Appendix H

Traffic Impact Assessment

Department of Infrastructure, Planning & Logistics

Terrestrial Biodiversity surveys for Melville Island roads

Traffic Impact Statement

March 2022

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1. Introduction

1.1 Purpose of this report

The Tiwi Islands Regional Council (TIRC) has been working together with the Northern Territory Government (NTG) to upgrade the Access Roads on Melville Island. The roads to be upgraded as part of this project are Pirlangimpi Access Road (47 km), Pickertaramoor Access Road (26 km) and Milikapiti Access Road (27 km). The upgrades will involve pavement lifts and re-gravelling, formation widening, realigning, installation of transverse drainage structures and overall, improving the flood immunity and rideability of the access roads.

The scope of works for this commission will review the environmental impacts of the upgrade of the Pirlangimpi Access Road and Pickertaramoor Access Road and prepare an Environmental Impacts Statement (EIS).

The purpose of this report is to undertake a high-level traffic impact assessment of the construction of the Pirlangimpi Access Road and Pickertaramoor Access Road which will form one of the appendices to the EIS.

1.2 Scope and limitations

This report: has been prepared by GHD for Department of Infrastructure, Planning & Logistics and *may only be used and relied on by Department of Infrastructure, Planning & Logistics for the purpose agreed between GHD and the Department of Infrastructure, Planning & Logistics as set out in section 1.1 of this report.*

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1.3 Reference Documents

- T20-1976 - Request for Quotation, 2020
- Tiwi Island Roads 2020112509095687, 2020
- TLC_Towards-a-Tiwi-Islands-IPA, 2018
- Northern Australia Roads Programme - NT - Melville Is Road Upgrades Attachment E - Tiwi Islands Investment Prospectus, 2020
- Indigenous_Employment_and_Supplier-use_Infrastructure_Framework, 2019

- Department of Treasury draft Business Ca_ to Pirlangimpi and Pickertaramoor Access Roads on Tiwi Islands - February 2014
- Austroads Guide to Traffic Management Part 12 – Integrated Transport Assessments for Developments, 2020
- 12543964_LET-Request for information-10022021 - DIPL Response, 2021
- 20210301Crash data request - GHD - Pirlangimpi Road and Pickertaramoor Road, 2021

2. Proposed Development

2.1 Proposed Development Overview

The road upgrade is aiming to improve motorist safety and reduce travel times. It will also provide year-round access between destinations as currently during wet seasons, the road becomes impassable as a result of flooding.

The roads to be upgraded as part of this project are Pirlangimpi and Pickertaramoor access road, located on Melville Island. The two roads are 47km and 26km in length, respectively, which connect Pirlangimpi (and the nearby Port Melville) and Pickertaramoor (containing Tiwi College) and are important links between various Indigenous communities.

A map shopping the proposed road upgrades is shown in Figure 1.

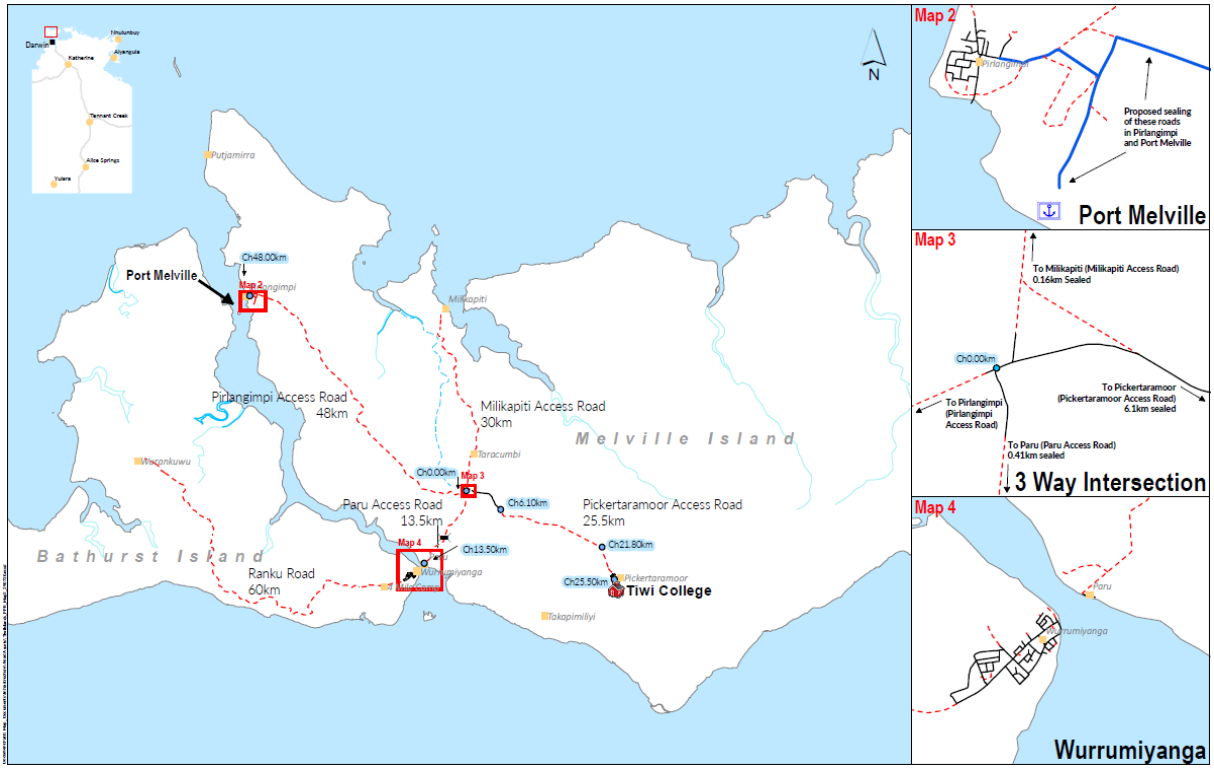

Figure 1 – Map of Melville Island Roads

3. Existing Conditions

3.1 Road Network

A desktop assessment of the road network that is associated with the planned works has been undertaken and is described in the following sections:

3.1.1 Pirlangimpi Access Road

Pirlangimpi Access Road is 47km in length which is managed and maintained by the Tiwi Islands Regional Council. It generally runs in a North-West to South-East diagonal direction from Pirlangimpi to the Pirlangimpi/Paru/Milikapiti intersection, also known locally as the Three Ways intersection.

It is generally a two-way undivided road consisting of one lane in each direction and a shoulder on each side. The road is unsealed and made of poor-quality pavement materials with inadequate drainage.

3.1.2 Pickertaramoor Access Road

Pickertaramoor Access Road is 26km in length which is managed and maintained by the Tiwi Islands Regional Council. It generally runs in a North-West to South-East diagonal direction from Pirlangimpi/Paru/Milikapiti intersection, also known locally as the Three Ways intersection to Pickertaramoor.

It is generally a two-way undivided road consisting of one lane in each direction and a shoulder on each side. The road is sealed for 3.4 East of the Three Ways intersection, with the rest of its length being unsealed and made of poor-quality pavement materials with inadequate drainage, though a small section of the road appears to be sealed (near Three Ways intersection).

3.2 Traffic Volumes

The average annual daily traffic for the Melville Island network is 100 vehicles per day as per the NT Gov Key Network Statistics.

3.3 Public Transport

The Tuparipiya Bus Service operates on Melville Island between Pirlangimpi, Paru and Milikapiti. The service operates three 28-seater Isuzu buses and two four-wheel drives. \

The bus service timetable current as of December 2021 is shown below in Table 1.

Table 1 – Bus Timetable

Milikapiti > Paru		
Monday-Friday	Saturday	Sunday
8:30 AM	None	12:00 PM
2:00 PM		
Pirlangimpi > Paru		
Monday-Friday	Saturday	Sunday
8:15 AM	None	11:45 PM
1:45 PM		
Paru > Milikapiti / Pirlangimpi		
Monday-Friday	Saturday	Sunday
9:45 AM	None	Ferry
3:15 PM*		

*Wet Season – Thursday and Friday ferry connection afternoon only

3.4 Pedestrian/Cycling Routes

There are no pedestrian or cycling facilities along Pirlangimpi Access Road and Pickertaramoor Access Road and no traffic signals on the island.

3.5 Accident Data

Accident data has been provided for the years 2016 to 2018. A review of the data shows:

- A total of 10 accidents occurred on the Tiwi Islands over this period. These accidents resulted in 7 injuries, 1 of which requiring admission.
- 1 accident involved two vehicles in an ‘angle collision’.
- The 9 other accidents involved only a single vehicle. 8 of these were results of overturned vehicles or running off the road.
- 1 accident was alcohol related, 10% of all crashes.

4. Construction Traffic Generation

Roadworks are anticipated to commence on Pirlangimpi and Pickertaramoor Roads in 2024 for approximately 3-5 years every dry season (April to October). Road works will only be undertaken in the dry season of every year with approximately 15-20 km of road constructed each year.

For each road length constructed, a site office and vehicle depot will be set up to reduce travel times on local roads. Clearing may be required for the proposed site office, vehicle depot, camp sites, gravel pits, laydown areas and the widening of road corridor.

Based on the above construction methodology, most vehicles required for the works will stay on site while some others will conduct daily trips or as needed for crew and material transportation.

4.1 Existing Network Traffic Forecast

The existing daily traffic along Pirlangimpi Access Road and Pickertaramoor Access Road is 100 vehicles per day. With no detailed traffic data, it is assumed that 5% of this traffic is heavy vehicles. As construction is proposed to commence in 2024, the traffic for that year has been forecasted using a 1% per annum growth rate and is shown in Table 2

Table 2 – Existing Network Traffic Forecast

Year	Light Vehicles	Heavy Vehicles	Total Daily Traffic Volume
2021	95	5	100
2022*	96	5	101
2023*	96	6	102
2024*	97	6	103

* Denotes forecasted year

4.2 Construction Traffic Forecast

The route taken from Pirlangimpi to each worksite will be along Pirlangimpi Access Road. For each section of road constructed, there will be vehicles which will make one off trips to the site and vehicles which will undertake daily trips.

Below are the estimated vehicles forecasted to be utilised in the project. Given to the preliminary stages of planning, the types, sizes, and number of vehicles needed for the construction of the roads have been estimated based on similar road projects and may change at a more detailed planning stage.

Construction Vehicle Traffic

The estimated number of construction vehicles used for each section of works is shown in Table 3. These vehicles will be moved to the worksite, utilised for the workday, then stored in a depot overnight. When the worksite is moved, the vehicles will move together to the new site location. Occasionally some of these vehicles may return to port to pick up and transport materials to site.

Table 3 – Estimated construction vehicle required

Vehicle Classification	Vehicle Type	Number of vehicles	Movement Type	Number of Trips
Light	Front End Loader	2	One-off	5
	Rubber Tyre Roller	2	One-off	
	Backhoe	1	One-off	
Heavy	Grader	2	One-off	21
	Bulldozer	1	One-off	
	Water Cart	2	One-off	
	Steel Drum Roller	2	One-off	
	Semi-Trailer trucks for gravel	4	One-off	
	Low Loader for transport of heavy equipment	1	One-off	
	Mobile concrete batching plant	1	One-off	
	Concrete Truck	1	One-off	
	Bitumen Sprayer	1	One-off	
	Aggregate Truck	2	One-off	
	Bitumen Truck (liquid)	2	One-off	
	Fuel Tanker	1	One-off	
	Dongas for site works, mess, office, amenities	1	One-off	

4.2.1 Staff Traffic

The estimated number of staff vehicles required is shown in Table 4. Staff will travel between accommodation and the work site at the start and end of each workday. It is assumed that all workers could be transported by one bus or the four passenger vehicles.

Table 4 – Estimated number of staff vehicles

Vehicle Classification	Vehicle Type	Number of vehicles	Movement Type	Number of Trips
Light	Passenger Vehicles	4	2 x daily	8
Heavy	Bus	1	2 x daily	2

4.2.2 Total Traffic

It is assumed that all construction vehicles will travel to the site on the same day. It is assumed that staff trips to and from the site will also occur on that day. Therefore, the peak total number of daily trips will be one-way movements for construction vehicles and two-way movements for staff, with the total shown in Table 5

Table 5 – Total peak daily traffic movements

Vehicle Classification	Peak daily trips
Light	13
Heavy	23
Total	**36**

5. Traffic Impacts

The traffic impacts of the increase in overall traffic and heavy vehicles must be assessed as per Austroads Guide to Traffic Management Part 12 to determine whether further analysis may be required at the next stages of planning. Significant increases in traffic (greater than 5% or 10%) as a result of the construction of the road may warrant a Traffic Impact Assessment to be undertaken to the satisfaction of DIPL.

The assessment is shown in the sections below:

5.1 Change in Daily Traffic Generation

The traffic along the local roads in 2024 when construction commences is forecasted to be 103 vehicles per day. During the project's construction, average daily traffic will increase with occasional days of significant increase of traffic due to the work site being transported to a new location, which would include moving all vehicles needed for the project works.

The new daily traffic volumes for each road, based on the peak traffic level of a generated by the project works is shown in Table 6.

Table 6 – Change in traffic volumes due to construction traffic

Location	2024 Daily Traffic Volume (veh)	Daily Construction Traffic Volumes (veh)	New Daily Traffic Volume (veh)	Percentage change
Pirlangimpi Access Road	103	36	139	35% increase
Pickertaramoor Access Road	103	36	139	35% increase

5.2 Change in Daily Heavy Vehicles

The heavy vehicle traffic volumes generated by the construction of the road are compared to the forecasted heavy vehicle traffic volumes in 2024. The assessment is shown below

Table 7 – Change in heavy vehicle traffic volumes due to construction traffic

Location	2024 Daily Heavy Vehicle Traffic Volume (veh)	Daily Construction Heavy Vehicle Traffic Volumes (veh)	New Daily Heavy Vehicle Traffic Volume (veh)	Percentage change
Pirlangimpi Access Road	6	23	29	483% increase
Pickertaramoor Access Road	6	23	29	483% increase

5.3 Traffic Impacts Assessment

The traffic generated by the construction of the roads will result in a 35% increase in overall daily traffic and a 483% increase in the heavy vehicle daily traffic along Pirlangimpi Access Road and Pickertaramoor Access Road. DIPL may require additional traffic assessments to be undertaken at the next stage of planning when there are significant increases in heavy vehicles and / or overall traffic volume (5% or 10% as per Austroads Guide to Traffic Management Part 12), however due to the low traffic volumes expected this is unlikely to be required.

It should however be noted that there is low baseline traffic on each of the roads which results in a significant percentage increase in traffic volumes.

While the overall traffic volumes are considered to be low, a traffic management plan will still be required to be prepared by the appointed contractor to outline the proposed traffic management strategy to safely and efficiently manage traffic around the construction of the road.

6. Conclusions and Recommendations

It is proposed to upgrade Pirlangimpi Access Road and Pickertaramoor Access Road. A high-level assessment of the traffic impacts of the construction of the upgraded roads has been undertaken. The conclusions and recommendations are outlined below:

- Roadworks are anticipated to commence on Pirlangimpi and Pickertaramoor Roads in 2024 for approximately 3-5 years every dry season (April to October). Road works will only be undertaken in the dry season of every year with approximately 15-20 km of road constructed each year.
- The existing road network has a forecasted overall daily traffic volume of 103 vehicles, inclusive of 6 heavy vehicles in 2024 when the construction commences.
- The construction traffic is estimated to be 36 daily trips (including 23 heavy vehicle trips).

The traffic generated by the construction of the roads will result in a 35% increase in overall daily traffic and a 483% increase in the heavy vehicle daily traffic along Pirlangimpi Access Road and Pickertaramoor Access Road. DIPL may require additional traffic assessments to be undertaken at the next stage of planning when there are significant increases in heavy vehicles and / or overall traffic volume (5% or 10% as per Austroads Guide to Traffic Management Part 12), however due to the low traffic volumes expected this is unlikely to be required.

While the overall traffic volumes are considered to be low, a traffic management plan will still be required to be prepared by the appointed contractor to outline the proposed traffic management strategy to safely and efficiently manage traffic around the construction of the road.

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