



**Urban Resources Pty Ltd**

**Lot 6 Banksia Road & Lots 300 & 301**  
**Boomerang Road, Oldbury**

**Transport Impact Statement**

May 2024

Project Code: 08072

**PJA**  
Quay Perth  
18 The Esplanade  
Perth  
WA 6000  
Australia  
**pja.com.au**

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A – Draft	08 May 2024	Rodney Ding	Rodney Ding	Richard Spencer
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### Prepared for

**Stephen Elliott**

**Urban Resources Pty Ltd**

33 Cocos Drive

Bibra Lake

WA

6163



## Contents

<b>Section</b>	<b>Page</b>
<b>I Introduction.....</b>	<b>I</b>
1.1 Background	1
1.2 Purpose of the Report	1
<b>2 Proposed Development.....</b>	<b>2</b>
2.1 Subject Site & Surrounds	2
2.2 Road Network	4
<b>3 Vehicle Access and Parking.....</b>	<b>7</b>
3.1 Access & Parking Layout	7
3.2 Crossover Location	7
3.3 Pedestrian Facilities	7
<b>4 Provision for Service Vehicles.....</b>	<b>8</b>
4.1 Waste Collection	8
4.2 Site Servicing	8
4.3 Emergency Vehicles	8
<b>5 Daily Traffic Volumes and Vehicle Types.....</b>	<b>9</b>
5.1 Daily or Peak Hour Traffic Condition	9
5.2 Types of Vehicles	9
5.3 Traffic Impacts	10
<b>6 Traffic Management on the Frontage Streets.....</b>	<b>11</b>
<b>7 Public Transport Access.....</b>	<b>12</b>
<b>8 Active Transport.....</b>	<b>13</b>
8.1 Pedestrian Access/Facilities	13
8.2 Cycle Access/Facilities	13
<b>9 Site Specific Issues.....</b>	<b>15</b>
<b>10 Safety Issues.....</b>	<b>16</b>
<b>11 Summary &amp; Recommendations.....</b>	<b>18</b>

## List of Tables

Table 5-: Expected Traffic Flows .....	9
Table 5-: Traffic Flow Impacts.....	10

## List of Figures

Figure 2-: Subject Site & Current Surrounds .....	2
Figure 2-: Shire of Serpentine-Jarrahdale LPS3 .....	3
Figure 2-: RAV Network 4 Routes .....	6
Figure 8-: LTCN in the Vicinity of the Site .....	14
Figure 10-: Crashes in the Vicinity of the Site.....	16



## I Introduction

### I.1 Background

PJA was commissioned by Urban Resources Pty Ltd to prepare a Traffic Impact Statement for the proposed sand quarry operations to be located at Lot 6 and Lots 300 & 301 Boomerang Road in Oldbury.

The proposed operation involves sand extraction which will require trucks to access the site daily. It is expected that the vehicle sizes will vary, with a maximum size of 19m long tri-axle semi-trailers. The total proposed extraction will typically be approximately 500,000 tonnes per annum over a five-year extraction period with up to 70 loaded truck movements per day or approximately 7-8 per hour.

### I.2 Purpose of the Report

Western Australian Planning Commission Transport Assessment Guidelines (WAPC Guidelines) provide direction on the level of assessment which is necessary to be carried out with respect to the likely traffic impact of a development proposal. Typically, any development which is expected to have a 'high' traffic impact, that is, generating more than 100 trips in the peak hour is satisfied by a Traffic Impact Assessment (TIA). Any development which is expected to generate less than 100 trips in the peak hour requires a Transport Impact Statement (TIS) to be undertaken. Both types of assessment consider the operation and layout of the site, but they differ in their assessment of external traffic impact.

In the context of this proposal, it is estimated there will be less than 100 trips generated in any given peak hour if applying 'typical' haulage rates. In this case a TIS is appropriate. This TIS briefly outlines the transport aspects surrounding the proposed operations. The intent of a TIS, as per the WAPC Guidelines, is to provide the approving authority with sufficient transport information to confirm that the Applicant has adequately considered the transport aspects of the proposed development and that it would not have an adverse transport impact on the surrounding area. In accordance with the WAPC Guidelines, this TIS outlines:

- Existing transport conditions proximate to the site
- Suitability of the proposed parking access to and from the site
- The adequacy of the proposed site layout
- The traffic generating characteristics of the proposed development
- The anticipated impact of the proposed development on the surrounding movement network.



## 2 Proposed Development

### 2.1 Subject Site & Surrounds

The subject site is located on the south eastern corner of the intersection of Boomerang Road and Banksia Road. It is located approximately 2.9km from King Road and then a further 4.3km to Thomas Road as shown in Figure 2-1. The site is currently accessed via Boomerang Road for the western Lot 6 and via Boomerang Road for Lot 300 and 301.

**Figure 2-1: Subject Site & Current Surrounds**

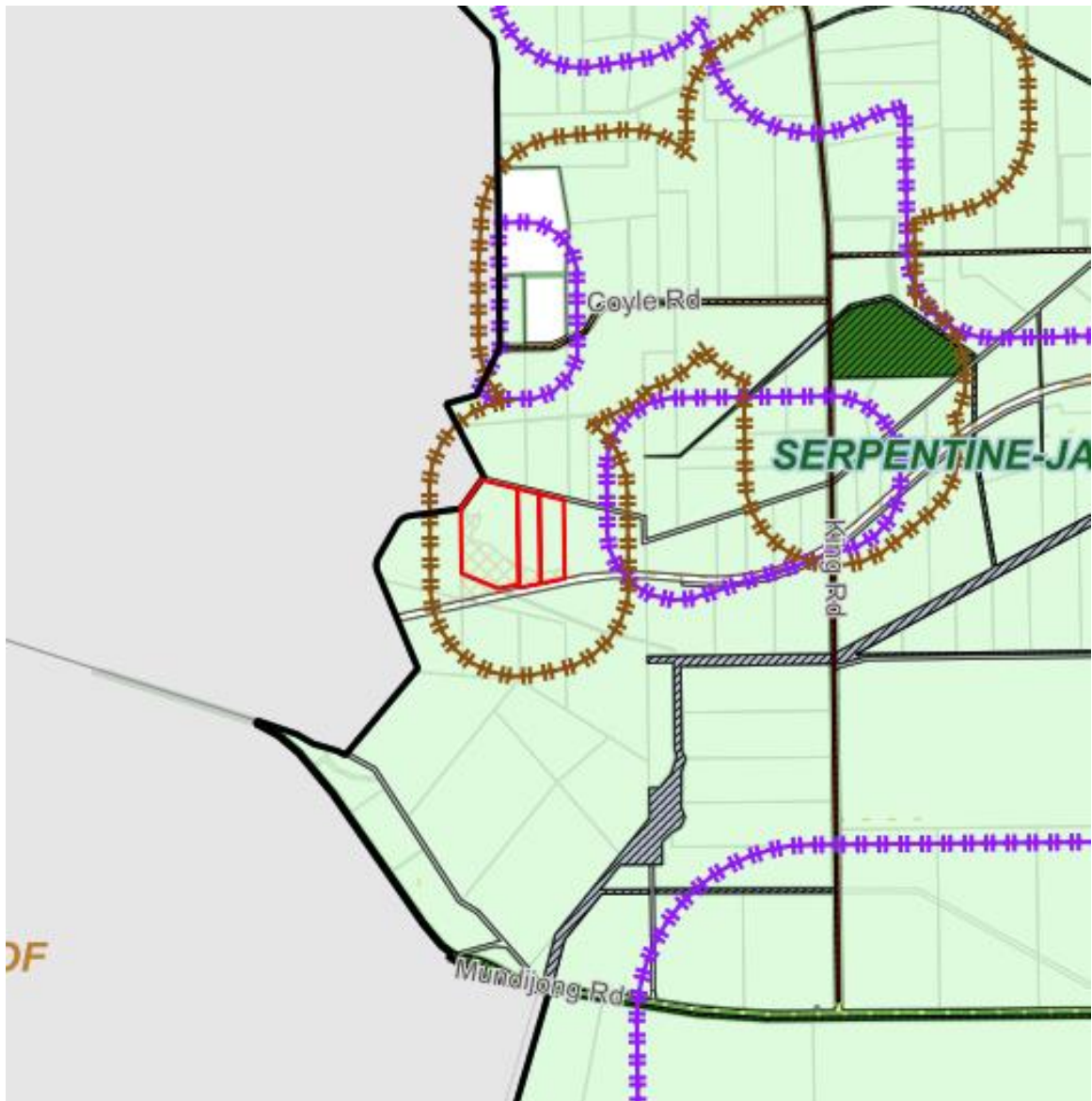


Source: Google Maps



The site is located within the Shire of Serpentine-Jarrahdale and is zoned Rural under the Local Planning Scheme 3 (LPS3). The subject site is located at the western extremity of the Shire and borders the City of Kwinana to the west as shown in Figure 2-2 .

**Figure 2-2: Shire of Serpentine-Jarrahdale LPS3**







## 2.2 Road Network

### 2.2.1 King Road

King Road is a two-lane two-way road, classified as a Regional Distributor under the Main Roads WA functional road hierarchy and subject to a posted speed limit of 100km/h near Coyle Road. It is a sealed road with a carriageway of approximately 7.0m width, with 0.5m wide sealed shoulder with a further 1.5m unsealed shoulder either side. With reference to traffic counts sourced from the Shire of Serpentine-Jarrahdale, King Road in April 2023 was carrying up to 2,400 vehicles per day (vpd) with peak flows of 410 vehicles per hour (vph) in the AM peak (about 6am with 365 northbound) and 230vph in the PM peak (about 4pm with 155 southbound).

### 2.2.2 Coyle Road

Coyle Road is a two-lane two-way road, classified as a Local Distributor under the Main Roads WA functional road hierarchy and subject to a posted speed limit of 80km/h. It is a sealed road with a carriageway of approximately 7.0m width, with 0.5 to 1.0 unsealed shoulders either side. With reference to traffic counts sourced from the Shire of Serpentine-Jarrahdale, Coyle Road in September 2021 was carrying up to 515 vehicles per day (vpd) with peak flows of 45 vehicles per hour (vph) in the AM peak (about 8am with 27 eastbound) and 50vph in the PM peak (about 3pm with 35 westbound). Coyle Road intersects with King Road at its eastern end as a priority-controlled T-junction and with Lydon Road at its western end as a same intersection control.

### 2.2.3 Lydon Road

Lydon Road is a two-lane two-way road, classified as an Access Road under the Main Roads WA functional road hierarchy and subject to a posted speed limit of 70km/h. It is a sealed road with a carriageway of approximately 6.0m width, with 0.5 to 1.0 unsealed shoulders either side. With reference to traffic counts sourced from the City of Kwinana Intramaps, Lydon Road is carrying approximately up to 250vpd.

### 2.2.4 Banksia Road

Banksia Road is a two-lane two-way road, classified as an Access Road under the Main Roads WA functional road hierarchy and subject to a posted speed limit of 70km/h. It is a sealed road with a carriageway of approximately 6.0m width, with 0.5 to 1.0 unsealed shoulders either side. With reference to traffic counts sourced from the City of Kwinana Intramaps, Banksia Road is carrying approximately up to 250vpd. Banksia Road intersects with Lydon Road at its northern end as a priority-controlled T-junction.





### 2.2.5 Boomerang Road

Boomerang Road is a two-lane two-way road, classified as an Access Road under the Main Roads WA functional road hierarchy and subject to the open road speed limit up to 110km/h, where safe. It is an unsealed road with a carriageway of approximately 6.5m width. Based on development on the road it is estimated to be carrying approximately 50vpd. Boomerang Road intersects with Banksia Road at its western end as a priority-controlled T-junction, where the approach is sealed for approximately 45m.

### 2.2.6 RAV Routes

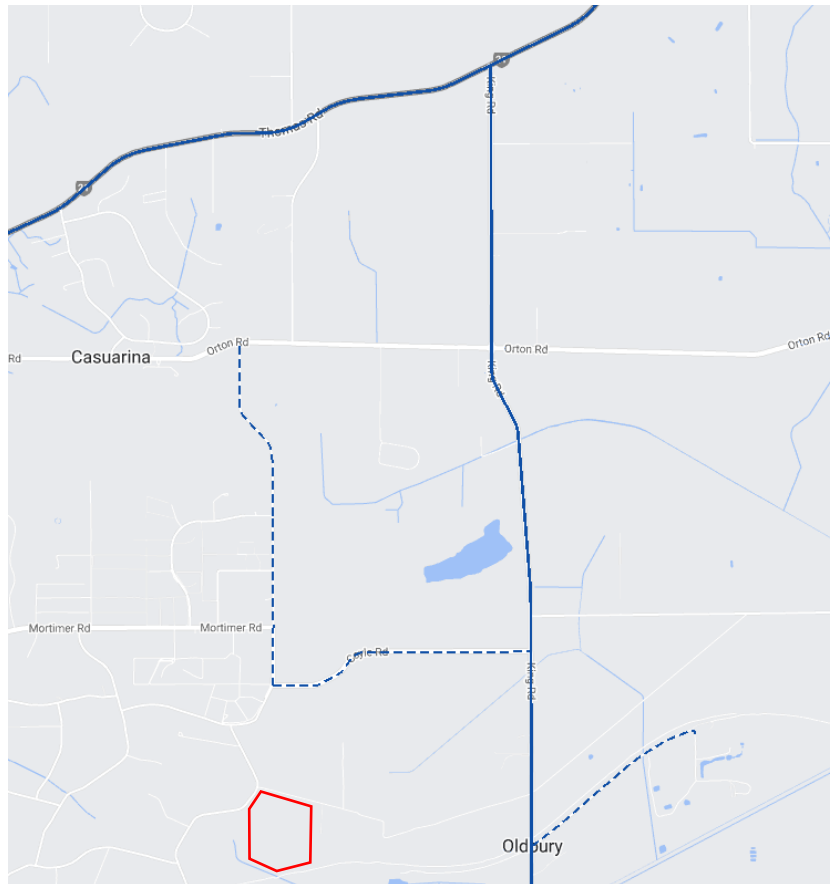
King Road is an unrestricted RAV route for vehicle up to Network 4 (typically B-doubles) with Coyle Road allowing the same sized vehicles only with permission of the Shire.

No other roads are existing Restricted Access Vehicle (RAV) routes for any sized RAVs. These roads may be used by as-of-right vehicles up to 19m long semi-trailers, which is the largest sized vehicles proposed to be used for the proposed sand quarry operations.

Refer to Figure 2-3 on the next page.



**Figure 2-3: RAV Network 4 Routes**



#### 2.2.7 Existing Land Use

The subject site is currently zoned for rural land use under Metropolitan Region Scheme (MRS) and LPS3. It presently has three residential building structures on it.

#### 2.2.8 Proposed Land Use

The proposal is to allow the operation of sand extraction.



### 3 Vehicle Access and Parking

#### 3.1 Access & Parking Layout

Access to the proposed lease area is to be via a crossover directly onto Boomerang Road, approximately 100m from the intersection with Banksia Road.

The types of vehicles expected to access the site on a regular basis will vary from standard light vehicles for staff, with larger vehicles being single unit trucks (typically 10-12.5m long) with the majority and the largest of heavy vehicles being 19m long semi-trailers.

#### 3.2 Crossover Location

The access point is located at the northwest corner of the subject site and will be at the northern end of Lot 6 approximately 100m from Banksia Road.

A desktop review shows the sight distance for a vehicle exiting the site onto Boomerang Road is approximately 70-80m visibility east along Boomerang Road and westward to the intersection of Banksia Road, approximately 100m. This sight distance to/from the east does not meet the minimum requirement of 140 to 150m as required in *AS 2890.2:2008 Parking Facilities Part 2: Off-street Commercial Vehicle Facilities*. This could be addressed with some pruning of trees and bushes on the eastern approach to the access point.

#### 3.3 Pedestrian Facilities

There are no proposed improvements to the pedestrian facilities within the subject site.



## **4 Provision for Service Vehicles**

### **4.1 Waste Collection**

Waste collection at the site will be occasional, as the site should not generate a requirement for waste collection on a regular basis. There may be semi-regular access for toilets to be cleaned/emptied. Given the site is designed for up to 19m long semi-trailers, access for the occasional waste vehicle is not considered to be an issue.

### **4.2 Site Servicing**

As previously discussed, 19m long semi-trailers are the largest expected vehicles that will be servicing the site.

The trucks will typically enter the site from the north via Thomas Road, then onto King Road, Coyle Road, Lydon Road, Banksia Road and then Boomerang Road. No reverse movements are required to enter or exit the site onto Boomerang Road.

It is expected that there may be up to 70 loaded truck movement exiting the site per day in busier contractual requirements, as confirmed by Urban Resources. Engines will be turned off or reduced to idle when not in use within the site.

### **4.3 Emergency Vehicles**

There will be adequate width within the proposed site access and driveway to accommodate an emergency vehicle as larger semi-trailer sized vehicles will be accommodated by the crossover/driveway.



## 5 Daily Traffic Volumes and Vehicle Types

### 5.1 Daily or Peak Hour Traffic Condition

The traffic generators of the proposed operations will be that of the trucks carting sand from the site and returning empty to fill for another trip. Based on the information provided by Urban Resources, there is an expectation that the average extraction rate will be up to approximately 500,000-tonne per annum.

Based on this rate of extraction, there is expected to be up to approximately 70 loaded truck movements exiting the site each day and an equivalent number of movements for returning empty trucks. These trips will typically be spread across a typical 10-11-hour workday and occur 6 days a week from Monday to Saturday.

In addition to trucks carting sand, there is expected to be operational staff driving to and from the site. The nature of quarry operations would expect there to be no more than 2-3 staff on site each day.

Each of these are expected to be driving to and from the site each day while it is operational (Monday to Friday).

The above movements are summarised below in Table 5-1 .

**Table 5-1: Expected Traffic Flows**

Vehicle Type	Vehicles per Day (vpd)	Vehicles per Hour (vph)
Full Truck Movements	70	7-8
Empty Truck Movements	70	7-8
Staff	6	3 (Only at start/end of workday)
<b>Total</b>	<b>146</b>	<b>~15</b> <b>(Trucks only)</b>

### 5.2 Types of Vehicles

The site will be accessed by mostly trucks as detailed in Section 4.2. Any other access to the site will typically be standard B85 and B99 passenger vehicles as detailed in AS/NZS 2890.1:2004 and be associated with staff.



### 5.3 Traffic Impacts

As discussed in Section 2, King Road and Coyle Road are the roads with the highest traffic flows currently recorded and currently carry approximately up to 2,400vpd and 515vpd respectively. Based on the existing land uses along Boomerang Road, majority of traffic flows are expected to be light vehicles. The addition of the proposed site's vehicle movements, with the expectation that all of these will access/exit the site to and from Thomas Road via King Road, Coyle Road, Lydon Road, Banksia Road and then Boomerang Road.

**Table 5-2: Traffic Flow Impacts**

Road	Current Traffic Flows (vpd)	Increase	Expected Traffic Flows
Boomerang Road	50	+146	195
Banksia Road	250	+146	395
Lydon Road	250	+146	395
Coyle Road	515	+146	660
King Road	2,400	+146	2545

Traffic flows on the proposed route are expected to increase by about 146vpd between the proposed quarry and Thomas Road.

The heavy vehicle proportion of these sections of road are expected to increase:

- from approximately 13.7% to 31.9% on Coyle Road
- from approximately 11.7% to 16.6% on King Road

The current cross section of King Road and Coyle Road suggests that the design traffic volumes that it can typically carry, is up to approximately 3,000vpd on sections where it has a sealed width of approximately 7.0m, as per Table 4.5 from Austroads Guide to Road Design Part 3: Geometric Design. The current cross section of other roads can typically carry up to approximately 1,000vpd.

Based on the expected traffic flows noted above with the proposed quarry operations, the resultant expected traffic flows are well within the carrying capacity of all affected roads and thus considered acceptable.

This resultant traffic volume indicates that any potential increase in the number of trucks used to haul for larger contracts will be accommodated by the remaining roadway capacity of all roads.



## 6 Traffic Management on the Frontage Streets

As previously discussed, Boomerang Road is an Access Road with an east-west orientation and an unsealed carriageway width of approximately 6.5m with no line marking and subject to a speed limit of up to 110km/h, where safe to do so.

Given the current nature of Boomerang Road and the adjacent land uses, there are no cycle lanes, footpath or formalised roadside parking in the vicinity of the subject site. There is no need to provide such facilities for this specific land use.





## 7 Public Transport Access

There is no public transport near the subject site, and it is not expected that the proposed development will rely on public transport with the only material change to the use being that accessed by service vehicles.



## 8 Active Transport

### 8.1 Pedestrian Access/Facilities

There are no existing pedestrian facilities within the site and there are no existing pedestrian facilities external to the site on the surrounding road network.

The proposed project does not plan nor are there any requirements to improve pedestrian access for the proposed development.

### 8.2 Cycle Access/Facilities

There are no existing cycling facilities within the site.

There are no existing cycling facilities external to the site on the surrounding road network along any roads. These sections of road are also not on Department of Transport's Long-Term Cycle Network (LTCN) Plan for Perth and Peel as either a Local, Secondary or Primary Route.

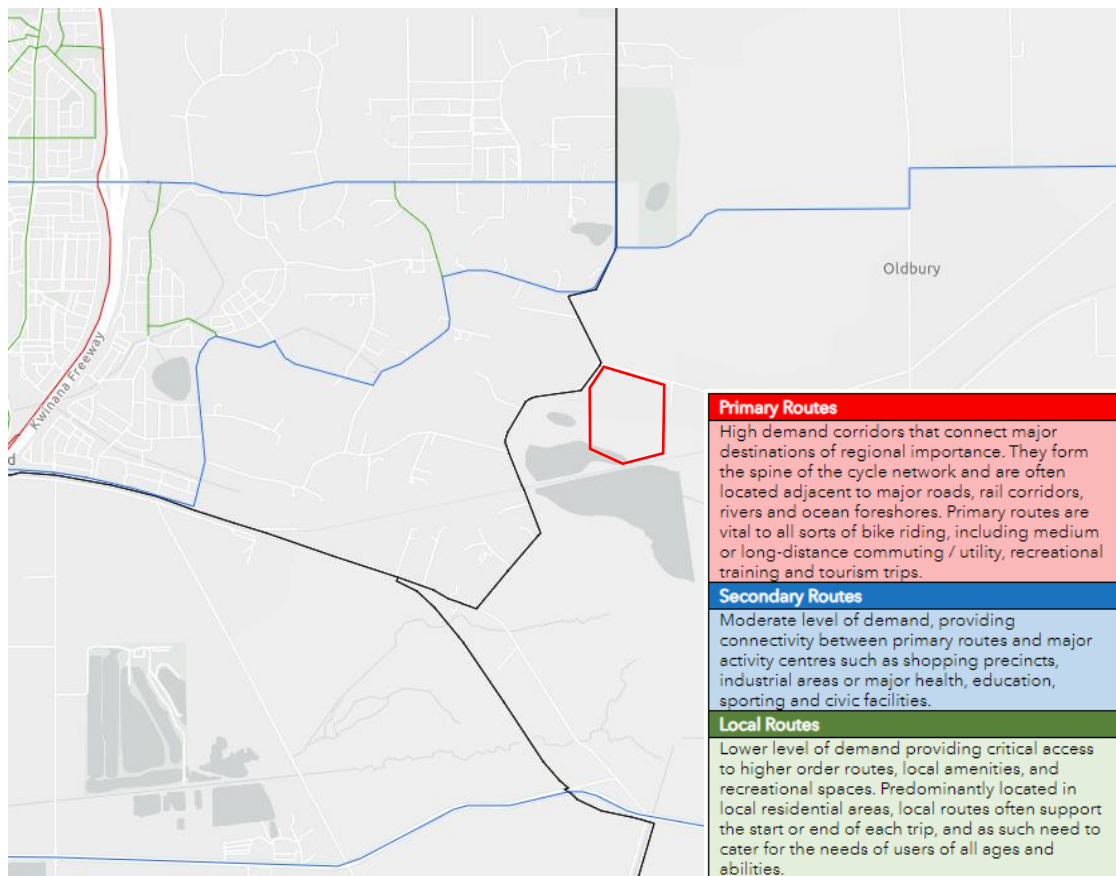
However, Coyle Road and Lydon Road itself are noted as Secondary Routes which ultimately provide connections through to the Primary Route on the Kwinana Freeway.

See Figure 8-1 below.

These routes could be used by the small number of site employees if they should so wish to ride to and from the site.



**Figure 8-1: LTCN in the Vicinity of the Site**



Source: Department of Transport LTCN for Perth and Peel

<https://dot-wa.maps.arcgis.com/apps/webappviewer/index.html?id=1e739953bbee461f81ffe3a8157894b5>



## 9 Site Specific Issues

Given the nature of Boomerang Road and adjacent land uses, sight distances and speed zoning are the main factors to be considered for this sand operations.

With the speed limit of 110km/h and generally flat and straight orientation of Boomerang Road, the required sight distances have been discussed in Section 3.2. To achieve the required sight distance, there will be some pruning of vegetation required on the eastern side of the access.

The intersection approach from Banksia Road has clear visibility to the access. There will be little traffic on this section of Boomerang Road and drivers will be able to accommodate opposing vehicles and slow down as required.

The largest vehicles proposed to be used are as-of-right semi-trailers and these vehicles may legally access the haul route and thus there is no need for any special arrangements to allow these roads to be used for the proposed sand quarry operations.

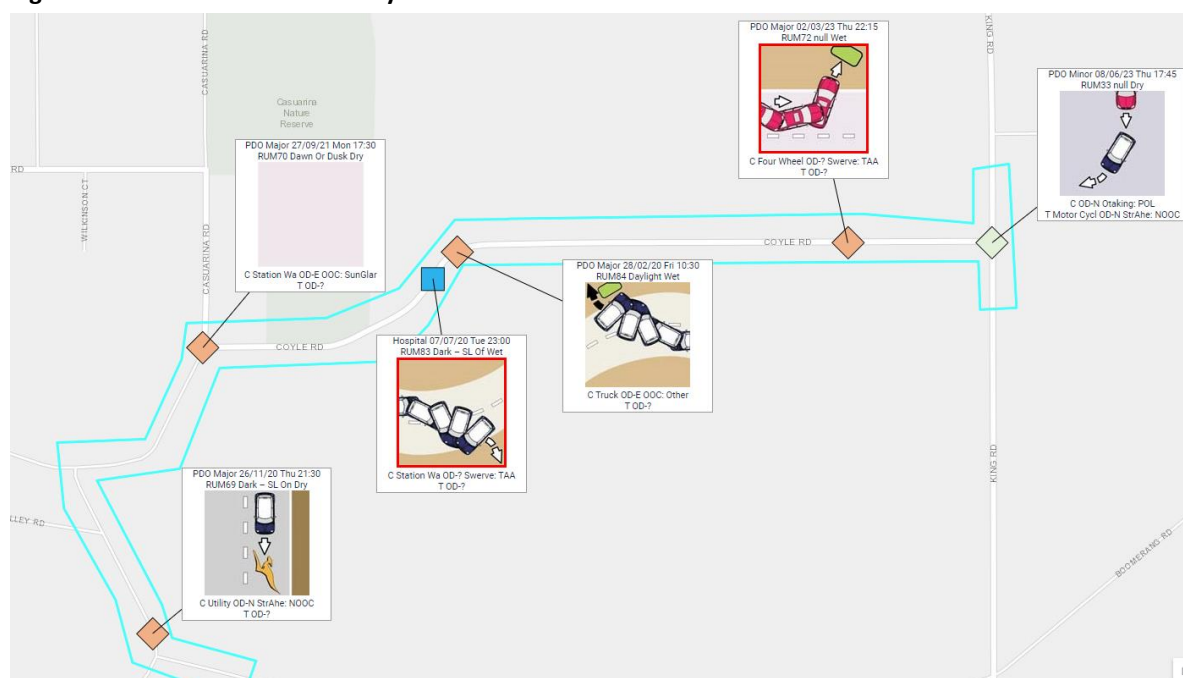


## 10 Safety Issues

A review of the Main Roads WA Crash Analysis Reporting System shows there have been six reported crashes on the proposed route from the site to Thomas Road.

Three have occurred on Coyle Road, one on Banksia Road and two at the intersection of Coyle Road at the intersections at either end. Refer to Figure 10-1 below.

**Figure 10-1: Crashes in the Vicinity of the Site**



Of these crashes the following observations are made:

- Three involved an animal.
- Five were single vehicle crashes.
- 50% occurred in non-daylight conditions.
- 50% occurred when the road was wet (two of these corresponded to non-daylight conditions).
- One crash was a KSI (occurred during non-daylight, wet conditions trying to avoid an animal).
- Five crashes were PDO.

The above crash typologies are typical of the rural nature of the roads with higher speeds, open nature of the surrounds and with trees and vegetation growing up close to the roadway in some areas.



The proposed operations will be during daylight conditions with professional trained drivers. There will be an operational management plan in place, and this will specify further safety requirements for drivers, such as radio check-ins. This will ensure the safest use of the proposed route by these vehicles.

Based on low crash data, the anticipated development being a low generator of traffic with operational management practice to be put in place, it is not expected that the proposed operations will exacerbate the crash risk at the subject site or on the surrounding road network.



## II Summary & Recommendations

As a result of the traffic analysis undertaken for the proposed sand quarry at Lot 6 and Lots 300 & 301 Boomerang Road in Oldbury, the following key findings have been made:

- The proposed operations are expected to generate approximately 146 two-way vehicular trips per day with up to approximately 15 two-way truck movements per hour (7-8 laden trips leaving the quarry and 7-8 empty trucks entering the quarry).
- The impacts of the traffic volumes associated with the operations on the road network are considered acceptable with resultant traffic flows less than the typical traffic carrying capacity of the road network.
- The sight distance to/from the east will need to be addressed for the access on Boomerang Road, suggested to be improved through pruning of trees and vegetation.
- The proposal for sand operations intends to have trucks up to 19m long semi-trailer accessing the site and these can legally travel on the intended haul roads in the area.