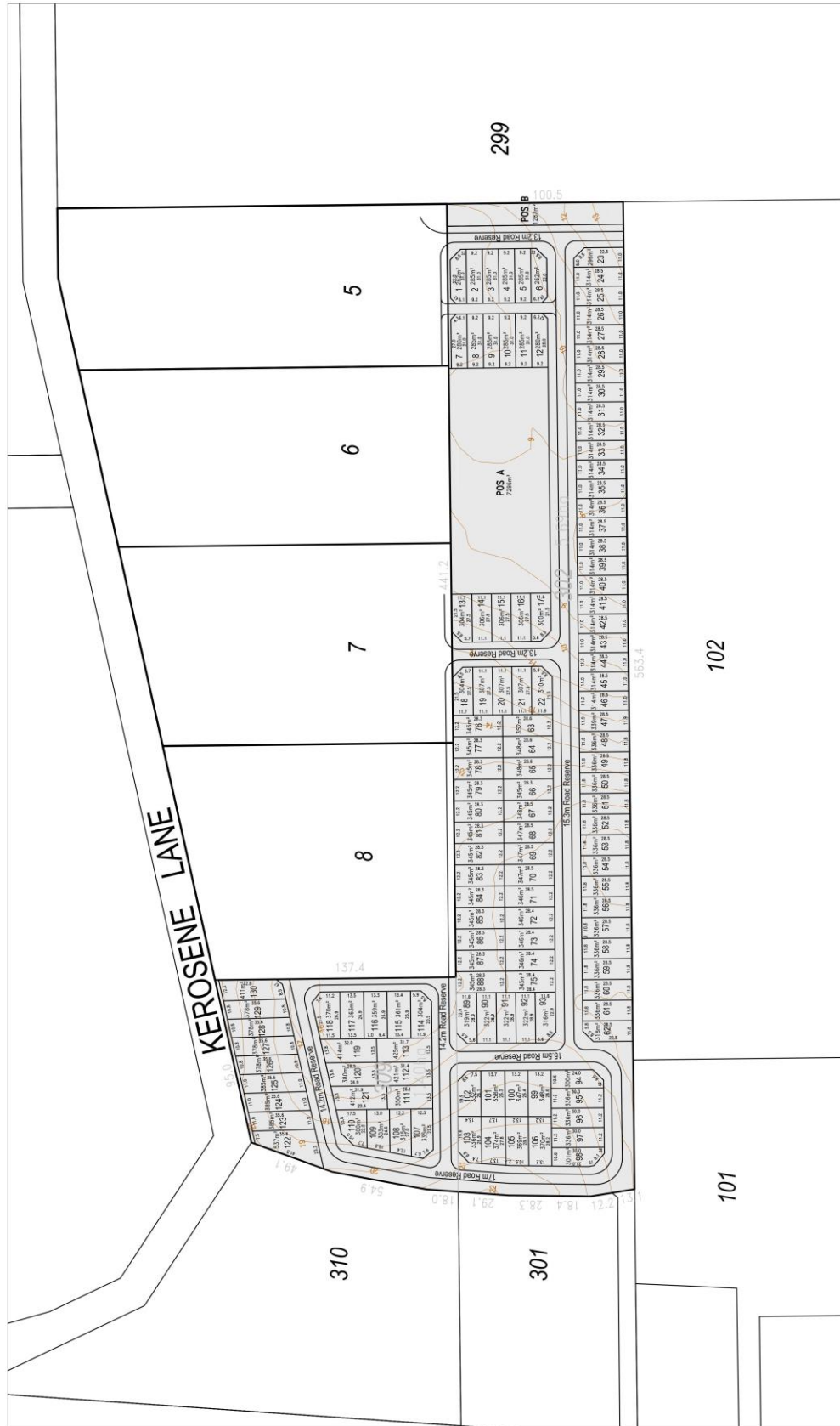
Details associated with the design of any required intersection treatments and modifications to the primary road network will be identified and concept designs will be prepared during the detailed design stages of the development, in consultation with the City of Rockingham.

The proposed public road network within the subject site area will typically consist of a minimum 6m seal which will accommodate both passenger vehicles and Council rubbish collection vehicles. Due to low anticipated volumes and direct frontage for the majority of the proposed dwellings, it is proposed that all of the internal local roads be classified as *Access Roads B through D*, as per *Liveable Neighbourhoods Guidelines*, with a typical minimum road reservation of 14 to 15.5m with exceptions being Access Roads adjacent to POS (road reservation of approximately

13m) and westernmost north-south road (17.0m as *Access Road A* and a 90m section of the central east-west road just west of the Paradiso Estate where an additional 1.5m will be ceded to bring the total road reservation adjacent to the Lots 5 to 8 to the north to 17.9m.. Footpaths will be implemented on at least one side of the road and will connect to the future local road network to the east and north. Dedicated internal cycling facilities will be required. Public transport services in the area will be upgraded as urban development continues within the Baldivis Cell.

In conclusion, it should be noted that based both on a review of the modelled total traffic assessment and observed traffic operations of the boundary road system, the anticipated site-generated traffic associated with the proposed subdivision plan can be accommodated within the future practical capacities and functional road classifications of the boundary road network and that the design of the internal road network is safe, efficient and effective.

APPENDIX A – SUBDIVISION PLAN



Proposed Subdivision

Lot 302 Mandurah Road and Lot 309 Kerosene Lane
Baldvis - City of Rockingham



DISCLAIMER: AREA SUBJECT TO APPLICATION. CARRIAGEWAYS DIAGNOSTIC ONLY. ALL AREAS AND DIMENSIONS ARE APPROXIMATE ONLY AND ARE SUBJECT TO FURTHER SURVEY ENGINEERING AND DETAIL DESIGN.

date 09.04.15 | scale at A3 1:2000 | ref 177A SUB01 Kerosene lane | revised 05.02.18