

ANNEXURE A

**RECOMMENDATIONS FOR A
COMPREHENSIVE TRAFFIC STUDY**

**EXXARO RESOURCES LIMITED
BELFAST BLOCK PROJECT**

**PRE-FEASIBILITY ROAD INFRASTRUCTURE STUDY FOR THE
TRANSPORTING OF COAL TO RAIL SIDINGS
MODIFICATION 1**

NOVEMBER 2009

1. INTRODUCTION

A comprehensive traffic study has to be done to determine the impact of the coal transport on the existing road network.

The historic traffic indicators on the Provincial Roads Authorities database, SANRAL (TRAC) traffic counts on the N4 and N11, as well as the predicted coal tonnage to be hauled is used to determine the comprehensive traffic study strategy.

2. TRAFFIC INDICATORS ON PROVINCIAL ROADS

See Figure 2.

- The traffic volumes given on provincial roads on Figure 2 come from the Roads Authority's database. The figures are shown in black and are given as average daily traffic (ADT) and are projected to 2006. Below the ADT the amount of heavy vehicles is given as a percentage of the ADT.
- The traffic shown in red is the traffic as above plus the envisaged traffic due to the coal haulage. See Section 4.

3. TRAFFIC COUNTS ON NATIONAL ROUTES

3.1. N4:

- During the design of the current upgrading of the N4 between Wonderfontein and Belfast, the traffic on the N4 was counted on the intersection of the N4 and Road P81-2 in November 2004. The traffic amounts to an ADT of 16 000 with 13% heavy vehicles.
- In 2005 traffic was counted between Road 1398 and Road 1433. The traffic amounts to an ADT of 12 000 with 18% heavy vehicles.

3.2. N11

- South of Pullenshope on the N11 is an existing traffic counting station. The traffic available is from 2003 and amounts to an ADT of 2 720 with 15,2% heavy vehicles.

4. COAL TONNAGE TO BE HAULED

According to the mine, the following tonnages of coal are to be hauled over the road network:

4.1. To Belfast siding:

- Year 1 to 3: 1,5 million ton for ESKOM.
- Year 4 to 17: 1,5 million ton for ESKOM.

4.2. To Pullenshope

- Year 4 to 17: 1,5 million ton for export.

4.3. Assumptions

- The coal is to be transported by 30 ton interlink, side tipping trucks.
- Coal to be transported 365 days per year, in daylight hours.
- 1,5 million tons equals to 137 loaded trips per day ($1,5 \times 10^6 \div 30 \div 365$).
- An equal number (137) of empty trucks in the opposite direction.

5. POTENTIAL PROBLEM AREAS

The following roads / areas could pose problems:

- Right turning vehicles (empty) from P15-1 into the N4.
- Right turning vehicles (empty) from the N4 into Road 1110.
- The staggered intersection of Road 2274 with the N11.

6. TRAFFIC COUNTS NEEDED

Traffic counts are needed at the following intersections:

- N4 and P15-1
- N4 and Road 1110
- P15-1 and Road 383
- Road 1555 and Road 1398
- N11 and Road 2274

7. POSSIBLE RISKS

The following possible risks are identified:

- Right turning movements on the N4 resulting in reduced capacity together with a reduction in road safety standards.
- Crossing of the N11 at a staggered intersection also resulting in reduced capacity together with a reduction in road safety standards.

8. RECOMMENDATION

- Traffic counts as mentioned in section 6 should be held.
- An comprehensive traffic study should be conducted after receipt of the counts.
- Consideration should be given to providing a direct link between Road 1110 and Road 383 and by so doing eliminating coal traffic from making use of the N4 Toll Road.

