12. Transport

12.1 Summary of comments

A summary of the comments received during the JRYUP EIS consultation process in relation to transport are outlined below.

- Addressing the movement of large trucks through the Armstrong Beach Road intersection where there is the potential for significant traffic incidents.
- Speed reduction sign (70 km/h) to be moved a minimum of another 150 m further south of the intersection of Armstrong Beach Road and the Bruce Highway.
- Widening of shoulders of the Bruce Highway in the vicinity of the Armstrong Beach Road intersection.
- Identifying the capability of Armstrong Beach Road to handle heavy vehicle uses.
- Commitment to sealing sections of Gurnetts Road adjacent to existing residential dwellings to mitigate associated impacts on the occupants.
- Commitment to providing roads to a bitumen seal standard:
  - The section of Smyths Road from the Plane Creek crossing to just east of the existing rail embankment should be reconstructed.
  - Plane Creek crossing on Smyths Road to become a two-lane road. The crossing will provide a passage for fish upstream.
  - The section of Smyths Road from Armstrong Beach Road to the first culvert to the north should be constructed to a bitumen seal standard to minimise ongoing maintenance on the steep section.
  - The section of Gurnetts Road from Armstrong Beach Road to the end of the existing sealed section or the access point into the yard, should be constructed.
  - Oonooie Road and the section of intersection with Gurnetts Road should be constructed.
- Identification of the impacts of the JRYUP on the performance of Bruce Highway intersections of Oonooie Road and Armstrong Beach Road and on the road network, for the construction and operational phases of the JRYUP.
- As per the Department of Main Roads "Guide for Assessment of Road Impacts of Development Proposals" (2006) identification of any road pavement impacts using Equivalent Standard Axle (ESA) analysis at key intersections (Bruce Highway/Armstrong Beach Road).
- Mitigation measures to address any significant impacts on road pavement and intersection performance is required.

12.2 Responses to agency comments

Details on responses to agency comments are set out below.

12.2.1 Response to DMR

The existing Armstrong Beach Road T-intersection configuration consists of median separation, and channelised right and left turn facilities. The intersection is lit for night time use.

A critical assumption is that adequate sight distance has been achieved on all approach legs of the intersection to suit the prevailing speed environment.

A 6% peak hour increase in traffic volumes has been identified at the intersection of Armstrong Beach Road/Bruce Highway, and a peak hour increase of 3% at the Oonooie Road intersection.

Previous traffic studies have demonstrated that under peak construction and operational traffic loadings with the percentage increases indicated above, there is sufficient capacity at both the Armstrong Beach Road and Oonooie Road intersections to provide an adequate level of service for traffic entering and exiting the site via these two roads.

These analyses have been undertaken during times of existing peak use of the road network during the annual cane harvesting season, with volumes confirmed with Sarina Shire Council counts.

Traffic volumes generated during construction exceed those generated during operation hence further checking has been undertaken based on the construction or 'governing' peak.

A summary of the Bruce Highway/Armstrong Beach Road intersection performance is provided below, under peak hour conditions with heavy vehicle flows resulting from the JRYUP.

The analysis has been undertaken in SIDRA (intersection modelling software). Conditions on the worst performing movement (the movement with the highest queuing, delay and saturation level - in this case the right turn out of Armstrong Beach Road) are reported. Volumes used are based on those provided in the EIS under Chapter 12 Transport.

Table 12.1 Bruce Highway/Armstrong Beach Road – Intersection performance

Peak hour period	Degree of saturation (DOS)	Average delay (sec/veh)	95%ile queue length (m)	Level of service (LOS)
AM Peak	0.240	12.7	9	B

Table Note: The maximum DOS and delay and is reported for the governing peak.

An adequate level of performance is indicated. The Bruce Highway itself also operates well within its capacity through this area.

An explanation of the terms used to quantify conditions can be found in Austroads Guide to Traffic Engineering Part 2, 1998.

The effects of additional pavement loading have been assessed for the Bruce Highway below by calculating ESA loadings.

Table 12.2 Existing ESAs

Bruce Highway AADT	2,810
Assumed commercial vehicle (CV) %	10%
ESA:CV Ratio	1.3
	133,335 ESA/year

Table 12.3 Development ESAs during peak construction period

Daily development volume on Bruce Highway	82
Commercial Vehicle (CV) %	100%
ESA:CV Ratio	1.3
	38,909 ESA/year

This represents an overall increase in ESAs of approximately 30%.

It should be noted that this figure is highly conservative as the estimated daily traffic increase is based on an initial 3 month peak construction period. It should also be noted that the construction period is likely to be 20 months.

The Mackay District Road Implementation Plan (RIP) currently does not indicate any planned works within the subject section of highway.

An assessment of the existing pavement condition will therefore need to be undertaken prior to construction to determine remaining design life, and hence to what extent (if any) the additional ESA loadings will accelerate the need for maintenance, rehabilitation or overlaying.

12.2.2 Response to QPS

An extension to the existing 70 km/hr speed limit to a point 300 m south of the intersection could be considered to indicate to drivers the need to reduce approach speed, however ongoing enforcement of the extended zone would be required to achieve reasonable levels of compliance. DMR agreement would also need to be sought on this change.

The Bruce Highway has sealed shoulders of approximately 2 m width through the Armstrong Beach Road intersection. This is considered sufficient space for emergency stopping or pulling over, hence there would be limited benefit in additional shoulder widening.

12.2.3 Response to SSC

Dilapidation assessment

In general, a dilapidation assessment of Council roads adjacent the site will be undertaken prior to commencement of construction. Where additional damage is shown to be directly attributable to construction traffic, appropriate repairs will be made.

A dilapidation assessment of Armstrong Beach Road pavement will be undertaken prior to commencement of construction. Depending on the outcome of this assessment, the project may undertake the following or other appropriate measures:

- Rehabilitate the existing pavement
- Provide an asphalt overlay over the existing pavement
- Nothing (if the pavement will not be adversely impacted by the construction traffic)

Local road upgrades

Gurnetts Road

A haul road will be constructed within the project area for use by construction traffic. It is not intended that construction traffic will routinely use Gurnetts Road. It is therefore not intended to seal Gurnetts Road, beyond the proposed access to the site or to Soto Road, whichever is greater.

Smyths Road

Sealing of Smyths Road between Plane Creek and the existing railway could be undertaken. Further discussions will be carried out with Council's Director of Works and Services to ascertain if this will increase Council's maintenance liability following cleanup after flood events.

It is not intended that the existing Plane Creek causeway will be used for construction traffic. It is therefore not intended to upgrade the crossing from one to two lanes.

Smyths Road will be sealed for the length of the ramp down from Armstrong Beach Road.

Oonooie Road

The delays at the Oonooie Road level crossing due to roll-by inspections will be eliminated by constructing a grade separated road overpass.

The new section of Oonooie Road will be sealed for its entire length, including the intersection with Gurnetts Road.

Summary

The roads to be modified (ie relocated, upgraded or deleted) as part of this Project are:

- Oonooie Road
- Armstrong Beach Road
- Gurnetts Road
- Smyths Road
- Soto Road

All other occupational crossings throughout the extent of the site will be removed. Due to changes to land ownership, these crossings are no longer required. Based on the above, delays to the road networks due to rail traffic are negated.