

Section 15**Traffic and Transport****15.1 Existing Transport Infrastructure**

Road access from the Stuart Highway to the existing Maud Creek mine site is currently provided via Ross Road, a sealed public road to the south east of the mine area, which runs past the entrance to Maud Creek Station. Other landholders along Ross Road regularly use the route for access to horticultural properties, and a school bus service operates along this road.

From the entrance to Maud Creek Station, the existing mine site access is by an established unsealed road. This track crosses Gold Creek just south of the existing mine pit however this section is destroyed every wet season rendering it impassable.

15.1 Proposed Haulage and Traffic**15.1.1 Haul routes**

As described in Section 2.6, Terra Gold proposes to transport ore from Maud Creek to the URGM processing plant, located approximately 120 km north of the project area (see Figure 15.1). Over the ten year life of the mine, all ore is proposed to be carted to URGM, using 100 t ore capacity quad semi-trailers.

As presented in Figure 15.1 (and in more detail in Figure 1-3) there are two haulage route options available for carting ore from the Maud Creek mine site to the Stuart Highway:

- Option 1 is a proposed new access and haulage road, which leads south west from the mine pit and crosses the pastoral land on Maud Creek Station, before joining a short unnamed gazetted road, and exiting onto the Stuart Highway;
- Option 2 is to use the existing access road and Ross Road, which lead south east of the mine site to the Stuart Highway. With this option the access track would be upgraded and widened, and a crossing would need to be installed over Gold Creek, to enable haulage to continue during periods of high water flows in the creek.

For the majority of the mine life, Option 1 is Terra Gold's preferred haulage route, as mine traffic could be separated from public road users on Ross Road, and the south west alignment reduces the total travel distance to the highway, and to URGM. Option 2 is likely to be used at the commencement of operations, while the mine infrastructure and the Option 1 route are being developed.

In both of these options the haul roads from the mine site to Stuart Highway may be sealed to protect the road surface. It is not anticipated that any upgrades to Ross Road will be required, including at the intersection with Stuart Highway.

The intersection at Stuart Highway and the Option 1 route alignment provide over 600m of visibility along the Stuart Highway in both directions. This allows greater visibility than that available for traffic at the existing Ross Road intersection, allowing more warning to vehicles travelling in both directions along the highway, that trucks are entering or turning off to the mine site. Adequate sight distances are important for road safety, as they allow vehicles warning time to slow down or stop if trucks break down or stall while turning.

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15.1.2 Haulage operations

It is proposed that haulage from Maud Creek to URGM will occur during daylight periods only, and will commence in late 2008. Operations are planned to continue all year throughout the life of the mine. The haulage time between the mine site and URGM will be approximately 90 minutes.

It is anticipated that the mine haulage operations will utilise quad semi-trailers, which will involve travel from URGM to Maud Creek (empty) and back again (loaded) on a daily basis; therefore, the mining operations will require approximately 30 road train movements per day (15 full and 15 empty).

15.1.3 Other mine traffic

Site supplies will be transported to the Maud Creek mine site from Darwin, Pine Creek area, Katherine or from South and Western Australia as required. Staff commuting to the mine site will mainly be travelling from Katherine, via cars and minibuses, with commuting occurring across a 24 hour period throughout the life of the mine. Approximately 15 small vehicles including one or two minibuses are likely to be used daily to transport employees to site.

15.2 Impacts on Roads and Traffic

15.2.1 Road conditions

The load on a truck's single axle with four tyres is called an equivalent single axle (ESA, measured in tonnes). The Department of Planning and Infrastructure (DPI) apply a load limit of 8.2 ESA (i.e., 8.2 tonnes per axle) to heavy vehicles, for safety and to protect the road surface. A typical loaded quad semi-trailer from Maud Creek mine site will have 22 axles, and a total weight of about 160 tonnes. Therefore, the ESA of loaded haulage trucks will be 7.3 ESA, which is beneath the maximum limit set by the DPI.

Terra Gold does not anticipate that Ross Road and the access road to the mine will require upgrades or significant maintenance if used for mine haulage at the commencement of operations. The unsealed access road would be maintained as necessary during this time.

15.2.2 Regional traffic impacts

The Maud Creek mine project is one of a number of gold mining operations in the region, owned by Terra Gold and GBS including Zapopan Underground Project and Rising Tide, Fountain Head, Chinese South and Mottrams Open Pit Projects. All these mine projects use a fleet of quad semi-trailer trucks to deliver ore to URGM at a total rate of approximately 6,000 t/day. This fleet will be directed to the various mines as required to ensure a steady flow of ore to the URGM plant.

Currently, 1,204 vehicles per day use the Stuart Highway (both directions) between the Ross Road turnoff to Maud Creek, and the Ping Que Road turnoff to URGM (DPI, personal communication). This total comprises 882 small vehicles (mainly cars), 60 heavy vehicles (road trains), and 262 towed vehicles (caravans) or trucks up to six axles.

As a result of Terra Gold's operations at Maud Creek, traffic levels on the Stuart Highway are expected to rise to 1,266 vehicles per day (both directions), accounting for 30 quad road train movements and 32 small vehicle movements, servicing the mine (refer Figure 15.1). This number of small vehicles represents a 3.6% increase in the existing traffic levels, which is considered minor and is not anticipated to pose a significant safety or traffic issue for other drivers in the area.

Quad semi-trailers along this section of the Stuart Highway (approximately 120 km) will increase in number by 50% as a result of mining at Maud Creek. The principal safety concern relating to this

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increase will be at highway intersections where there is the risk of accidents between turning quad semi-trailers and other traffic using the highway. Overtaking opportunities for traffic on the Stuart Highway around quad semi-trailers is another issue for traffic management.

Between Maud Creek and URGM, quad semi-trailers will travel laden northwards on the Stuart Highway, and will return empty southwards. Along the northbound route, there is a 3.1 km overtaking lane at the Edith River Bridge (see Figure 15.1). In the southerly direction there are two overtaking lanes of 1.2 km and 3.1 km in length, and there are several other areas that can be used for overtaking road-trains.

The increase in quad semi-trailer traffic will also apply to the crossing of the Adelaide to Darwin Railway near URGM (Figure 15.1). This rail crossing is fully signalled, to alert drivers thereby reducing the potential for accidents.

15.2.3 Traffic impacts in Katherine

Based on daily traffic data describing the existing traffic and mine traffic (Table 15-1), quad semi-trailer traffic from Maud Creek through the main street of the Katherine Township is a significant traffic issue for the mining project. The proposed 30 quad semi-trailer movements daily between 6am and 6pm equates to approximately one additional truck movement every 24 minutes. This represents a small increase of 3.1% of road trains through the centre of Katherine, on a daily basis.

Table 15-1 Daily traffic data through Katherine (DPI, personal communication)

Existing Traffic (Both Directions)		Short Vehicle	Short Towing Vehicle	2, 3, 4 Axle Trucks	3-6 Axle Articulated Vehicle	B Double, Double and Triple Road Trains	
Road and Location	Class	1	2	3-5	6-9	10-12	Total
	%	64	13	8	4	10	100
Katherine Centre	No.	5,990	1,222	776	349	953	9,290

Proposed Traffic (Both Directions)							
Terra Gold vehicle movements	No.	32				30	62
Existing Katherine	No.	5,990	1,222	776	349	953	9,290
New Total	No.	6,022	1,222	776	349	983	9,352
	%	64	13	8	4	11	100
Increase	%	0.5				3.1	0.7

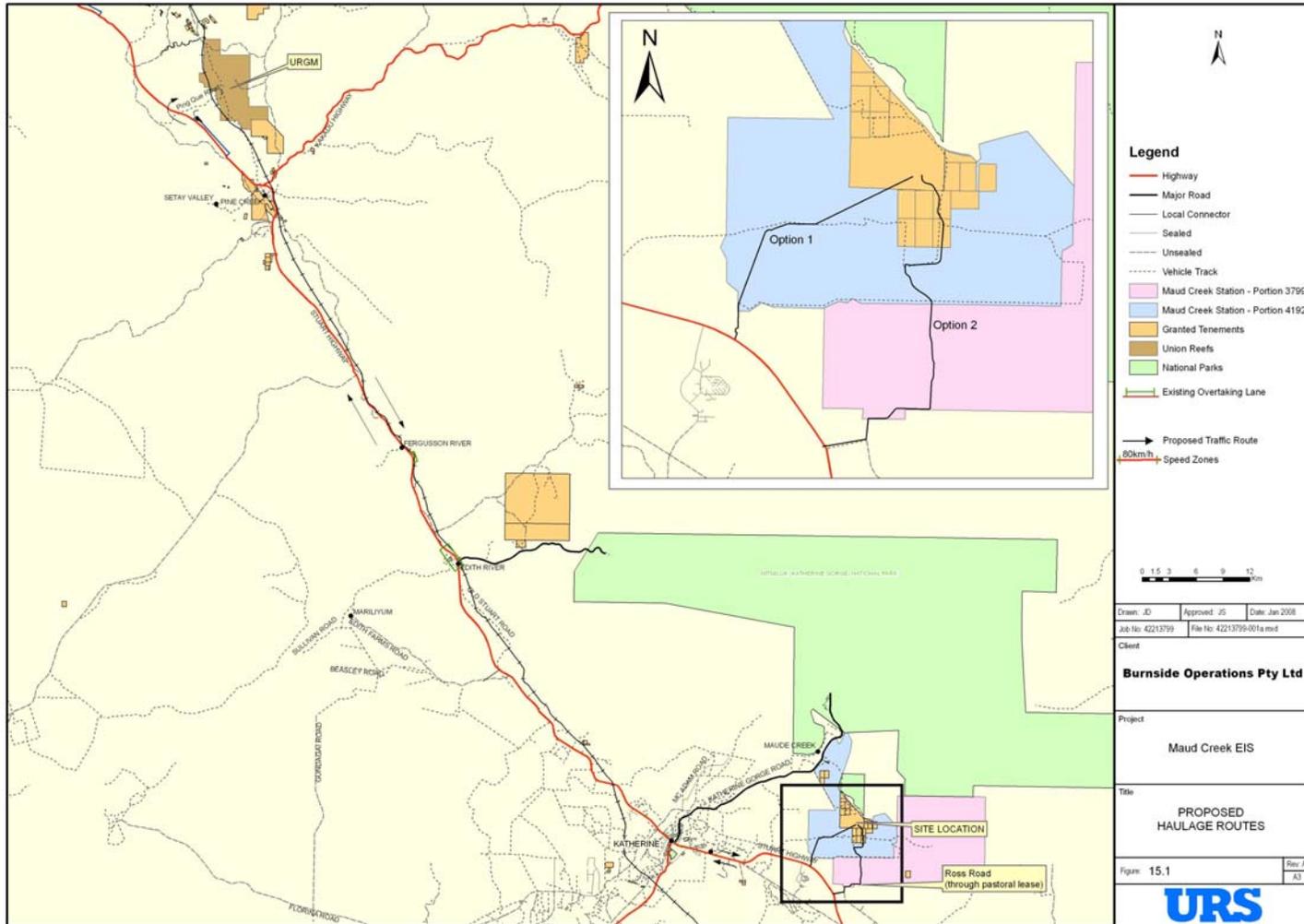
The current speed limit of 50 km/hr through the township is set by the DPI and the Katherine Town Council. In response to perceived safety impacts due to increased semi-trailer traffic through Katherine, Terra Gold proposes to limit the speed of mine haulage trucks to 40 km/hr, to reduce safety risks to pedestrians and limit the need for air brakes within the town. The 40km/hr speed limit will be applied along the Stuart Highway between Lindsay Street, adjacent to the Katherine Visitors Information Centre, to the northern end of the Katherine River bridge.



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Figure 15-1 Proposed haulage routes



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A range of alternate traffic routes through Katherine town were considered for the mining project during the stakeholder consultation process. There are two significant limitations to alternate trucking routes, namely:

- street alignment, as the alignment of some streets does not allow space for the wide sweep of turning trucks; and
- The low level crossing across Katherine River, which often floods during heavy rain periods above levels for safe crossing.

15.3 Management of Impacts

15.3.1 Road conditions

Terra Gold commits to maintaining the road surfaces at the intersections of Stuart Highway used by haulage vehicles, if road conditions degrade due to heavy haulage. However, it is not anticipated that the Ross Road intersection will require upgrades during the short timeframe it is used for haulage, pending construction of the new access road (Option 1, Figure 1-3). The intersection of the new proposed haul road from Maud Creek to the Stuart Highway may need to undergo minor upgrades, including widening the road shoulders and improvement of the deceleration lane.

The intersection at Ping Que Road (entering URGM) is currently being reviewed by Terra Gold, GBS and the DPI. Possible upgrade requirements include improving turning lanes onto and off the Stuart Highway, and protecting the road shoulders from cracking and wear. Upgrades will be designed in accordance with AustRoads, Australian and DPI standards.

15.3.2 Traffic safety

The traffic impacts from the Maud Creek mining project do not warrant the construction of more overtaking lanes between Maud Creek and URGM. Any new overtaking lanes would be constructed and maintained by the DPI.

As Terra Gold will be using existing road infrastructure, there will be little need for further signage except at the intersection of the proposed new road and Stuart Highway. Any new signage will be installed according to DPI and Australian Road signage guidelines, and relevant Australian Standards.

15.3.3 Impacts in Katherine

As mentioned in Section 15.3.3, Terra Gold commits to an imposed speed limit of 40 km/hr for quad semi-trailers through the town of Katherine. As noted above, the heavy truck movements represent an increase of 3.1% on the 953 large trucks per day that currently travel through Katherine. The small vehicle movements are expected to increase by only 0.5% (current movements – 5 990 per day).

Although the dust hazard from the transported ore material is low, due to its low fines fraction, Terra Gold will cover loaded trucks to reduce dust as required by the Chief Transport Inspector (NT Government guidance in “Information Bulletin V59”). This bulletin specifies that a cover is required over bulk loads on vehicles exceeding the 12 t gross vehicle mass.

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Terra Gold commits to photographing the condition of Ross Road, prior to operations commencing, to provide a base level against which the road will be maintained once operations begin.

Terra Gold commits to finalising discussions with DPI regarding Stuart Highway and Ping Que Road and Ross Road intersection upgrades.

Terra Gold commits to implementing a thorough care and maintenance program during the operational period along Ross Road section of the haulage route (if Ross Road is used).

Terra Gold commits to maintaining the road surfaces at the Stuart Highway intersections used by its ore haulage vehicles, if road conditions degrade due to heavy haulage.

Terra Gold commits to imposing a speed limit of 40km/hr for its quad semi-trailer trucks from the Katherine river bridge to the information centre.

