

Crescent Head Ilmenite Stockpile Rehabilitation

Haulage Route Traffic Impact Assessment

**Plomer Road, Crescent Head to
Macleay Valley Way, Kempsey**

for

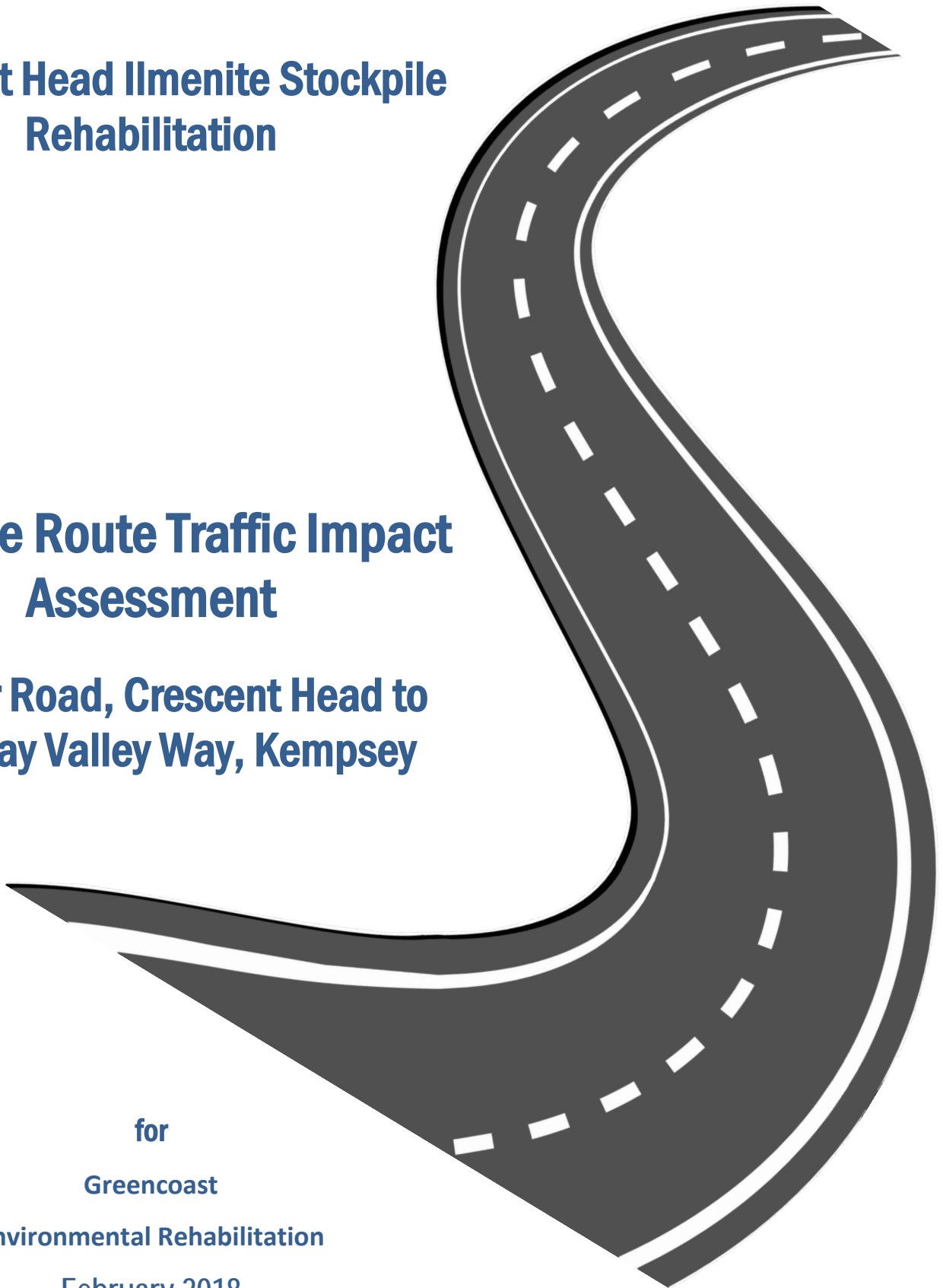
Greencoast

Environmental Rehabilitation

February 2018

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Greencoast Environmental Rehabilitation



Traffic Impact Assessment Details

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| Prepared By | Andy Davis [Redacted] Director | Andy Davis [Redacted] Director | | |
| Reviewed By | Craig Nethery [Redacted] Director | Craig Nethery [Redacted] Director | | |
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StreetWise Road Safety & traffic Services Pty Ltd



www.streetwisersa.com.au

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1. INTRODUCTION

1.1 General

StreetWise Road Safety and Traffic Services have been engaged by Greencoast Environmental Rehabilitation to prepare a Traffic Impact Assessment and report for the haulage of material from Plomer Road, Crescent Head to storage facility at South Kempsey. The existing Ilmenite stockpile is to be transported via truck and trailer along public roads from Lot 2281 Dp 1153793 at Point Plomer Road, Crescent Head in the east to Thurgates Haulage on Macleay Valley Way, South Kempsey, in the west.

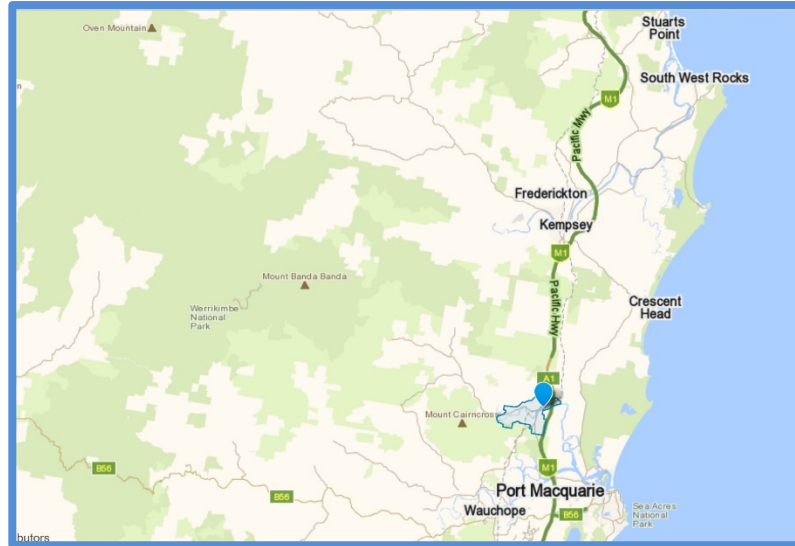


Figure 1 – Locality Plan – Kempsey District

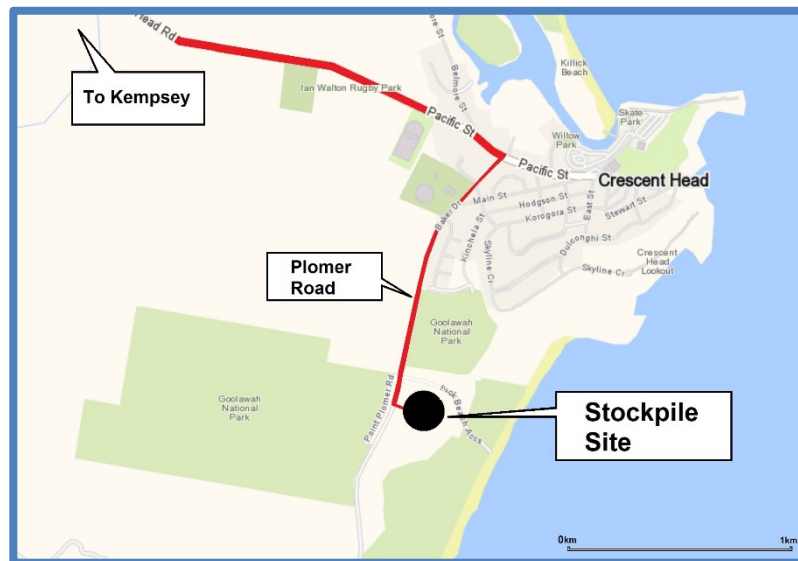


Figure 2 – Locality Plan – Crescent Head township

1.2 Scope

This traffic impact assessment of the proposed haulage of Ilmenite from Crescent Head to South Kempsey includes:

- Completion of a Site Inspection
- Complete an AM & PM Peak Manual Intersection Count for the intersection of Baker Drive and Pacific Street, Crescent Head.
- Liaise / Consult with Kempsey Council and the RMS (Roads & Maritime Services)
- Haulage Route Assessment

- Assess the traffic impacts including:
 - Determine Traffic Generation (material haulage)
 - Distribute Traffic Assignment (material haulage)
 - Intersection / Access Sight Distance Assessment
 - assessment of impacts on local streets
 - assessments of impacts on existing school zones
- Swept Turnpath Assessment
- Preparation of Traffic Impact Assessment Report in accordance with the RMS Guide to Traffic Generating Developments
- Calculate proposed development traffic generation based on the prescribed rates provided in the RMS Guide to Traffic Generating Developments.
- Investigate existing traffic volumes on adjacent roads, including traffic counts
- Distribute traffic generation through the adjacent intersections based on flow percentages determined historical traffic/intersection counts.
- Determine the impacts of the additional traffic on the local network and adjacent intersections, including existing and proposed development on the road network with consideration for a 10-year horizon.
- Check carparking, site access and internal vehicle turn paths
- Haul route assessment, including:
 - Intersection sight distances at key intersections along the primary haul route
 - Capacity of key intersections
 - Capacity of existing roads.
- Road safety assessment of haulage route/s, including impacts on school zones and residential areas.
- Recommendations for improvements to any affected intersections.
- Impact of rail corridors on the road network and details of proposed interface treatments.
- Assist with 'Code of Conduct for Haulage Operators'
- Prepare a Traffic Impact Assessment report

1.3 Description of Activity

This project involves removal of approximately 47,500 cubic metres of ilmenite currently stockpiled at Lot 2281 DP 1153793, Point Plomer Road, Crescent Head, and transporting the material to Thurgate Haulage site, at Lot 1 DP 1205585, Macleay Valley Way, where it will be stored.

The ilmenite will be transported via truck and dog trailers along public roads from Crescent Head to South Kempsey.

1.4 Description of ilmenite

Most ilmenite is mined for titanium dioxide production. In 2011, about 47% of the titanium dioxide produced worldwide were based on this material. Australia was the world's largest ilmenite ore producer in 2011, with about 1.3 million tonnes of production. Although most ilmenite is recovered from heavy mineral sands ore deposits, ilmenite can also be recovered from layered intrusive sources or "hard rock" titanium ore sources.

Finely ground titanium dioxide is a bright white powder widely used as a base pigment in paint, paper and plastics. Metallic Titanium can be easily derived from it for uses such as aircraft and high-strength steel devices.

Ilmenite has a specific gravity of 4.70 – 4.79, and weighs approximately 2.3 tonnes per cubic metre, similar to crushed gravel or sand.

2. ROAD NETWORK

2.1 Proposed Haulage Route

The proposed transportation of ilmenite will utilise local roads between Crescent Head and South Kempsey. The total of the proposed route is approximately 17kms, and will include the following roads:

| <i>Road</i> | <i>Distance (km)</i> |
|-------------------------------|----------------------|
| Point Plomer Road/Baker Drive | 1.070 |
| Pacific Street | 0.775 |
| Crescent Head Road | 13.52 |
| Macleay Valley Way | 1.79 |
| Total | 17.16km |

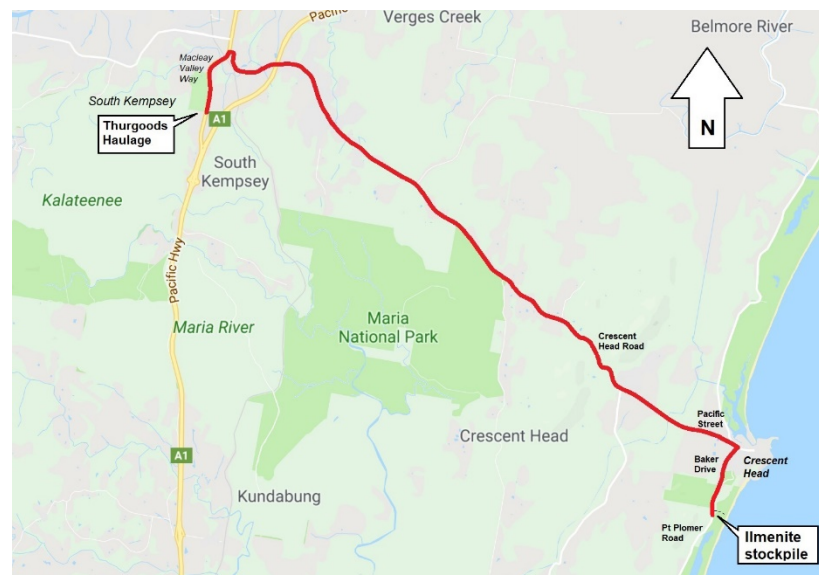


Figure 2.1: Proposed haulage route

StreetWise contacted Kempsey Shire Council in regard to the proposed haulage route and were informed that there were no known weight limits on any of these roads.

2.2 Point Plomer Road/Baker Drive

Point Plomer Road is an unsealed coastal road that provides access to the beaches and bushland south of Crescent Head. The northern section of Plomer Road is maintained regularly by Kempsey Council, and is in reasonable condition for approximately 12 kms to Point Plomer. However, the southern section, through to the north shore of Port Macquarie, is suitable only for four-wheel drive vehicles.

The northern section of Plomer Road is relatively wide (10m), with gravel tabledrains, but no formal drainage system. The condition of the road surface is dependent on weather conditions and regular council grading. The northern section of Plomer Road is sealed for approximately 1 km, which includes the section of road from the Back Beach access to the start of the residential housing.

Baker Drive is a sealed, local road which connects the northern section of Plomer Road to the Crescent Head township via Pacific Street. Baker Drive is approximately 750m in length. The first few hundred metres of Baker Drive is fully formed, with upright kerb & gutter both sides. However, south of Killuke Crescent, the standard of roadway is reduced, with grassed tabledrains and

numerous potholes, uneven edges and surface defects. Across the frontage of the playing fields, there is a wide, gravelled shoulder. Speedzone is 50kmh in the urban area.



Figure 2.2: Baker Drive, just north of gravelled section (Plomer Road)



Figure 2.3: Baker Drive, looking south near playing fields

2.3 Pacific Street

Pacific Street is a sealed, urban road which is generally 7m wide, with gravel shoulders either side. In the vicinity of Baker Drive, Pacific Street widens to approximately 10m, with upright kerb & gutter and adequate width for on-road parking either side. The road widens further (to approx. 15m) at the intersection with Baker Street.

The speed limit on Pacific Street is 50kmh, until the town limit, where the speed limit increases to 100kmh where roadway becomes Crescent Head Road.

The section of Pacific Street across the frontage of Crescent Head Primary School is a designated schoolzone, with speeds reduced to 40kmh during peak school pick-up and drop-off times.



Figure 2.3: Pacific Street, looking west towards Crescent Head Road

2.4 Crescent Head Road

Crescent Head Road is a rural arterial road connecting the coastal township of Crescent Head with Macleay Valley Way and South Kempsey. The roadway varies in standard along its length, but the carriageway is generally 7m wide, with one lane in either direction. Much of the road also includes roadside shoulder, with approximately 50% of the overall shoulder being sealed, the remainder being unsealed/gravelled.

Much of Crescent Head Road appears to have been upgraded in recent years, although some sections included an uneven surface and broken road edges.



Figure 2.4: Crescent Head Road, showing a recently upgraded section of road



Figure 2.5: *Crescent Head Road, showing a join between new and old sections of road*

The full length of Crescent Head Road includes centre linemarking, while the majority also includes edgelines i.e. delineation of shoulders and full lane width.

The 13.5km length of Crescent Head to be utilised as a haul road for the removal of ilmenite includes a number of intersections with local roads, including major, rural intersections with:

- Maria River Road – a channelised intersection with separate (linemarked) auxiliary lanes to assist vehicles turning in and out of Maria River Road. It should be noted that Maria River Road has occasionally been utilised as an alternate route between Port Macquarie & Kempsey when the Pacific Highway has been closed due to bushfires or crashes.
- Beranghi Road – a channelised intersection with separate (linemarked) auxiliary lanes to assist vehicles turning in and out of the side road.
- Northern Trail Road – this section of Crescent Head Road has been widened to create a BAR/BAL layout, which provides adequate width for through vehicles to pass any vehicles queuing to turn right into the local road. This intersection provides access to Council's Waste Management Site, and therefore a large number of compactor trucks and other heavy vehicles utilise the section of Crescent Head Road and intersection daily. It should be noted that Kempsey Shire Council has provided a number of signs on Crescent Head Road to warn motorists of truck movements in the area.

The western end of Crescent Head Road also passes over the new Pacific Motorway. However, the new overpass is a high standard, but provides no access to or from the motorway.

The speedzones on Crescent Head Road vary along its length. The majority of the road is signposted 100kmh, but the speed is reduced to 80 kmh in some sections where there are intersections with local roads, residential areas and small radius curves.

A number of sections include guard-fencing where there are obvious hazards (steep batters, tight curves etc) while other curves are signposted with Curve Advisory signage (i.e. suggested slower speeds).

2.5 Macleay Valley Way

Macleay Valley Way was previously the Pacific Highway, prior to the bypassing of Kempsey by the Pacific Motorway in March 2013. The road generally runs north/south through the township of Kempsey, joining the South Kempsey interchange with the Fredrickton Interchange, thence connecting with Stuarts Point Road approximately 20kms further north.

Macleay Valley Way is a high standard road, with a number of large intersections connecting with major local roads, including Crescent Head Road.

The road previously catered for a high volume of highway traffic and is still rated to cater for B-doubles.



Figure 2.6: Macleay Valley Way, looking south from P2P Average Speed monitors

2.6 School Zones

Along the proposed 17.2km haulage route, there are 2 current school zones.

- Crescent Head Public School is located at 44 Pacific Street, just west of the Baker Drive intersection
- Kempsey Adventists School is located at 108 Crescent Head Road, Kempsey, at the western end of Crescent Head Road, about 1km east of the intersection with Macleay Valley Road.

Both schools include a 40kmh schoolzone between 8:00 - 9:30am in the morning and 2:30 – 4:00pm each weekday afternoon.

3. TRAFFIC VOLUMES

3.1 Existing Traffic Volumes

The RMS website provided traffic volumes for Macleay Valley Way, while Kempsey Council provided recent traffic volumes for the remainder of roads that make up the proposed haulage route.

| <i>Road</i> | <i>Date</i> | <i>ADT</i> |
|--|-------------|------------|
| Plomer Road (sth of Back Beach Rd) | Jan 2018 | 4948* |
| Pacific Street | Mar 2016 | 2866 |
| Crescent Head Road (nr Tip Road) | Feb 2017 | 5813 |
| Macleay Valley Way (at P2P camera, nr Kempsey Golf Club) | Mar 2017 | 9910 |

Figure 3.1: Average Daily Traffic Volumes on Haul Route Roads

* Council provided traffic count – appears incorrect (see Section 3.1.4)

3.1.1 Macleay Valley Way

The RMS have a traffic counter located on Macleay Valley Way, approximately 400m north of the Thurgoods Haulage site. The counter is located at a P2P HV monitoring gantry near Kempsey Golf Club which is still operational despite the previous Pacific Highway being bypassed by the new M1 Motorway.

As can be seen from Figure 3.1 above, the average traffic volumes on Macleay Valley Way are approximately 10,000 vpd. Figure 3.2 below shows an hourly break-up of the daily volumes, and the following should be noted:

- The number of northbound vehicles per day is significantly higher than the number of southbound vehicles
- The morning peak occurs around 8:00am, while the afternoon peak is around 3 - 4:00pm

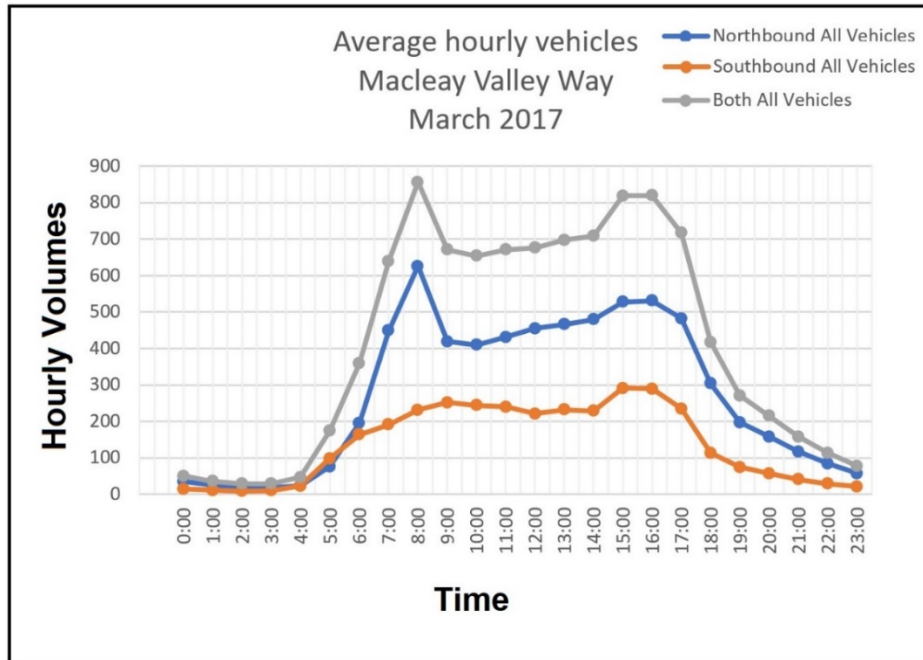


Figure 3.2: Average Hourly Traffic Volumes – Macleay Valley Way (March, 2017)

3.1.2 Crescent Head Road

StreetWise obtained traffic data from Kempsey Shire Council for Crescent Head Road. Council had recently placed tube counters either side of Tip Road to determine traffic volumes in the vicinity of Council's Waste Management facility. The tube counts were taken during February 2017, and the results show a week day average of around 5800 vehicles per day, and approximately 280 total vehicles during the morning and afternoon peak periods (see Figure 3.3 & 3.4 below).

The data indicated up to 160 vehicles accessed the waste management site on a week-day, with 8.7% of the total traffic volume being single unit trucks or larger.

| Average Daily Volume (east of Tip Road) | | | | | | | |
|---|------|------|------|------|------|------|------|
| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| East | 2731 | 2767 | 1316 | 2738 | 2993 | 2569 | 2398 |
| West | 2696 | 2742 | 1309 | 2667 | 2820 | 2501 | 2587 |
| Combined | 5427 | 5509 | 2625 | 5405 | 5813 | 5070 | 4985 |
| AM Pk East | 102 | 95 | 85 | 97 | 102 | 130 | 123 |
| PM Pk East | 168 | 169 | 163 | 172 | 169 | 132 | 122 |
| AM Pk West | 192 | 197 | 178 | 185 | 183 | 129 | 116 |
| PM Pk West | 92 | 94 | 97 | 92 | 101 | 92 | 117 |
| Days | 2 | 2 | 1 | 2 | 2 | 2 | 2 |

Figure 3.3: Average Hourly Traffic Volumes – Crescent Head Road – East (Feb, 2017)

| Average Daily Volume (West of Tip Rd) | | | | | | | |
|---------------------------------------|------|------|------|------|------|------|------|
| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| East | 2915 | 2942 | 1402 | 2886 | 3151 | 2702 | 2512 |
| West | 2890 | 2929 | 1397 | 2823 | 2982 | 2634 | 2717 |
| Combined | 5805 | 5871 | 2799 | 5709 | 6133 | 5336 | 5229 |
| AM Pk East | 118 | 105 | 98 | 104 | 112 | 137 | 134 |
| PM Pk East | 168 | 172 | 161 | 172 | 169 | 143 | 130 |
| AM Pk West | 194 | 209 | 189 | 188 | 190 | 142 | 129 |
| PM Pk West | 106 | 105 | 99 | 107 | 113 | 101 | 123 |
| Days | 2 | 2 | 1 | 2 | 2 | 2 | 2 |

Figure 3.4: Average Hourly Traffic Volumes – Crescent Head Road – West (Feb, 2017)

3.1.3 Pacific Street

StreetWise obtained traffic data from Kempsey Shire Council for Pacific Street, immediately east of Baker Drive, within the village (and 50kmh zone) of Crescent Head. The tube count was taken during March 2016, and the results show a week day average of around 3000 vehicles per day, and approximately 260 total vehicles during the morning and afternoon peak periods (see Figure 3.5 below).

| Average Daily Volume | | | | | | | |
|----------------------|------|------|------|------|------|------|------|
| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| East | 1467 | 1513 | 3021 | 1134 | 1636 | 1572 | 1506 |
| West | 1344 | 1445 | 2820 | 1026 | 1512 | 1483 | 1450 |
| Combined | 2811 | 2958 | 5841 | 2160 | 3148 | 3055 | 2956 |
| AM Pk East | 140 | 134 | 136 | 103 | 140 | 167 | 179 |
| PM Pk East | 142 | 144 | 142 | 145 | 147 | 164 | 149 |
| AM Pk West | 122 | 133 | 131 | 123 | 138 | 150 | 178 |
| PM Pk West | 125 | 120 | 113 | 107 | 132 | 140 | 146 |
| Days | 1 | 1 | 2 | 1 | 1 | 1 | 1 |

Figure 3.5: Average Hourly Traffic Volumes – Pacific Street (March, 2016)

3.1.4 Plomer Road

StreetWise obtained recent traffic data from Kempsey Shire Council, who had placed tube counters 1.8kms south of Back Beach Road (just north of the unsealed section of roadway). The counters were utilised to capture the amount of traffic on Plomer Road over the Christmas holiday period, and the volumes collected are therefore likely to be higher than average. The traffic count summary (below) indicates an average of less than 5000 cars per week-day during peak holiday periods, with about 90 – 100 vehicles per hour during peak times.

| Average Daily Volume | | | | | | | |
|----------------------|------|------|------|------|------|------|------|
| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| North | 1470 | 1721 | 2000 | 2096 | 2338 | 2256 | 2026 |
| South | 1728 | 2233 | 2708 | 2623 | 2610 | 2572 | 2072 |
| Combined | 3198 | 3954 | 4708 | 4719 | 4948 | 4828 | 4098 |
| AM Pk North | 46 | 51 | 52 | 58 | 71 | 70 | 68 |
| PM Pk North | 42 | 56 | 43 | 58 | 62 | 49 | 55 |
| AM Pk South | 41 | 48 | 46 | 58 | 54 | 54 | 56 |
| PM Pk South | 46 | 61 | 53 | 66 | 65 | 64 | 55 |
| Days | 4 | 4 | 5 | 4 | 4 | 4 | 4 |

Figure 3.6: Average Daily Traffic Volumes – Plomer Road (Dec, 2017)

It should be noted that the traffic data for Plomer Road provided by Kempsey Council appears to be erroneous, with the high volumes not matching those of the local road network. If we take the total average daily volume for a Friday (4948) and divide it by 24 hours, the average hourly volume would be 242 vehicles. Yet, the maximum peak hour volumes from Figure 3.6 above are only 127 vehicles. Also, the peak volumes recorded in Baker Drive during StreetWise's onsite traffic count were 168 (both directions). It would be assumed that volumes in Baker Drive would be higher than those on Plomer Road. For the purposes of this assessment, StreetWise has adopted 1270 as the total average weekday traffic volumes on Plomer Road (i.e. 10x the peak hour volume).

3.1.5 Intersection of Baker Drive & Pacific Street

StreetWise undertook a manual traffic count at the intersection of Baker Drive and Pacific Street on Thursday, 22 February, 2018. The count was taken between 2:30pm and 5:30pm to ensure the afternoon peak period was captured. The peak hour was between 3:00 – 4:00pm, which corresponded with the local school pick-up period. The results of the count are shown below:

| Time | Movement 1 | | | | Movement 2 | | | | Turn Movements | | | | 15m Total |
|-----------------|--|----------|----------|------------|--|----------|----------|-----------|----------------|-----------|-----------|-----------|------------|
| | Pacific Street - eastbound (towards beach) | | | | Pacific St - westbound (towards Kempsey) | | | | 3 | 4 | 5 | 6 | |
| | LV | Bus | HV | Total | LV | Bus | HV | Total | ← | ↻ | ↻ | ↻ | |
| 15:00 - 15:15 | 25 | 0 | 0 | 25 | 21 | 0 | 0 | 21 | 14 | 21 | 11 | 12 | 104 |
| 15:15 - 15:30 | 27 | 0 | 0 | 27 | 21 | 0 | 0 | 21 | 10 | 17 | 3 | 6 | 84 |
| 15:30 - 15:45 | 25 | 0 | 0 | 25 | 22 | 0 | 0 | 22 | 9 | 5 | 9 | 5 | 75 |
| 15:45 - 16:00 | 35 | 1 | 0 | 36 | 12 | 1 | 0 | 13 | 10 | 10 | 15 | 11 | 95 |
| Hr Total | 112 | 1 | 0 | 113 | 76 | 1 | 0 | 77 | 43 | 53 | 38 | 34 | 358 |

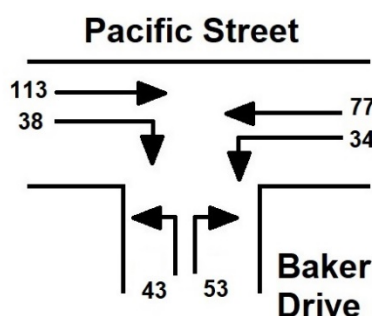


Figure 3.7: Average Hourly Traffic Volumes – Baker Drive intersection (Feb 2018)

3.2 Road Capacities

3.2.1 Austroads Guidelines

AustRoads Guide to Traffic Management – Part 3: Traffic Assessment and Analysis, provides a table of road capacity, based on the efficiency of a single lane of traffic at various traffic speeds. The traffic volumes shown in Figure 3.8 below, plotted on the Austroads graph (see Figure 3.9).

| Road | Total AADT | Pk Hr one lane |
|---|------------|----------------|
| Plomer Road (sth of Back Beach Rd) | 1270* | 71 |
| Baker Drive (from peak hour count) | 1680 | 96 |
| Pacific Street | 3148 | 147 |
| Crescent Head Road (nr Tip Road) | 5813 | 183 |
| Crescent Head Road (nr Patterson Ln) | 8920 | 274 |
| Macleay Valley Way (at P2P, nr golf course) | 9910 | |

Figure 3.8: Average Hourly Traffic Volumes & peak hr, single direction volumes

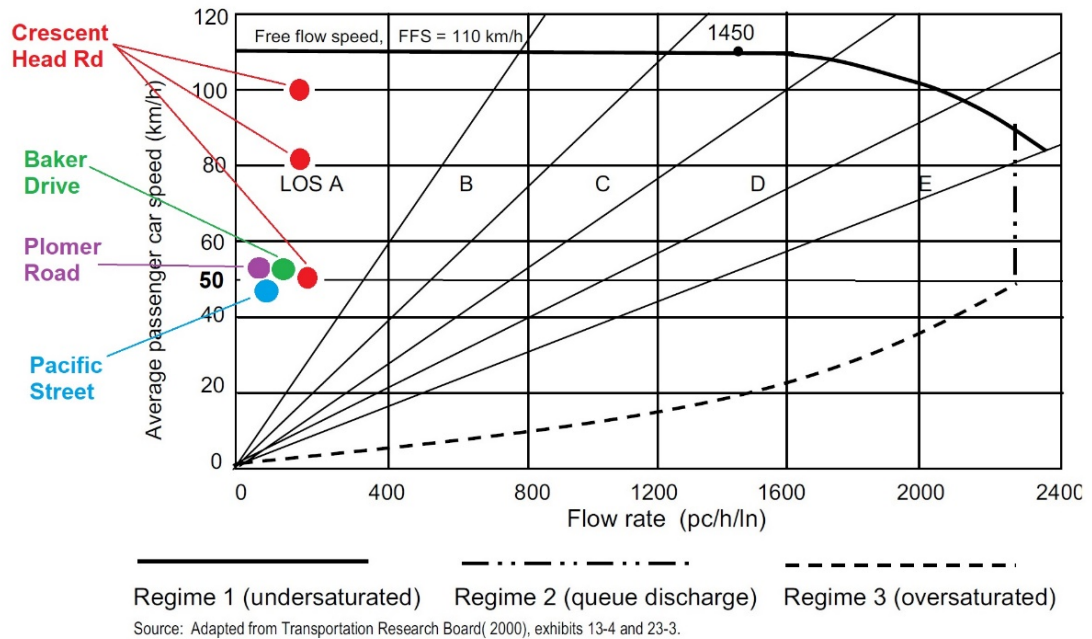


Figure 3.1: Levels of service and service flow rates
Austroads Guide to Traffic Management
Part 3 Traffic Studies and Analysis

Figure 3.9: Lane Capacity and Level of Service (Austroads)

Austroads guidelines describe a Level of Service A as “A condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.”

It should also be noted that generally, a roadway can operate up to and including a Level of Service of C, before it is considered inefficient.

3.2.2 Austspec Guidelines

Local Councils also refer to Auspec, a local government specification for civil engineering. Auspec D-01 relates to Geometric Road Design, and includes guidelines for road capacities for various standard roads. As can be seen from Figure 3.10 below, the roadways to be utilised for the proposed haul road have adequate capacity to cater for the estimated 20 laden truck and dog movements per day.

| Road Name | Auspec Guidelines | | Actual Volumes |
|--------------------|--------------------------|-----------------------|-----------------------|
| | Classification | Capacity (vpd) | |
| Plomer Road | Major Local | > 200 | 1270 |
| Baker Drive | Local | 2000 | 1680 |
| Pacific Street | Collector | 6000 | 3148 |
| Crescent Head Road | Rural Arterial | NA | 8920 |
| Macleay Valley Way | Urban Arterial | 20,000 | 9910 |

Figure 3.10: Road Classification and Capacity (Austspec)

It should be noted that Macleay Valley Way was previously the Pacific Highway, and catered for up to 30,000 vehicles per day during peak holiday periods. The road width, pavement standard and

intersection layouts between Thurgates Haulage site and Crescent Head Road have not changed since the roadway was part of the main route between Sydney and Queensland.

3.3 Development Generated Volumes

The applicant proposes to haul 47,500 cubic metres of ilmenite from Point Plomer Road, Crescent Head to Thurgates Haulage site at South Kempsey. Given that ilmenite has a weight of approximately 2.3 tonnes per metre³, the number of haulage trips can be assessed similar to that of sand.

| | |
|--------------------------------------|----------------------------------|
| Proposed total amount of ilmenite | 47,500 cu metres |
| Approximate total weight of material | 110,000 tonnes |
| Max capacity of standard truck | 30 - 33 tonnes |
| Adopted av. load per trip | 30 tonnes (13 cu metres) |
| Max Gross Vehicle Mass (GVM) | 42.5 tonnes |
| Total number of trips required | 3654 laden or 7308 haul & return |
| Proposed loads per week | 100 laden or 200 return trips |
| Average per day | 20 laden or 40 return trips |
| Average per hour (10-hour day) | 2 laden or 4 return trips |

The above estimate is based on an average number of weekly, daily and hourly trips to remove 47,500m³ of ilmenite from the Crescent Head site. The haulage operator is proposing an average of 20 laden trips per day. He is also planning to haul the ilmenite on weekdays only i.e. no weekend haulage planned. However, the number of daily trips is variable, and the following information (provided by the haulage truck operator) should be considered:

- The average return trip is estimated to be 80 minutes. Therefore, with one truck & dog available, a 10 hour working day will result in approx. 6 - 7 return trips per day
- It is anticipated that 2 -3 truck & dogs will be utilised most days (depending on availability), which will increase the maximum number of laden trips per day to 21 (or 42 return trips)
- If we adopt an average of 20 return trips per day, it will take approximately 36 weeks to complete the relocation of the ilmenite from Crescent Head to Thurgate's Haulage site at south Kempsey

3.4 Trip Assignment

The proposed haulage route is shown in Figure 2.1 of this report. There are no alternative routes, and ALL laden haulage movements will include:

- A right turn out of the current stockpile site onto Pt Plomer Road/Baker Drive at Crescent Head
- A left turn onto Pacific Street from Baker Street
- Travel 13.5kms westbound on Crescent Head Road
- Turn left onto Macleay Valley Way from Crescent Head Road
- Travel 1.8kms south on Macleay Valley Way before turning right at the Thurgate Haulage access

The return (empty) trip follows the same route in reverse.

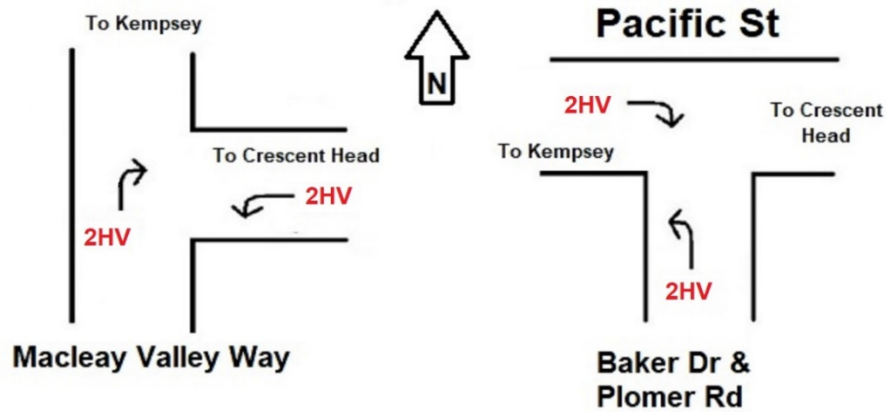


Figure 3.4: Estimated hourly vehicle trips to be generated by the haulage

4. INTERSECTION ASSESSMENT

The proposed haulage route includes a number of intersections along its 17.2km length, but only 2 where the truck & dog trailers are required to turn i.e. at the intersection of Macleay Valley Way and Crescent Head Road (South Kempsey) and also the intersection of Baker Drive and Pacific Street (Crescent Head). The route also includes turning onto Pt Plomer Road from the loading area, and also turning into the Thurgates Haulage site from Macleay Valley Way to unload.

4.1 Intersection Assessment

4.1.1 Intersection of Baker Drive & Pacific Street

The existing layout of Baker Drive and Pacific Street is a T-intersection which currently caters for relatively low traffic volumes. Pacific Street, in the vicinity of the intersection, is up to 15m wide, with adequate width for truck & dog trailer turning movements, and also to allow other vehicles to safely pass any truck & dog queuing to turn right.

It should be noted that a raised traffic dome ('silent cop'), is located in Baker Drive to delineate the right-hand turn movements in & out of the side road.

Austrroads Guidelines state the Safe Intersection Sight Distance (SISD) required for a 50kmh speedzone is 97m. Existing sight distance at the intersection is good (i.e. exceeds requirements) in both directions.

The current speedzone on both roads is 50kmh, meaning the length of road required for a laden truck to accelerate up to local speeds is minimal.



Figure 4.1: Intersection of Pacific Street & Baker Drive, Crescent Head

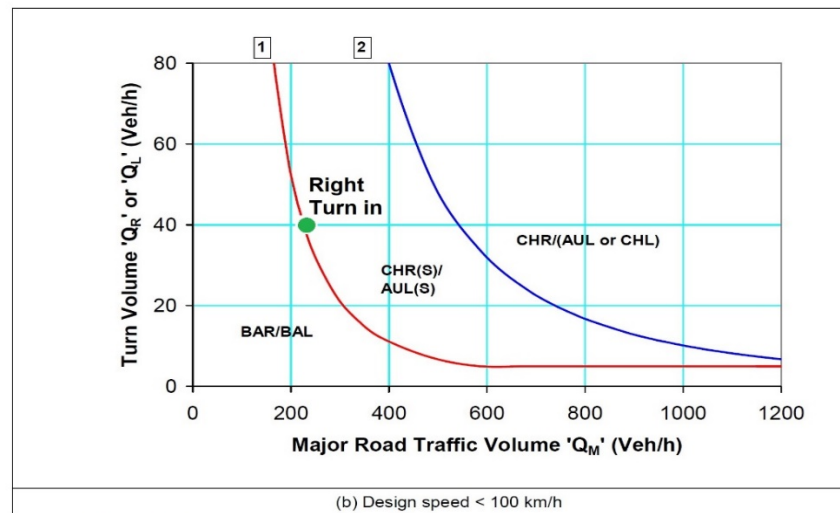
As can be seen from Figure 3.7 above, the peak hour traffic volumes through the Pacific Street & Baker Drive intersection currently show a significant number of turn movements in relation to the overall total. When these existing volumes are plotted on the RMS Intersection Warrant (Figure 2.26c of the Austrroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings),

it indicates the existing BAR / BAL layout intersection configuration is catering for the maximum volume PM peak hour volumes.

Consideration should be given by Kempsey Shire Council to upgrading the intersection to a channelised layout with treatments for turn movements if the local traffic volumes are expected to increase significantly.

However, the current width of Pacific Street and Baker Drive provides adequate space to cater for:

- The turnpaths of most vehicles in and out of Baker Drive
- Safe passing of any vehicles queuing to turn into Baker Drive



Source: Arndt and Troutbeck (2006).

Figure 4.2: Intersection Warrant - Austroads Guide to Traffic Management, Part 6

4.1.2 Intersection of Macleay Valley Way & Crescent Head Road

The intersection of Macleay Valley Way and Crescent Head Road (re-named Angus McNeill Crescent for the most-westerly 400m section) is a channelised intersection with dedicated right turn lanes, and separate deceleration/acceleration lanes for left-turn movements. The layout previously catered for Pacific Highway volumes, when up to 30,000 vehicles passed through the intersection at peak times. The current Macleay Valley Way traffic volumes are less than 50% of the previous Pacific Highway peak volumes.

As can be seen in Figure 3.2, the southbound volumes during the daytime hours are relatively low, (max 300 vpd) and there are adequate gaps in the traffic flows (average 12 seconds) to:

- turn right across the southbound lane from a separate, sheltered lane
- turn from the side road & merge with southbound traffic



Figure 4.3: Southbound view of Macleay Valley Way & Crescent Head Road Intersection



Figure 4.4: Aerial of Intersection - Pacific Street & Baker Drive, Crescent Head

4.1.3 Intersection Summary

Therefore, given the relatively low traffic volumes, adequate gaps in local traffic, low speed environment and good sight distances, it is expected that the small number of haulage truck movements per day will not have a significant impact on local vehicle flows or safety.

5. SITE ACCESS

5.1 Existing Access – Thurgates Haulage

The existing access to Thurgates Haulage is located on the western side of Macleay Valley Way, immediately south of Kempsey Golf Club. The roadway at this location is approximately 12m wide, with one lane (3.5m) in either direction and a 2.5m wide shoulder on both sides. The road, until recently, was the Pacific Highway, and is therefore the surface, pavement, width and road furniture are all high standard.

The existing sight distance at the access driveway is satisfactory, while the road shoulder is wide enough to allow southbound vehicles to safely pass to the left of any truck waiting to turn right into the site.

It should be noted that Thurgates Haulage has been operating for many years, with their company generating regular daily heavy vehicle movements in and out of the site. In past years, the company safely accessed the site to and from the Pacific Highway, when daily traffic volumes were more than twice the current numbers on Macleay Valley Way.



Figure 5.1: Northbound view of Thurgate Haulage access from Macleay Valley Way

5.2 Existing Access – Point Plomer Road

It is proposed to access the ilmenite stockpile from Point Plomer Road via an unsealed track that had previously provided access to the ilmenite site. The track is located on the eastern side of Plomer Road, and just south of the existing Back Beach access road. The ilmenite access has not been used regularly in recent years and is partly overgrown with grass and bushes. However, it is proposed to re-establish the former entry point, and provide an access road to the ilmenite stockpile. As can be seen from Figures 5.2 and 5.3 below, the sight distance in both directions is satisfactory.

It should also be noted that traffic volumes on Plomer Road are relatively low, particularly on weekdays outside of holiday periods.



Figure 5.2: Southbound view of proposed access from Pt Plomer Road



Figure 5.3: Northbound view of proposed access from Pt Plomer Road

Therefore, given the relatively low traffic volumes, adequate gaps in local traffic, low speed environment and good sight distances, it is expected that the small number of haulage truck movements per day will not have a significant impact on local vehicle flows or safety at the access from Point Plomer Road or the access to Thurgates Haulage.

6. HAULAGE IMPACTS ON CRESCENT HEAD ROAD AND LOCAL ROAD NETWORK

As discussed in this report, the proposed of ilmenite will generate approximately 20 laden truck & dog trips per day (or 40 return trips) during maximum haulage operations, with up to 3 laden trips per hour at peak times, but generally an average of 2 laden trips (4 return trips) each hour.

As discussed previously in Section 3, existing traffic volumes on the haulage route are relatively low, with each of the subject roads having adequate capacity to cater for an additional 4 trips per hour.

The most significant traffic impacts will result from the conflict between the slow speed, slow acceleration heavy vehicles from the current ilmenite stockpile site at Crescent Head, and the existing traffic flows on the local roads. However, given the low number of proposed daily truck & dog movements, the relatively low volumes on the affected local roads, reasonably good road conditions and adequate sight distance at the intersections, the impacts of the ilmenite haulage on the local traffic flows are likely to be minimal.

Appendix A includes a Road Safety Check of the proposed haulage route by StreetWise. The report lists a range of existing and potential hazards along the haul route, and a number of amelioration measures to reduce or negate those hazards.

In summary, if the haulage drivers are aware of the potential hazards, drive within the road rules, drive to the road and weather conditions and ensure there is flexibility when scheduling haulage movements, the impacts of the proposed haulage trips can be minimised.

7. DRIVERS CODE OF CONDUCT

A Code of Conduct sets out the principles and professional standards of conduct for employees of a particular company. The Code is not generally a comprehensive set of rules but rather a set of principles that form a framework for conduct and behaviour in the workplace. It provides guidance for staff on how to:

- Carry out their duties in a lawful and ethical way
- Interact with staff and other road users in a fair and courteous manner

While a Code of Conduct may vary from workplace to workplace, the key principles should include:

- Accountability
- Leadership
- Open-ness and objectivity
- Honesty

The Code should cover all permanent, temporary, casual, skill-hire and contract staff. The Code of Conduct should be relevant to traffic movements generated by the transporting of ilmenite from Crescent Head to South Kempsey and can't be finalised until the conditions of approval are known.

A sample Driver Code of Conduct has been included in Appendix B of this report.

8. SUMMARY

- It is proposed to relocate 47,500 cubic metres of ilmenite from the current site at Plomer Road, Crescent Head to Thurgoods Haulage site at South Kempsey. The haulage will be undertaken via truck & dog trailers with an average load of 30m³ per trip – a total of 3650 laden trips required.
- The haulage operator is proposing to provide 3 truck & dogs per day which would result in 20 laden trips a day on weekdays only – or a maximum of 100 laden trips (or 200 return trips) per week. This equates to an average of 2 laden trips per hour (or 4 return trips).
- At an average of 20 laden trips per day for 5 days a week, the relocation of the 47,500 m³ of ilmenite from Crescent Head to South Kempsey should take approximately 36 weeks.
- The 17.2km haulage route is proposed via local roads under the control of Kempsey Shire Council. The return trip by truck & dog trailer should take approximately 1hr 20mins. The roads involved include Macleay Valley Way, Crescent Head Road, Pacific Street, Baker Drive and Plomer Road. All affected roads are regularly maintained and currently in good condition.

- The affected roads (listed above) currently cater for relatively low volumes, and all have adequate capacity to safely accommodate the additional 4 additional truck & dog trailer trips per hour.
- Macleay Valley Way was previously the Pacific Highway, and as the main Sydney – Brisbane route, catered for a high volume of B-doubles, semi-trailers and heavy vehicles. The western section of Crescent Head Road passes through an industrial precinct, which currently generates heavy vehicle movements daily. Also, Kempsey Council's waste management centre is located in Tip Road, which generates a significant number of heavy vehicle trips along Crescent Head Road every day. The majority of the proposed haul route therefore:
 - * currently experiences a high percentage (approx. 8.6%) of heavy vehicle movements every day
 - * the existing roads and intersections can cater safely and efficiently for heavy vehicle movements
 - * the additional 4 heavy vehicle movements per hour to be generated by the proposed haulage of ilmenite will not significantly increase the existing volumes of heavy vehicles utilising Crescent Head Road and Macleay Valley Way.
- Similarly, the existing intersections along the proposed haulage route have adequate capacity to cater for 4 additional truck & dog movements per hour. The layouts of the existing intersections also have adequate space to safely cater for the swept path of turning truck & dog trailers.
- Access is proposed to and from the current stockpile site at Crescent Head is proposed from a previous access road on the eastern side of the northern sealed section of Point Plomer Road. It is proposed to re-establish the access, which will have adequate sight distance in either direction. Point Plomer Road currently has low traffic volumes and adequate width to safely accommodate access to & from the site by truck & dog trailers with minimal impacts on existing traffic flows.
- The ilmenite is to be transported, unloaded and stored at Thurgoods Haulage site at South Kempsey. The current access driveway, on the western side of Macleay Valley Way, has been utilised by heavy vehicles operated by the Thurgood Haulage company for many years. Macleay Valley Way, in the vicinity of the Thurgood Haulage access, is 12 metres wide, with 3.5m wide lanes and 2.5m sealed shoulders in both directions. The road is also high quality, having previously been the Pacific Highway, prior to the recent opening of the Pacific Motorway (Kempsey Bypass). Daily traffic volumes on Macleay Valley Way are approximately 40% of previous volumes, with adequate gaps to allow safe access to and from the site by truck & dogs.
- The existing hazards, and those relating to the proposed truck & dog movements, discussed in StreetWise's Road Safety Check, can be removed or minimised by adopting the recommended amelioration methods. Road safety of the proposed haul route can be further increased by preparation of, and adherence to, a Drivers Code of Conduct.
- This application proposes to relocate an existing ilmenite stockpile site from Crescent Head to South Kempsey. It does NOT involve quarrying of any new material. It is a ONE-OFF project, which the applicants and haulage operators wish to complete as safely and efficiently as possible.
- The haulage operators also have a variable number of truck & dogs available, dependant on other projects/contracts. They wish to have some scope to vary daily haulage trip numbers, so that trips can be scheduled to maximise efficiency of the material relocation, but also to minimise impacts on other road users.
- It is proposed to undertake the haulage works outside of school holidays periods, when traffic volumes within the Crescent Head township, and also Crescent Head Road, are generally

high, particularly during the Christmas period. It should also be noted that the local roads included in the haul route safely cater for peak holiday traffic, and the haulage activities will be scheduled during off-peak months, when there are reduced volumes, adequate capacity and minimal impacts on local traffic.

9. RECOMMENDATIONS

- The planned 20 daily laden truck movements (40 return) is considered the optimum number of movements for safety and efficiency. The average 2 laden trips per hour will have minimal impact on existing traffic flows and will result in the project being completed within 36 weeks.
- The local roads proposed to be used for the haulage route currently cater for relatively low volumes, and all have adequate capacity to safely accommodate the 4 additional truck & dog trailer trips per hour. The affected intersections can also cater for the proposed additional truck movements.
- Signage should be installed along the proposed haulage route to warn motorists of potential truck movements in the vicinity.
- If possible, scheduling of truck movements should include enough flexibility to minimise hauling at peak times, particularly through the 2 schoolzones along the proposed haul route.
- The proposed Driver Code of Conduct (addressing transport of materials to minimise the impacts of truck & dog movements and improve road safety) should be prepared by the haulage operators and adopted by each of the drivers. The items covered in these documents (i.e. truck operations, movement scheduling, radio communication procedures, Vehicle Movement Plans etc), should be updated to reflect the actual operations and include any issues experienced by drivers.
- StreetWise recommend that the proposed haulage of ilmenite from Plomer Road, Crescent Head to Macleay Valley Way, South Kempsey, utilising local roads as a haul route, as being a suitable safe activity, given that the relatively low number of vehicle trips to be generated by the development will not have a significant impact on the efficiency or safety of the local road network, and that the local roads and intersections have the capacity to cater for the additional trips generated by the development.

10. REFERENCE MATERIAL

Austrroads – AGRD04A - 17 Guide to Road Design Part 4A – Unsignalised and Signalised Intersections

Austrroads – AGDRD06A – 17 Guide to Road Design Part 6A – Paths for walking and cycling

Austrroads – AGRD03 -09 Guide to Road Design Part 3 – Geometric Design

Austrroads – AGTM03 – 13 Guide to Traffic Management Part 3 – Traffic Studies and Analysis

RMS – TDT2013/04a – Guide to Traffic Generating Developments – Updated traffic Surveys

RTA – TTR – 002 – 02 – Guide to Traffic Generating Developments

RMS – website '<http://www.rms.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/aadt-map/index.html/?z=13&lat=-36.494384455333126&lon=149.2998436777343&yr=2015&id=08171>'

Appendix A
Road Safety Check
By StreetWise

Crescent Head Ilmenite Stockpile Rehabilitation

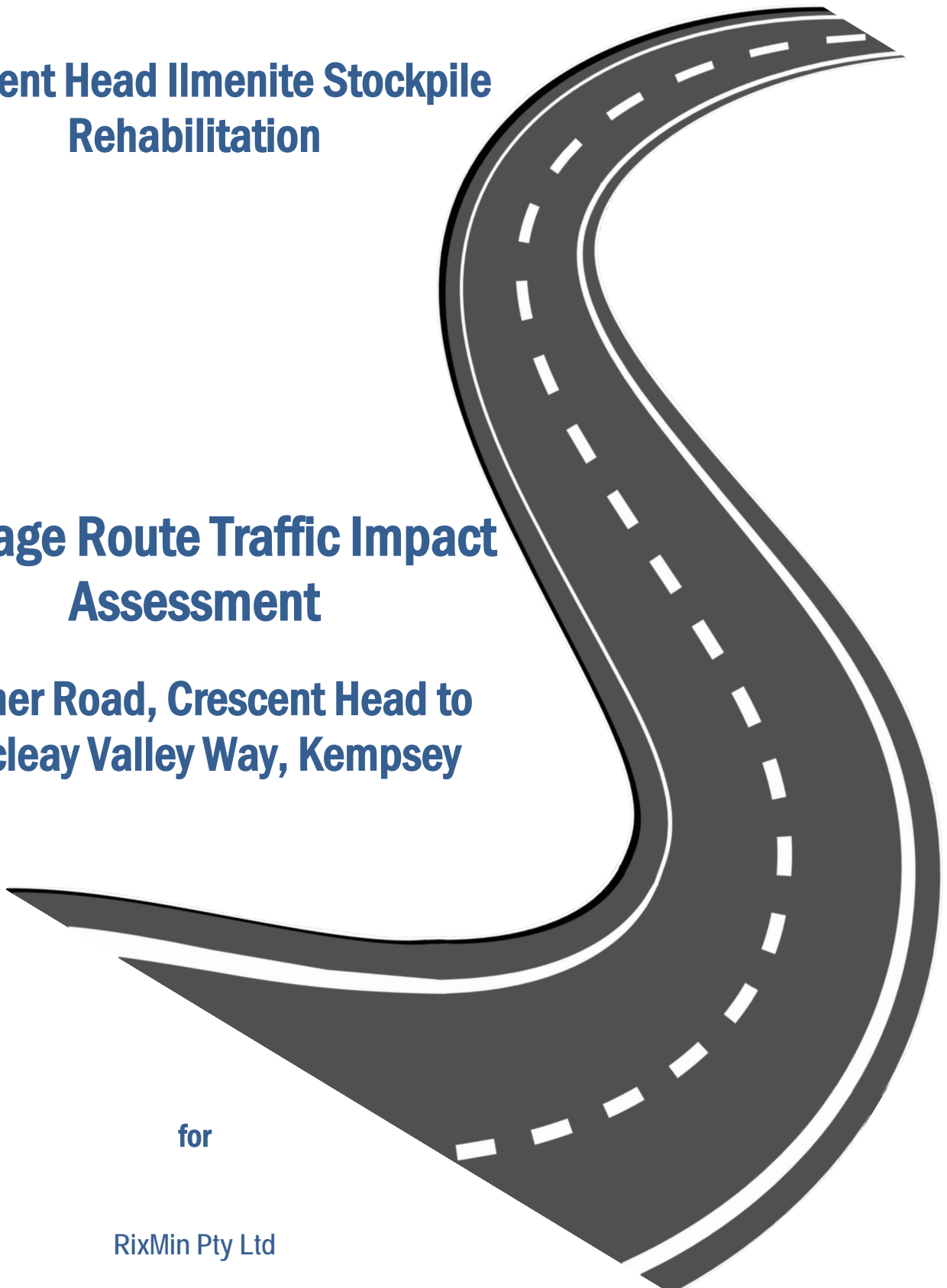
Haulage Route Traffic Impact Assessment

Plomer Road, Crescent Head to
Macleay Valley Way, Kempsey

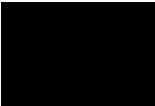

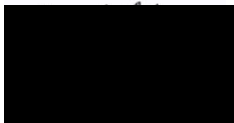

for

RixMin Pty Ltd

February 2018



Road Safety Check

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|-------------------------------------|--|--|--|--|
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| Edition / Revision No. | 1 | 2 | | |
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| Internal Review Completed By / Date | Internal Review | To Client | | |

StreetWise Road Safety & traffic Services Pty Ltd



www.streetwisersa.com.au

11. INTRODUCTION

11.1 General

StreetWise Road Safety and Traffic Services have been engaged to review the safety of a proposed haul route to transport 47,500 cu metres of ilmenite from Point Plomer Road, Crescent Head to Macleay Valley Way at South Kempsey, and provide comments in the form of a Road Safety Check. The proposed haul route includes a number of local roads in the Kempsey Shire Council area including Macleay Valley Way, Crescent Head Road, Pacific Street, Baker Drive and Point Plomer Road.

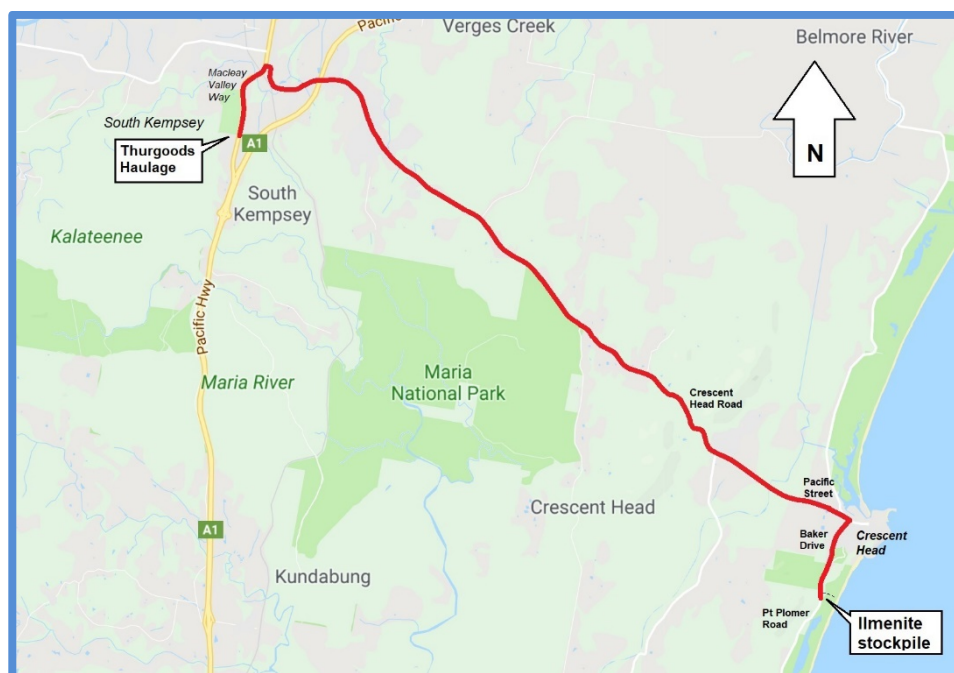


Figure 1 - LOCALITY SKETCH

11.2 Description of Project

The proposed activity involves haulage of 47,500m³ of ilmenite from Crescent Head to South Kempsey along a 17.2km haulage route involving local roads. The operator plans to utilise up to 3 truck & dog trailers per day, resulting in a maximum of 20 laden trips per day or an average of 2 laden trips (or 4 return trips) per hour for a period of approximately 36 weeks.

12. ROAD SAFETY CHECK

12.1 Site Description

It is proposed to relocate an existing ilmenite stockpile site at Crescent Head to another site at South Kempsey. The proposed haulage route is 17.2km and utilises a number of local roads. It is planned to load the ilmenite into truck and dog trailers for transportation, with approximately 3650 laden trips required. At an average of 20 trips per day and 30 cu metres per load, it is expected to 36 weeks to relocate the ilmenite to South Kempsey.

The haulage activities are proposed for weekdays only, and will result in an average of 2 laden truck & dog movements per hour on the following local roads:

- Macleay Valley Way
- Crescent Head Road
- Pacific Street
- Baker Drive
- Point Plomer Road

12.2 Potential safety issues

The main issue arising from the proposed layout is the potential conflict between slow moving, laden heavy vehicle movements and local traffic on the affected roads. Other issues to consider include:

- Additional laden truck & dog movements through existing intersections
- Additional laden truck & dog movements through existing school zones
- Additional laden truck & dog movements through small radius, reduced speed curves on Crescent Head Road
- Roadside hazards on Crescent Head Road
- Truck & dog turn movements in & out of current ilmenite site at Plomer Road
- Truck & dog turn movements in & out of Thurgood Haulage site at Macleay Valley Way

12.3 Amelioration measures

- The proposed hours for the haulage of ilmenite will be restricted to 7:00 am to 5:00 pm Monday to Friday.
- Adherence to the road rules, including speed limits and priorities (Stop, Give Way etc) at intersections.
- Drivers are to be aware of location of schoolzones, and the times of reduced speeds through these zones.
- Adherence to the Curve Advisory recommended speeds at small radius curves on Crescent Head Road

- Driver awareness of the location of intersections along the haul route, particularly Tip Road, where a large number of heavy vehicle movements are expected.
- Ensure adequate space is available when turning right out of current ilmenite stockpile site onto Plomer Road
- Similarly, ensure adequate space is available when turning right out of Crescent Head Road onto Macleay Valley Way. Also be aware of uphill gradient when travelling south on Macleay Valley Way and the increased acceleration length required for laden vehicles.
- Ensure adequate space is provided for southbound vehicles to pass on the shoulder if haulage vehicles are required to queue before turning into Thurgood Haulage site. Drivers to ensure indicator lights are in good condition and adequate notice is given when preparing to turn right into the site.

The potential impacts of the additional vehicles to be generated by the roadworks, and the amelioration and traffic management measures are listed below in Table 1.

| Issue/Impact | Mitigation/Control Measure |
|---|---|
| Conflict between slow moving, laden heavy vehicle movements and local traffic | <ul style="list-style-type: none"> • Avoid haulage during peak time, if possible • Adherence to road rules • Haulage vehicle maintained in good condition • Driver awareness • Wait, and determine adequate gaps in through traffic • Adequate indication of vehicle movements |
| Haulage truck movement through School Zones at peak times | <ul style="list-style-type: none"> • All drivers to be aware of location and restriction times of existing school zones • Adherence to road rules • Minimise haulage during peak times, if possible |
| Community consultation | <ul style="list-style-type: none"> • Ensure neighbours, the local community and road-users are aware of the activity and potential impacts to local roads due to the proposed haulage works, via adequate signage, VMS boards, letterbox drops etc. |
| Haulage vehicles safety issues | <ul style="list-style-type: none"> • Any oversized loads to be transported in accordance with requirements of RMS and Police, with the appropriate approvals. • Heavy vehicle will use only designated entry and exit points to the site • Approved traffic control will be implemented whenever the works impact on the operations of the adjacent local roads. • Any temporary road closures, if required, will be undertaken with the approval of the local council or RMS, in accordance with Council requirements and/or the <i>Roads Act (1993)</i> |

| | |
|---|--|
| | <ul style="list-style-type: none"> • Parking for all construction related vehicles will be off-roads. • All materials stockpiles will be within designated areas. • All loaded vehicles entering or exiting the site must be covered at all times in order to prevent spillage and dust generation. • All loaded vehicles leaving the site are to be cleaned of materials that may damage or be deposited on local roads. • Onsite inductions should reduce the impacts on the local road network and adjoining properties by addressing: <ul style="list-style-type: none"> • Noise minimisation • Appropriate driver behaviour • Fatigue management • Controls outlined in this CTMP • Audible construction activities will be restricted to approved construction hours. • Drivers to be educated and updated on Driver Code of Conduct |
| Two Way Radio | <ul style="list-style-type: none"> • Ensure all heavy vehicles and other construction vehicles are fitted with 2-way radios, and all movements in and out of the worksite are announced on a selected channel, if required. • Co-ordinate construction vehicle movements with any quarry-generated movements via 2-way radio to minimise potential conflicts at: <ul style="list-style-type: none"> - Access to stockpile at Plomer Road - Access to Thurgood Haulage at Macleay Valley Way • Co-ordinate haulage vehicle movements with any traffic controllers required by the haulage activities via 2-way radio (if required). |
| Intersection of Macleay Valley Way & Crescent Head Road | <ul style="list-style-type: none"> • Ensure adequate space is available when turning left out of Crescent Head Road onto Macleay Valley Way. • Drivers to be aware of uphill gradient when travelling south on Macleay Valley Way and the increased acceleration length required for laden vehicles. |
| Intersection of Baker Drive & Pacific St | <ul style="list-style-type: none"> • Ensure adequate space is available when turning left out of Baker Street. |

| | |
|--|--|
| | <ul style="list-style-type: none"> Note location of raised marker ('silent cop') when turning right from Pacific Street into Baker Drive |
| Existing hazards on Crescent Head Road | <ul style="list-style-type: none"> Drivers to be aware of location of intersections along the haul route, particularly Tip Road, where a large number of heavy vehicle movements occur daily Adherence to the Curve Advisory Signs and recommended speeds at small radius curves on Crescent Head Road Awareness of narrow sections of road, lack of road shoulder etc. |

Table 1: Construction Traffic Management Measures

13. HAULAGE ACCESS

Access to the existing stockpile site at Crescent Head is via an existing unsealed track off the eastern side of Point Plomer Road. The operators plan to clear the property entry and restore the previous access to provide a safe entry and exit to & from Plomer Road.

The material is to be hauled to South Kempsey and stored at the Thurgood Haulage site, on the western side of Macleay Valley Way. The site is currently accessed via a driveway, which caters regularly for heavy vehicle movements. Macleay Valley Way was previously the Pacific Highway (until the opening of the Pacific Motorway/Kempsey Bypass) and therefore is a high standard and has adequate width for safe access to and from the site.

14. HAULAGE TRAFFIC VOLUMES

The proposed haulage activities will generate an average of 20 laden truck & dog movements a day (40 return trips), or approximately 4 heavy vehicle movements per hour.

15. TRAFFIC CONTROL PLANS

Traffic Control Plans (TCP) will be required for any work that involves any form of traffic control, lane closures or other restrictions on local traffic movements. TCP's shall be prepared in accordance with the RMS 'Traffic Control at Worksites', and may include temporary signage requirements, temporary barrier placement, traffic controllers, temporary delineation, temporary speed zones etc. that are necessary to undertake the works or activities. All necessary approvals shall be obtained from the relevant road authority (Kempsey Shire Council) and emergency services and other affected authorities should be notified prior to implementing the TCPs.

16. DRIVER CODE OF CONDUCT

A Code of Conduct sets out the principles and professional standards of conduct for employees of a particular company. The Code is not generally a comprehensive set of rules but rather a set of principles that form a framework for conduct and behaviour in the workplace. It provides guidance for staff on how to:

- Carry out their duties in a lawful and ethical way
- Interact with staff and other road users in a fair and courteous manner

While a Code of Conduct may vary from workplace to workplace, the key principles should include:

- Accountability
- Leadership
- Open-ness and objectivity
- Honesty

The Code should cover all permanent, temporary, casual, skill-hire and contract staff. The Code of Conduct should be relevant to traffic movements generated by the transporting of ilmenite from Crescent Head to South Kempsey and can't be finalised until the conditions of approval are known.

A sample Driver Code of Conduct has been included in Appendix B of this report.

17.SUMMARY

The proposed haul route to transport ilmenite from Crescent Head to South Kempsey via 17.2kms of local roads will have minimal impacts on local road users and traffic patterns, due to the relatively low numbers of daily truck & dog movements required, and the adequate capacity of the subject roads and intersections.

As listed in this report, there are a number of hazards along the haul route which are likely to be increased by the additional truck & dog movements generated by the proposed relocation of ilmenite from Crescent Head to South Kempsey. ***However, these hazards can be minimised by applying the amelioration measures suggested,*** and ensuring:

- Drivers are aware of the existing hazards
- Drivers keep to the speed limits and recommended speeds at reduced speed curves
- Drivers are aware of the schoolzone locations, the reduced speedzones during peak times and are alert to school-generated pedestrian and vehicle movements
- Haulage movements are scheduled outside schoolzone periods where possible
- Haulage movements are scheduled outside of regular morning and afternoon peak times, if possible
- Haulage drivers are patient and select adequate gaps in local traffic when turns on the haul route may impact on local traffic flows, particularly when travelling west (i.e. fully loaded)

18.IDENTIFIED ROAD SAFETY ISSUES

A summary of the audit findings are provided in Table 1 of this report.

Every effort has been made to identify potential safety hazards in this Road Safety Check, no guarantee can be made that every issue has been identified (as is the case with any road safety audit).

Appendix B Sample of Driver Code of Conduct

DRIVER CODE OF CONDUCT

1.1 General Requirements

Heavy vehicle drivers hauling ilmenite from Crescent Head to South Kempsey must:

- Have undertaken a site induction carried out by an approved member of staff or suitably qualified person under the direction of the haulage management;
- Hold a valid driver's licence for the class of vehicle that they operate;
- Operate the vehicle in a safe manner within and external to the ilmenite stockpile site;
- Comply with the direction of authorised site personnel when within the site;

1.2 Heavy Vehicle Speed

Increased speed means not only an increased risk of crashing but also increased severity if an accident occurs. A study undertaken for the Australian Transport Safety Bureau found that travelling 10 km/h faster than the average traffic speed can more than double the risk of involvement in a casualty accident. (Source Roads and Maritime Services (RMS) previously known as Roads and Traffic Authority (RTA)).

There are two types of speeding:

- i) Where a heavy vehicle travels faster than the posted speed limit; and
- ii) Where a driver travels within the speed limit but because of road conditions (e.g. fog or rain) this speed is inappropriate. (Source RMS).

Drivers and truck operators are to be aware of the "Three Strikes Scheme" introduced by the Roads and Maritime Services which applies to all vehicles over 4.5 tonnes. When a heavy vehicle is detected travelling at 15 km/h or more over the posted or relevant heavy vehicle speed limit by a mobile Police unit or fixed speed camera, the Roads and Maritime Services will record a strike against that vehicle. If three strikes are recorded within a three-year period, the Roads and Maritime Services will act to suspend the registration of that vehicle (up to three months).

More information is available from the Roads and Maritime Services website.

Vehicle speed on public roads is enforced by the NSW Police Service.

The speed limit within the stockpile site is 10 km/h which is to be strictly maintained.

All heavy vehicle drivers operating trucks on the haul route are to observe the posted speed limits, with speed adjusted appropriately to suit the road environment and prevailing weather conditions, and to comply with the Australian Road Rules. The vehicle speed must be appropriate to ensure the safe movements of the vehicle based on the vehicle configuration.

1.3 Heavy Vehicles Driver Fatigue

Fatigue is one of the biggest causes of accidents for heavy vehicle drivers. The Heavy Vehicle Driver Fatigue Reform was therefore developed by the National Transport Commission (NTC) and approved by Ministers from all States and Territories in February 2007.

The heavy vehicle driver fatigue law commenced in NSW on 28 September 2008 and applies to trucks and truck combinations over 12 tonne GVM (however there are Ministerial Exemption Notices that can apply).

Under the law, industry has the choice of operating under three fatigue management schemes:

- i) Standard Hours of Operation
- ii) Basic Fatigue Management (BFM)
- iii) Advanced Fatigue Management (AFM)

All heavy vehicle drivers operating on the nominated haul route are to be aware of their adopted fatigue management scheme and operate within its requirements.

1.4 Heavy Vehicle Compression Braking

Compression braking by heavy vehicles is a source of irritation to the community generating many complaints especially at night when residents are especially sensitive to noise.

In some instances, compression braking is required for safety reasons however when passing through or adjacent to residential areas or isolated farmsteads a reduction in the speed of the vehicle is recommended to reduce the instances and severity of compression braking.

Due to the relative proximity to homes in Crescent Head, South Kempsey and along the nominated haul route, drivers are requested to limit the noise created in this area as much as possible. All heavy vehicle drivers operating out of the Crescent Head site are to ensure brakes are applied so as not to create excessive noise that could disturb local residents where possible. Compression braking through the Crescent Head township is only to be used if required for safety reasons.

1.5 Heavy Vehicle Noise

The operating hours for transportation of materials off-site are:

- Monday – Friday (except Public Holidays) 7:00 am to 5:00 pm
- Saturdays, Sundays and Public Holidays No activities

The following activities may be carried out on the site outside these hours of operation;

- a) delivery or dispatch of materials as requested by Police or other authorities; and
- b) emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

In such circumstances, the haulage operators shall notify the relevant authority and affected residents prior to undertaking the activities or as soon as practical thereafter.

At the commencement of the working day it is not unusual for drivers to arrive early and wait for opening. If this occurs drivers are to wait with engines turned off.

To reduce the impact of vehicle noise at the commencement of the working day heavy vehicles waiting for the quarry to open are to wait with engines turned off.

1.6 Load Covering

Loose material on the road surface has the potential to cause road crashes and vehicle damage.

All trucks departing from the Crescent Head stockpile site, whether loaded with material or not, are required to have an effective cover over their load for the duration of the trip. The load cover may be removed upon arrival at the delivery site.

All care is to be taken to ensure that all loose debris from the vehicle body and wheels is removed prior to leaving the site.

Drivers must ensure that following tipping that the tailgate is locked before leaving the site.

Quarry management is to monitor loose material on the side of the haulage route from quarry operations and take appropriate action (removal or suppression) regularly.

1.7 Vehicle Departure and Arrival

Heavy Vehicles travelling in close proximity on single lane public roads can be of concern to light vehicle drivers as well as increasing noise through or adjacent to residential areas. To alleviate public concern and increase road safety, heavy vehicles utilising the nominated haul route should be separated by a minimum two-minute interval.

1.8 Breakdowns and Incidents

In the case of a breakdown the vehicle must be towed to the nearest breakdown point as soon as possible. All breakdowns must be reported and the vehicle protected in accordance with the Heavy Vehicle Drivers handbook.

To ensure that traffic impacts are minimised in the event of an incident, rapid response from the haulage company is required. In order to ensure rapid response to incidents drivers must contact the haulage company as soon as the stranded vehicle and load is safely secured.

If there is a product spill while loading/unloading or en-route the driver must:

- i) Immediately warn persons in the area who may be at risk;
- ii) Inform haulage company so that emergency services can be contacted and any cleanup required can be initiated;
- iii) All spills must be adequately cleaned up and waste disposed of in an acceptable and environmental manner;
- iv) Put out warning triangles where it is safe to do so;
- v) Contact the NSW Police Service if required.

1.9 Contact Numbers

- i) RMS Transport Management Centre 131700
- ii) Kempsey Shire Council 6566 3200
- iii) Haulage operator 6563 168
- iv) NSW Police Service
(To be supplied by driver if separate company)

COMPLIANCE MEASURES & MONITORING

2.1 Commencement of Traffic Management Plan & Driver Code of Conduct

It is proposed that this Traffic Management Plan and Driver Code of Conduct will be initiated when the project becomes operational and reviewed after 12 months of operation.

The document is to be signed by individual drivers and Thurgood Haulage authorised representative at the time when heavy vehicle haulage drivers attend their site induction or shortly thereafter.

2.2 Environmental Management, Reporting and Auditing

To assist in the orderly resolution of complaints, the haulage operators will keep a register itemising all reported incidents relating to complaints in regard to heavy vehicle driver conduct along the nominated haulage route.

The incident register is to include (where possible):

- i) Date;
- ii) Location/s;
- iii) The driver/heavy vehicle details;
- iv) Contact details of the person lodging the complaint;
- v) What/when actions were taken to resolve the issue; and
- vi) The reply to the person/organisation that made the complaint.

The incident register is to be made available, upon request, to a representative of the relevant road authority

ROUTE ASSESSMENT, DUST GENERATION, MAINTENANCE & ACTIONS

3.1 Route Assessment

3.2 Dust Generation

3.3 Road Maintenance

3.4 Actions