

# LEGISLATIVE ASSEMBLY OF THE NORTHERN TERRITORY

## WRITTEN QUESTION

Mr Higgins the Minister for Northern Australia:

### Infrastructure Priority List

- 1. Please advise whether any submissions have been made to Infrastructure Australia for their Infrastructure Priority List. If so, please provide a list of those projects.**

Five 'nationally significant' projects are currently in varying stages with Infrastructure Australia.

To Infrastructure Australia for evaluation:

- Sealing the Central Arnhem Road  
This project provides an opportunity to unlock the economic potential of the East Arnhem region, improve productivity, reduce road closures and weight restrictions, and represents a tangible opportunity to work towards closing the gap in Aboriginal disadvantage through increased employment, improved access to communities, safety and the potential for enhanced service delivery models.
- Beef Roads  
This project assists in improving productivity and economic growth through improving the condition of the Territory's major freight routes, improving safety outcomes, reducing closures and weight restrictions, and reducing damage to vehicles and impact on livestock.

For consideration:

- Darwin Region Water Supply  
The project is currently a Stage 1 initiative on the Infrastructure Priority List. The Department of Trade, Business and Innovation has engaged PricewaterhouseCoopers to undertake a Stage 2 assessment of options which is expected to be completed in mid-2020. The assessment will identify the preferred options to investigate further. A Stage 3 submission (Detailed Business Case) to determine the preferred solution will be developed in 2020-21.
- Infrastructure to support onshore gas production and manufacturing  
The Department of Infrastructure, Planning and Logistics has engaged GHD to prepare a submission to Infrastructure Australia. This work builds on:
  - broader work investigating a suitable pipeline corridor
  - previous work to identify the key infrastructure needed to support onshore gas development
  - Current activities to progress the development of Middle Arm.

- Jabiru Masterplan Project  
Initial discussions with Infrastructure Australia have occurred to identify information gaps with currently available information and provide feedback. The information will be used to consider the preparation of a formal submission.

For future consideration:

- Remote Power Systems
- Territory Economic Reconstruction Commission identified projects of 'national significance'.

This is not an exhaustive list of projects or initiatives under development in the Northern Territory.

The Infrastructure Priority List is a prioritised list of nationally significant investments. It provides decision makers with advice and guidance on specific infrastructure investments that will underpin Australia's continued prosperity.

The Infrastructure Australia Priority List is made up of two broad groups:

Projects are infrastructure solutions to a defined problem or opportunity for which a full business case has been completed by the proponent and positively evaluated by Infrastructure Australia.

Initiatives are potential infrastructure problems / opportunities or 'early stage' solutions for which a business case has not yet been completed. Initiatives are identified through a collaborative process between proponents and Infrastructure Australia, using the Australian Infrastructure Audit and other data as evidence of infrastructure needs.

**2. Please provide copies of all submissions received as at COB 8 May 2020.**

Copies of the two submissions provided Infrastructure Australia (Sealing the Central Arnhem Road; and Beef Roads) are attached.

# Assessment Framework

## TEMPLATES AND CHECKLISTS

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### Template for Stage 1: Problem Identification and Prioritisation

#### 1. Overview

##### 1.1 Document control details

PROJECT NAME	<i>Upgrade Central Arnhem Road</i>	PROPONENT	<i>Northern Territory Government</i>
VERSION	<i>1.0</i>	DATE COMPLETED	<i>4/10/2017</i>
CHANGES FROM PREVIOUS VERSION			
<i>First version</i>			

##### 1.2 Prepared by

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DATE	<i>13/09/2017</i>				

##### 1.3 Approved by

NAME	<i>Andrew Kirkman</i>	JOB TITLE	<i>Chief Executive, Department of Infrastructure, Planning and Logistics</i>	ORGANISATION	<i>Department of Infrastructure, Planning and Logistics</i>
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DATE	<i>DD/MM/YYYY</i>				

*Template for Stage 1: Problem Identification and Prioritisation (continued)*

## **2. Problem/opportunity description**

### **2.1 Nationally significant problem/opportunity statement**

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*Please describe the problem/opportunity as a succinct statement that clearly identifies a nationally significant issue to be improved or built upon.*

Closing the Gap for Indigenous Australians has been a goal of successive Australian and Northern Territory Governments. The Northern Territory has a high percentage of Aboriginal people, including a very large number of Aboriginal people living in remote communities.

East Arnhem is one of the most remote parts of Australia and supports a population of 10,730 people (ABS 2015 Local Government Area data), which is approximately 5.7% of the total Northern Territory population. The greater East Arnhem Region includes almost 14,000 people. Approximately 91% of this population is Aboriginal. The regional service centre of Nhulunbuy (Gove) supports this region. However, Nhulunbuy is the only regional service hub that does not have a sealed connection back to Darwin and the National Land Transport Network.

Central Arnhem Road connects the East Arnhem Road back to the Stuart Highway and the National Land Transport Network. Nhulunbuy (population approximately 2,000), Beswick (population 512) and Bulman (population 275) are the main communities along the route. However, Central Arnhem Road also connects a number of large communities along the Top End coastline as well as many homelands and outstations. Currently, the condition of Central Arnhem Road and wet season closures denies access for many of these communities – further increasing the gap between Aboriginal and Non-Aboriginal Australians.

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### **2.2 Problem/opportunity location**

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*Please describe and provide supporting materials such as maps, coordinates, etc. to provide an accurate description of the entire problem/opportunity area.*

The attached fact sheet provides information regarding the Central Arnhem Road including a map and key network statistics. Further supporting data regarding the benefits of upgrading the road is provided below.

Upgrading and sealing of Central Arnhem Road provides a real, tangible opportunity to close the gap and increase prosperity. The ABS 2015 data shows that East Arnhem is home to 10,730 people. This is higher than the expected population reported in the Infrastructure Australia Northern Australia Infrastructure Audit which was based on a projection of 9,592 people in 2016. Figure 1 provides a graph of the age profile of the East Arnhem region in 2015. As can be seen, there is a young, working age population, with a median age of just 27. This is compared to Australia's median age of 37.

*Template for Stage 1: Problem Identification and Prioritisation (continued)*

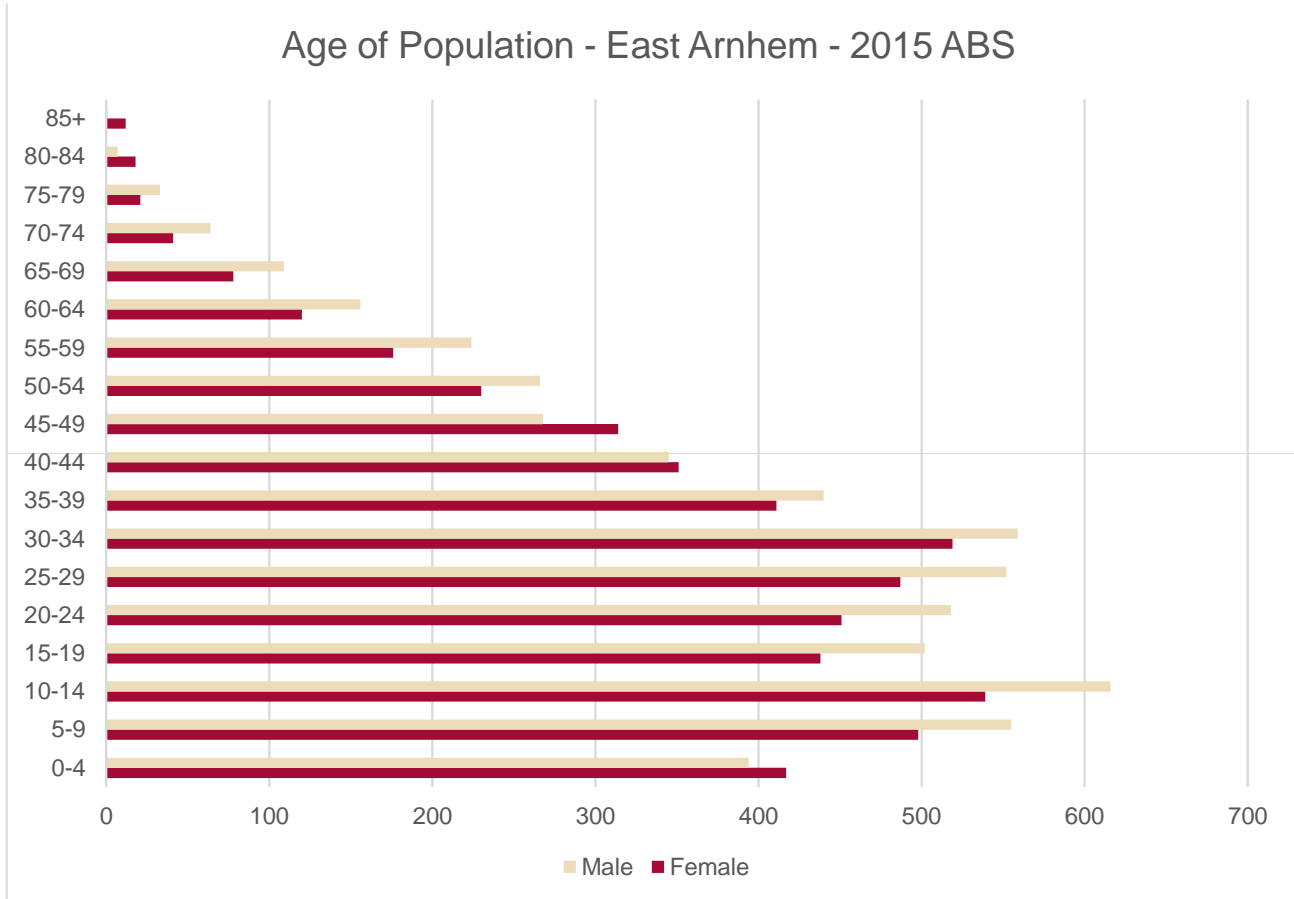


Figure 1 – East Arnhem Age Profile 2015 (ABS Data)

In 2013, ABS reported that the median income in East Arnhem Region was \$28,131 versus the Australian median income of \$44,940.

In 2011, ABS reported that there were 25 businesses employing 2,080 people out of a possible 6,960 people noted as working age population. ABS also report that the labour force was 2,585 in 2011, with an unemployment rate of 19.6%. Of note also is that 87.7% of respondents speak a language other than English at home. It is expected that the better access an upgraded Central Arnhem Road would provide would improve these statistics.

The main industries in the East Arnhem Region include mining as well as oil and gas exploration. This also represents 1.6% of the Territory’s businesses. However, further opportunities could be opened up through agribusiness and tourism if access was available.

The following is a comparison between West and East Arnhem regions. West Arnhem region is adjacent to the East Arnhem Region with a similar demography, but with one significant difference – it is connected back to the National Network and Darwin. This has seen an effect on the economic engagement and prosperity of the population. A comparison is provided in Table 1.

*Template for Stage 1: Problem Identification and Prioritisation (continued)*

Table 1 – Comparison of ABS data

<b>Statistical comparison</b>	<b>East Arnhem LGA (unconnected)</b>	<b>West Arnhem LGA (connected)</b>	<b>Australia</b>
Population	10,730	7,452	23,777,777
Median Age	27.1	28.2	37.4
Median Income	\$28,131	\$49,377	\$44,940
Total Number of Businesses	28	39	2,121,235
Unemployment rate	19.6%	13.7%	5.2%

Given the similarities in population demography between East and West Arnhem, Table 1 shows the potential opportunities unlocked if an upgraded and sealed connection could be made to East Arnhem Region. Opportunities include growth in the number of businesses being able to afford to operate, decrease in unemployment and growth in prosperity.

Further supporting data is contained within the Infrastructure Australia Northern Australia Infrastructure Audit, which describes Central Arnhem Road as a road critical infrastructure requirement for resource, agriculture, tourism and community links. An excerpt from the audit is provided below:

*“The importance of reliable road links across the Northern Territory cannot be overstated. In many cases, road is the only viable mode to move freight into the jurisdiction and to the destination customer. Additionally, the rural arterial road network is critical for community access (e.g. the Central Arnhem Highway connects Nhulunbuy and other the communities in East Arnhem Land). Severe weather, such as flooding, can force road closures and may leave some of these communities with restricted mobility and limited freight access.”*

The Infrastructure Australia Northern Australia Infrastructure Audit reported that the non-urban road growth rates are greatest on the still low volume Central Arnhem and Roper highways and on the Arnhem Highway. Refer to the Figure 29 (source: Infrastructure Australia Northern Australia Infrastructure Audit)

*Template for Stage 1: Problem Identification and Prioritisation (continued)*

*Figure 29: Northern Territory roads – historical (8 year) traffic growth and volumes*



### 2.3 Problem/opportunity root causes and forecast time period

Root cause	Time period
1. Upgrade and seal Central Arnhem Road to provide all weather access for demand and a better service standard (connecting East Arnhem regional centre to the National Network)	Through the next National Partnership Agreement on Land Transport 2019-20 to 2023-24

### 2.4 Information about the problem and opportunity

There are not many alternative options other than upgrading and sealing Central Arnhem Road to provide a sealed link to Nhulunbuy. Arnhem Link Road is the only other possible alternative.

Both Central Arnhem Road and Arnhem Link Road traverse some or all across Aboriginal Land. Aboriginal Land is governed by the Aboriginal Land Rights Act, Northern Territory. As such, the Northern Territory Government has undertaken extensive consultations with Traditional Owners, through Northern Land Council about both of these roads being upgraded for better access. It was very clear from these consultation that Traditional Owners support upgrading of Central Arnhem Road over Arnhem Link Road.



*Template for Stage 1: Problem Identification and Prioritisation (continued)*

The Infrastructure Australia Northern Australia Infrastructure Audit suggested phasing of the upgrade to a sealed standard through strategic links i.e. Stuart Highway to Bulman, Bulman to Nhulunbuy and connection to Melville Bay Road; including bridging of river/creek crossings. The Northern Territory Government agrees with this approach and has broken the project into a series of projects. Refer to the following table.



### Template for Stage 1: Problem Identification and Prioritisation (continued)

Problem	Qualitative description	Quantitative evidence	Monetised cost \$m, real 2XXX
<b>Current</b>			
Maintain current condition	Reliability and resilience - Maintain accessibility through grading and gravel resheeting.	Road restrictions and closure times. Complaints from road users. Often extensive flood damage repairs are required annually.	Included in the NT annual repairs and maintenance budget
<b>Medium term 2019-20 to 2023-24</b>			
Waterhouse Creek upgrade	Reliability and resilience	This section of Central Arnhem Road is currently a pinch point on the entire route as it is the first to close during the wet season.	\$15 million
Extend the seal at the Goyder River Bridges	Reliability and resilience	The recently upgraded Goyder River Bridges left the road approaches in good condition and good value for money can be achieved by sealing the adjacent sections	\$15 million
Seal between Beswick and Mainoru (101km)	Reliability and resilience	Mainoru Roadhouse currently runs safari tourism and the Mainoru station have the potential to export cattle through the Darwin port. A sealed connection would be an economic enabler.	\$99 million
Seal between Mainoru and Bulman (95.5 km)	Reliability and resilience	Bulman is the next community to be connected back to the National Network. This would provide the community	\$95 million
Seal between Bulman and the Ramingining turn off	Reliability and resilience	Ramingining is home to approx. 800 people. Current investment is underway to seal between Ramingining and Central Arnhem Road. This section would provide an almost fully sealed link to Ramingining as well as Nhulunbuy.	\$99 million
Seal between the Ramingining turn off and Gapuwiyak turnoff	Reliability and resilience	Gapuwiyak is home to approx. 1000 people. This section would contribute to providing a sealed connection to Gapuwiyak as well as Nhulunbuy.	\$99 million
Seal between the end of seal on Central Arnhem Road to Dhupuma Road	Reliability and resilience	This would be the last part of Central Arnhem Road to be sealed.	\$170 million
Dhupuma Road upgrade to provide a fully sealed link to Nhulunbuy	Reliability and resilience	Dhupuma Road connects the sealed Melville Bay Road to the unsealed Central Arnhem Road, thus completing the seal to Nhulunbuy. Upgrading of the Dhupuma Road would be necessary to fully realise the benefits of upgrading of the Central Arnhem Road.	\$20 million
<b>Longer term (e.g. 2036)</b>			



*Template for Stage 1: Problem Identification and Prioritisation (continued)*

## 2.5 Stakeholder impact

Stakeholder	Impact
Australian Government through Department of Infrastructure and Regional Development	Potential to fund the upgrades
Northern Territory Government through Department of Infrastructure, Planning and Logistics	Asset Owner. Potential to fund the upgrades
Traditional Owners through Northern Land Council	Land Owners
Road users, businesses, general public	Quicker, safer travel times, cheaper business operating costs

## 2.6 Problem/opportunity alignment with relevant government policy objectives, strategies and other problems/opportunities/programs

*Please provide details and evidence describing how the identified problem/opportunity is consistent with relevant government policy objectives and other projects.*

The upgrading and sealing of the Central Arnhem Road aligns with several government policies and strategies including:

- Closing the gap – Providing better access for Indigenous Australians
- White Paper of Developing Northern Australia – Opening up opportunities for businesses to grow and new businesses to establish with reliability and resilience of supply chains
- Northern Australia Infrastructure Audit – Noted as a “road critical infrastructure requirement”
- Northern Territory Government Economic Development Framework (<https://edf.nt.gov.au/>), Infrastructure Strategy (<https://edf.nt.gov.au/supporting-strategies-and-plans>) and 10 Year Infrastructure Plan. (<https://dipl.nt.gov.au/publications/10-year-infrastructure-plan>) – A major part of the future economic development of the Northern Territory.

Sealing Central Arnhem Road will unlock the economic potential of the region and open up a range of new long-term economic and social opportunities for people across East Arnhem.

Infrastructure investment is critical to securing economic development across a diverse Northern Territory economy, including tourism, minerals and energy developments and employment opportunities in those industries. It will improve access to health and educational services and facilitate social and cultural connections.

*Template for Stage 1: Problem Identification and Prioritisation (continued)*

The Northern Territory Infrastructure Strategy and 10 Year Infrastructure Plan outlines the vision and projects that will deliver to regional and remote areas that is critical for sustainable economic development and the commencement of sealing Central Arnhem Road is a short term priority.

Infrastructure is a fundamental building block for growing private investment, creating jobs, enabling economic growth and building social inclusion.

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### **3. Confidentiality**

#### *Confidentiality*

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*Please identify if any of the information provided to Infrastructure Australia in this template is confidential. Please provide a brief explanation of the reasons for the request of confidentiality.*

*Information submitted confidentially will not be released or published by Infrastructure Australia without the written consent of the proponent.*

The table of projects is confidential at this point in time. However, the overall project is not confidential.

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# Assessment Framework

## TEMPLATES AND CHECKLISTS

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### Template for Stage 1: Problem Identification and Prioritisation

#### 1. Overview

##### 1.1 Document control details

PROJECT NAME	<i>Northern Territory Beef Roads</i>	PROPONENT	<i>Northern Territory Government</i>
VERSION	<i>1.0</i>	DATE COMPLETED	<i>5/10/2017</i>
CHANGES FROM PREVIOUS VERSION			

##### 1.2 Prepared by

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DATE	<i>13/09/2017</i>				

##### 1.3 Approved by

NAME	<i>Andrew Kirkman</i>	JOB TITLE	<i>Chief Executive, Department of Infrastructure, Planning and Logistics</i>	ORGANISATION	<i>Department of Infrastructure, Planning and Logistics</i>
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DATE	<i>DD/MM/YYYY</i>				

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

## **2. Problem/opportunity description**

### **2.1 Nationally significant problem/opportunity statement**

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*Please describe the problem/opportunity as a succinct statement that clearly identifies a nationally significant issue to be improved or built upon.*

The Northern Territory supplies the live cattle export market in Asia through the Darwin Port. A key blockage to growth in this market is year round road access from the paddocks and stations to the Darwin Port.

The outlook for northern beef markets is strong with industry expecting sustained and growing demand for backgrounding, live export and abattoirs over the next 10 years. Deputy Prime Minister and Federal Minister for Agriculture, the Hon. Barnaby Joyce has made a series of announcements regarding beef export to China. Upon announcement of the Australia-China Agricultural Cooperation Agreement (ACACA) program between the Australian and Chinese Governments, Minister Joyce announced that, "one million head of cattle valued at more than \$1 billion are set to be shipped to China each year that will double Australia's live-export cattle trade," and, "... Australian agriculture has emerged as the fastest growing sector and the largest contributor to national GDP growth in 2016-17, cementing its position as one of the economic powerhouses driving the nation." On the 21 February 2017, the first shipment of beef arrived in China.

Current key facts about the Australian cattle industry are as follows (Source: Australian Government):

- Australia's two-way agricultural trade relationship with China is worth \$12.7 billion.
- China is the world's second largest agricultural importer (after the USA), with imports worth over US\$120 billion.
- In 2016, Australia exported over 3 million feeder, slaughter and breeder livestock to the world, including approximately 1 million feeder and slaughter cattle exported to 16 markets.
- Over 94,000 breeder cattle were exported to China in 2016.

The Northern Territory has significant untapped capacity to grow the Australian market share for agricultural export to overseas markets. However, reliable and resilient access to market is a major blockage for this potential to be unlocked.

Transport is important given the large distances cattle need to be moved during which they lose condition (weight = profitability) and need to meet biosecurity and animal welfare and driver fatigue and safety requirements. Holding cattle close to key supply chain points is critical to future development so key markets can be cost-effectively serviced by the industry. For example, shipping exports from Darwin Port to Singapore is half the time it takes from Melbourne or Adelaide.

The agricultural industry is reliant on land transport to deliver from farm to market, and investment into the land transport routes will decrease risks to production and supply chains. Key roads are often subject to restrictions and closures due to weather events which affect the movement of freight and people.

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### *Template for Stage 1: Problem Identification and Prioritisation (continued)*

The Australian Government's White Paper on Developing Northern Australia highlights the need for improving Northern cattle supply chains, and delivery of the projects within the \$100 million beef road fund is underway.

The Northern Territory Economic Framework also identifies agriculture as a core business and a Northern Territory growth sector which is also reflected in the Infrastructure Strategy and 10 Year Infrastructure Plan. The cattle industry has been identified as one of the Northern Territory's industry sectors with the most potential for growth. The NT Cattleman's Association currently estimates that the cattle industry contributes \$1 billion to the economy. Insufficient and deteriorating roads will severely inhibit growth potential.

Investment into the Northern Territory's beef roads is required to boost confidence in a growing industry that already attracts significant private investment, supports regional growth and delivers economic opportunities to remote Territorians.

## **2.2 Problem/opportunity location**

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*Please describe and provide supporting materials such as maps, coordinates, etc. to provide an accurate description of the entire problem/opportunity area.*

Many regional and remote roads in the Northern Territory link the cattle stations to the markets. In consultation with the NT Cattleman's Association, the Northern Territory Government has identified key strategic roads that would significantly improve and grow the live cattle export market in Northern Australia. The main strategic roads include:

- Buntine Highway (connection to Western Australia)
- Plenty Highway (connection to Queensland)
- Barkly Stock Route
- Tablelands Highway
- Sandover Highway
- Marindja Road
- Tanami Road (Connection to Western Australia and the subject of another National Priority Project)

Refer to Attachment A for a map of all NT Government managed roads. Attachment B provides detailed fact sheets for each of these roads.

More than 30 industry leaders and senior state and territory executives met in March 2016 in Palmerston for the third meeting of the Northern Australia Beef Roads Roundtable to discuss funding priorities for \$100 million worth of upgrades to major cattle transport routes across the north of Australia. The purpose of the consultations was to discuss the challenges and opportunities facing the northern beef industry and what infrastructure projects between the farm-gate and port are required to address them over the next 10 years.

As part of the Australian Government Beef Roads Roundtables, the CSIRO's TRANsport Network Strategic Investment Tool (TRANSIT) was developed to analyse project submissions for the \$100 million and to identify

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

which projects provided the most cost savings. Cost savings can be significant with when investment improves flood immunity and road surface along the length of the road. Each road is described in further detail below, including the TRANSIT results where applicable.

- ***Buntine Highway***

The Buntine Highway is a rural arterial road that is 558 kilometres long and runs from the Victoria Highway to the Western Australian border. The first 336 kilometres of the Buntine Highway pavement is sealed whereas the remaining 222 kilometres is predominantly unsealed.

The Buntine Highway is considered to be an extremely high priority cattle road. Some fifteen pastoral stations rely on the Buntine Highway for transporting their cattle to the East Arm Port in Darwin for the live export market. The Buntine Highway also serves as a major transport link between the Victoria Highway and Halls Creek (Western Australia) and through to the major cattle holding and live export loading infrastructure in Broome and the Port of Wyndham.

Upgrading of the Buntine Highway will be critical to supply the growing demand for beef exports and support growth in cattle production across the Victoria River Downs and Kimberley districts. This is the only transport route for the entire Victoria River Region of the Northern Territory - one of the most important pastoral production regions in the Northern Territory. Stations situated on this road supply cattle to live export or domestic slaughter markets via Broome in Western Australia, to live export via the Port of Darwin, and to the Australian Agricultural Company abattoir in Darwin.

Many stations also use this road for internal movement of livestock within the property or between neighbouring properties. There are several corporate agricultural companies that own multiple stations along the Buntine Highway such as Australian Agricultural Company (AACo), Heytesbury Cattle Co and Consolidated Pastoral Company (CPC).

It is estimated that approximately 250,000 head of cattle are moved along the Buntine annually, with a value of \$266 million. The cattle industry alone utilises an estimated 1400 road trains for transporting livestock, as well as 500 road trains carrying freight/other goods, and 1500 vehicles. This road also services the indigenous communities of Kalkaringi (where there is a hospital and airstrip used for medical evacuations by Care flight), Daguragu and Lajamanu. Mining companies use this road to access operations in the north of the Tanami Desert region, and a number of tourists also use this route as an alternative when travelling from the Northern Territory to Western Australia or vice versa.

There are several identified issues to address on the Buntine Highway Projects including:

1. areas of the road that are a safety hazard;
2. areas that prevent access during wet season; and
3. areas that slow or hinder production.

The Buntine Highway is a single lane bitumen/gravel/dirt road, with many water crossings. Many stations become completely isolated during the wet season because of these crossings or wet areas on the dirt. Fixing these to allow all weather access will mean greater ability to supply cattle markets and will have a positive



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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

impact on the region. AACo, for example, own three properties along the Buntine and the abattoir in Darwin, which requires supply all year round. All weather access will allow the company, as well as others, to supply the facility for more than just 8 months of the year from this region. There are also many areas of the road that force trucks to slow right down, if they were of a decent standard, time that cattle spend on trucks would be shortened, thus decreasing production and profit losses.

The opening of the Chinese markets will see a demand more cattle be shipped from the Port of Broome due to the health protocol, many of which will come from properties along the Buntine Highway in the Northern Territory and be trucked via the Buntine and Duncan Highways to Halls Creek, then via the Great Northern Highway to Broome or Wyndham ports. Improved access into Western Australia via the Buntine Highway to Halls Creek will have big impacts on the economies of both the Northern Territory and Western Australia.

Currently, given the state of the southern section of the Buntine Highway in the Northern Territory (and the Duncan Highway in Western Australia), cattle being transported from the Top Springs area, for example, to Western Australia, are forced to head north on the Buntine Highway to the Victoria Highway and into Western Australia via Kununurra: a trip (to Halls Creek) totalling 910 kilometres. If the Buntine Highway and Duncan Highways were upgraded to a standard that would allow for faster travel speeds, limit damage to vehicles and permit all weather access to markets in Western Australia, the total distance to Halls Creek via the Buntine/Duncan would be 576 kilometres, or a saving of 334 kilometres.

**Safety**

The majority of the sealed section of the Buntine Highway was originally constructed as a single lane seal. This presents safety problems due to inadequate provision of safe passing opportunities particularly for large vehicles and road trains. There have been a number of trucks roll over in notorious spots along this road in the last few years as a result of deteriorated road surface, blind corners on single lane, or poor road shoulders. These are a safety hazard for drivers, as well as an animal welfare issue (many cattle are killed or injured in these truck accidents). Fixing these spots will minimise these accidents.

There are also a number of very dangerous shoulders and culverts, and some very sharp bends that are the prime cause of multiple accidents recently (a number of cattle trucks have tipped their trailers on particular sharp bends).

Whilst the overall traffic count figures are moderate the road has a very high proportion of heavy vehicles and road trains. In 2016 the AADT (1 kilometre South of Top Springs) was 79 vehicles per day with 22% of heavy vehicles and the AADT (16 kilometres East of Wave Hill) was 65 vehicles per day with 28% of heavy vehicles.

In the past 10 years from January 2007 to December 2016, there have been a total of 64 reported crashes on the Buntine Highway including four fatalities and 20 persons admitted to hospital. A total of 34 accidents were either vehicle roll over or run off road accidents. The narrow seal may be a contributing factor to the prevalence of this crash type.

In the period between 2005 and 2013 there were three reported accidents involving road train trailer roll overs. There has been recent spate of seven such accidents in the last three years. Deteriorating road pavements and shoulders may be contributing to this increased frequency of heavy vehicle rollover accidents. Increased cattle production is likely to see this type of crash increase if the issues are not addressed.

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

Improving safety can be achieved through providing additional safe passing opportunities and widening of pavements, seal and culverts resulting in a reduction in vehicle roll over and runoff type crashes at identified crash zones.

**Efficiency, Accessibility and Connectivity**

The Buntine Highway provides the shortest and most direct route between key beef production regions of the Northern Territory and export markets through the Port of Broome and the East Arm Port in Darwin.

It is estimated by industry that in excess of 250,000 head of cattle are transported on the road each year. This is significantly greater than the Transport Network Strategic Investment Tool (TRANSIT) predictions of only 26,640 head per year. Much of this difference may be accounted for the TRANSIT model predicting that cattle will be transported along the unsealed Buchanan Highway to the Stuart Highway, whereas the majority of cattle transport is currently via the single lane sealed section of the Buntine Highway through to the Victoria Highway and then north to Darwin via the Stuart Highway.

During extended wet seasons, the entire road formation of the Buntine Highway becomes saturated and pavement failures result under normal heavy vehicle loads. This requires substantial road closures and loading restrictions to minimise the pavement and to ensure vehicles safety. In the wet season the saturated gravel shoulders become so soft that vehicles frequently become bogged if traversing off the narrow seal.

In the past 10 years from July 2007 to June 2017, the Buntine Highway has been closed to heavy vehicles (either Road Closed, Impassable or Light Vehicles only) on 60 separate occasions for a total duration of 190 days (average annual duration of closure to traffic and/or weight restriction to heavy vehicles of 19 days).

Axle mass and/or vehicle type restrictions have been required on a further 46 separate occasions for a total duration of 896 days (average annual duration of mass restriction of 90 days – 25% of any given year.)

Improved freight capacity, efficiency and reliability can be achieved through a reduction in the duration and frequency of wet season road closures and weight and/or vehicle type restrictions. Improved connectivity for the local communities, particularly during wet season, which rely on this road for the supplies from Katherine and Darwin will also be achieved through these upgrades.

**Productivity and Economic Development**

Local pastoral properties are not being developed to their full potential specifically because of the condition of the Buntine Highway and the fact that it isn't accessible to road trains at certain times of the year, depriving the region of investment opportunities.

The pastoral industry is heavily reliant upon road transport for the movement of livestock and produce. Road quality and accessibility issues are major concerns for the industry.

Having year-round use of sealed beef roads will significantly benefit the existing industry and facilitate accelerated growth of an industry with considerable growth potential.

Increased access will also benefit tourism, mining and services delivery to residents.

**Problem Analysis**

### *Template for Stage 1: Problem Identification and Prioritisation (continued)*

The overall low standard and poor condition of the Buntine Highway significantly impacts on the Territory's key industries and the delivery of important services. The limited year-round access for heavy vehicles impedes business efficiencies and profitability.

Upgrading of the Buntine Highway is critical to improve cattle movement between the Northern Territory and the Kimberley and to export markets through Ports of Broome, Wyndham and the East Arm Port in Darwin.

Upgrading the Buntine Highway will also benefit the wider community as this road also services remote aboriginal communities and often provides access for both the resources and tourism industries.

#### **Problem Prioritisation**

Upgrading of the Buntine Highway to improve cattle movement between the Kimberley Region and the Northern Territory was identified during the TRANSIT consultations as a key infrastructure priority. As part of the modelling, the Northern Territory Cattlemen's Association discussed with the heads of a number of the main corporate pastoral companies in Northern Australia regarding the condition of the Buntine Highway, and upgrading of the road is now regarded as a critical priority to the Northern Territory Cattlemen's Association. Additionally, the poor and unsafe condition of the Buntine Highway has received media attention.

It is estimated by industry that in excess of 250,000 head of cattle are transported on the road each year. If we equate the 250,000 head of cattle with the estimated 20kg loss per head of cattle due to the road condition, multiplied by the \$3 per kg financial loss to the pastoralist, this equates to a \$15 million year loss due to the road condition on the Buntine Highway alone. (Based on evidence provided by pastoralists and verified by Transport Inspectors)

The TRANSIT model predicts further travel cost savings of \$43,043 per annum equating to savings per head of \$2.71 if the entire length of the Buntine Highway was upgraded and sealed.

- ***Plenty Highway***

The Plenty Highway extends 499 kilometres from the Stuart Highway (north of Alice Springs) to the Queensland Border. The road is part of the Outback Way – Australia's longest shortcut - which is the Australian east-west link which connects from Laverton (Western Australia) to Winton (Queensland) and thus linking the western and eastern seaboard.

The Plenty Highway comprises of 97 kilometres of single lane sealed road and 402 kilometres of unsealed road of varying standard. There is currently a program of work underway to seal the Plenty Highway under the Outback Way investments which will extend the seal to just beyond Harts Range.

The Plenty Highway is a regionally significant road and is considered to be an extremely high priority cattle road. It is an arterial road providing the main and only means of access to the regional road network for the cattle industry, communities and tourists in the lower Barkly region. Around 20 or so cattle stations are directly served by the Plenty Highway including Mt Riddock, Dnieper, Huckitta, MacDonnald Downs, Jinka, Jervois, Tarlton Downs, Marqua, Tobermory and Manners Creek cattle stations. The Plenty Highway also provides access to the indigenous communities including the major community of Atitjere (Harts Range).

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

The region is experiencing growth beyond the capacity of the road. Year round access between Queensland and Central Australia is critical for the industry to supply domestic and live cattle export markets. Seasonal rainfall and limited maintenance renders large sections inaccessible for long periods. Costs of freight or preparedness of contractors to use the road costing business and having untold social costs.

The key objective of the project is to upgrade and improve the Plenty Highway to improve connectivity between Central Australia and Queensland to enhance productivity, safety and northern development across the Central Australia region, specifically to:

1. increase business development opportunities including pastoral and tourism.
2. improve access to remote communities;
3. improve flood immunity;
4. improve road safety;
5. reduce the problems of damage to vehicles and freight;
6. improve travel times for access to communities, pastoral stations, and tourism destinations; and,
7. reduce the periodic but infrequent road closures and weight restrictions that limit the useability, and reliability, of the road for freight movements.

Upgrading of the Plenty Highway will provide enhanced access and a reliable and shorter route for cattle movements between Central Australia to Queensland and north to live export markets via Darwin. It is estimated by industry that in excess of 80,000 head of cattle are transported on the road each year. This compares with the TRANsport Network Strategic Investment Tool (TRANSIT) predictions of around 60,000 head per year with 34,560 head per year being transported west towards the Stuart Highway and 25,440 head per year being transported east into Queensland.

There are also extensive mining interests along the Plenty Highway. The AAM Spinifex Bore project, near Harts Range is currently producing garnet sand. The estimated production in 2015 is 30,000 tonnes, with the potential for production to increase to 160,000 tonnes per annum by 2019. Other prospects in the region include KGL Resources Jervois project with potential annual production of copper-gold concentrate of 100,000 tonnes per annum, and Thor Mining Molyhil project with estimated production of Tungsten Molybdenum concentrate of 5,400 tonnes per annum.

The current poor condition of the Plenty Highway significantly impacts on the Territory's key industries and the delivery of important services. The pastoral industry is heavily reliant upon road transport for the movement of livestock and produce. Road quality and accessibility issues are major concerns for the industry.

The Plenty Highway (Tobermorey to Stuart Highway NT) has been identified in the Northern Australia Infrastructure Audit Report as a core arterial route for northern beef producers providing access and egress for the cattle industry and linking properties to domestic and international markets and an important route to support remotely located mines. The road is included as part of the Resource, Agriculture, Tourism and Community Links' Infrastructure Grouping. An infrastructure gap analysis in terms of service standards has been identified with the key infrastructure requirement to address unsealed pavements and structures, flooding (reliability) and lane capacity upgrade to improve livestock flow efficiency.

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

Having year-round use of sealed beef roads will significantly benefit the existing industry and facilitate accelerated growth of an industry with considerable growth potential. Increased access will also benefit tourism, mining and services delivery to residents.

**Safety**

Large sections of the Plenty Highway are only a flat bladed track through sand clay and are yet to be gravelled and several sections are narrow formations which are inadequate for the traffic, particularly road trains.

Much of the formation of the unsealed section of the route is both flat and at or below natural surface between large windrows, with consequent high exposure to potential pavement damage and road closure from the (infrequent) rainfall events. A significant proportion of the running surface is comprised of formed subgrade with no capping or base layer. Conditions may thus change rapidly under extremes of weather and/or from the impact of heavy cattle cartage and other traffic. This presents safety problems due to inadequate provision of safe passing opportunities particularly for large vehicles and road trains.

Whilst the overall traffic count figures are moderate, the road has a high proportion of heavy vehicles and road trains.

In 2016 the AADT (16 km East of the Stuart Highway) was 129 vehicles per day with 19% of heavy vehicles, the AADT (56 km East of the Stuart Highway) was 100 vehicles per day with 18% of heavy vehicles, and the AADT (27 km East of the Huckitta Station) was 39 vehicles per day with 16% of heavy vehicles.

In the past 10 years from September 2007 to July 2016, there have been a total of 64 reported crashes on the Plenty Highway including two fatality and 18 persons admitted to hospital. A total of 42 of these accidents (66%) were vehicle rollover accidents. The uneven unsealed surface may be a contributing factor to the prevalence of this crash type.

The project will improve safety by providing additional safe passing opportunities and widening of pavements, seal and culverts resulting in a reduction in vehicle roll over and runoff type crashes.

**Efficiency, Accessibility & Connectivity**

From 2005 to 2014, the Plenty Highway has been closed or impassable for heavy vehicles on 55 separate occasions for a total duration of 308 days (average annual duration of closure to traffic and/or weight restriction to heavy vehicles of 30.8 days).

The project will result in improved freight capacity, efficiency and reliability through a reduction in the duration and frequency of wet season road closures and weight and/or vehicle type restrictions and provide improved connectivity for the local communities, particularly during wet season, which rely on this road for the supplies.

**Productivity and Economic Development**

Local pastoral properties are not being developed to their full potential specifically because of the condition of the Plenty Highway and the fact that it isn't accessible to road trains at certain times of the year, depriving the region of investment opportunities.

The pastoral industry is heavily reliant upon road transport for the movement of livestock and produce. Road quality and accessibility issues are major concerns for the industry.

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

Having year-round use of sealed beef roads will significantly benefit the existing industry and facilitate accelerated growth of an industry with considerable growth potential.

Increased access will also benefit tourism, mining and services delivery to residents.

The project will complement the current significant investment by the made by both the Australian and Northern Territory Governments in upgrading sections of the Outback Highway.

**Problem Analysis**

The overall low standard and poor condition of the Plenty Highway significantly impacts on the Territory's key industries and the delivery of important services. The limited year-round access for heavy vehicles impedes business efficiencies and profitability.

Upgrading of the Plenty Highway is critical to improve cattle movement between the Northern Territory and both domestic and export markets.

Upgrading the Plenty Highway also benefit the wider community as this road also services remote aboriginal communities and often provides access for both the resources and tourism industries.

**Problem Prioritisation**

The current program of works will increase the seal length by 57 kilometres on the Plenty Highway. This has been modelled in TRANSIT, which resulted in a saving of \$1.26 per head. Sealing of this road will allow greater efficiency in transportation of livestock to market, reducing stress on stock by making the journey less rough and reducing travel time. Transport companies currently charge producers a fee of around 10c/deck/kilometre for travelling on this road to cover the cost of damage to vehicles. This cost equates to, for example, an additional \$180 per road train when moving cattle for an average distance of along the Plenty of 300 kilometres. The total additional cost to industry is over \$100,000 per year. Sealing the entire Plenty Highway would remove this cost, further boosting the economy of the region.

If we equate the 80,000 head of cattle transport every year on the Plenty Highway, with the estimated 20kg loss per head of cattle due to the road condition, multiplied by the \$3/kg financial loss to the pastoralist, this equates to a \$4.8 million annual loss due to the road condition on the Plenty Highway.

- ***Tablelands Highway***

The Tablelands Highway extends 372 kilometres from the Barkly Highway to Cape Crawford near Borroloola on the Carpentaria Highway. The road runs generally in a north-south alignment through much of the Barkly Tablelands in the eastern part of the Northern Territory. The Tablelands Highway is a vital rural arterial road that provides access for the cattle industry, pastoralists, local Indigenous communities and tourists.

The Barkly Tablelands incorporates some of the most important cattle grazing areas in the Northern Territory. The region consists largely of open grass plains and some of the world's largest cattle stations both by area and number of head of cattle. The Tablelands Highway is the centre of the Barkly Tablelands and supports heavy vehicle movement of cattle in all directions, including to Darwin to live cattle export markets, to domestic market supply chains in both Queensland and South Australia and transport between pastoral proprietries.

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

The Tablelands Highway is considered to be an extremely high priority cattle road. It is estimated by industry that in excess of 100,000 head of cattle are transported on the road each year. This is consistent with the Transport Network Strategic Investment Tool (TRANSIT) predictions of 122,160 head per year for the southern section of the road. This volume of cattle transport makes the Tablelands Highway the most heavily trafficked road within the Northern Territory for cattle transport outside of the National Network (Stuart, Barkly and Victoria Highways).

Upgrading of the Tablelands Highway will be critical to supply the growing demand for beef and support growth in cattle production across the Barkly Tablelands and surrounding districts.

The Tablelands Highway is typically a narrow 4.0 metres wide single lane sealed pavement with 2 metres wide gravel shoulders. The pavement is mostly built over black soil. These black soil sections are affected by pavement movement shoving and depressions, restricting heavy transport road trains with trailers moving and swaying on the uneven pavement. Traffic builds up behind these trucks with little passing opportunities.

Shoulder drop-offs from the seal to the gravel are over 50 millimetres and with black soil mixed into the shoulder, this is a dangerous combination. In the wet season, these shoulders become very soft making passing on the narrow seal pavement very dangerous. When vehicles pass each other, the vehicle tyres must quickly traverse a hard surface to a surface with a consistency of wet mud causing an adverse force on the vehicle, causing significant road safety issues.

The current poor condition of the Tablelands Highway and limited year-round heavy vehicle access significantly impacts on the Territory's key industries and the delivery of important services. The pastoral industry is heavily reliant upon road transport for the movement of livestock and produce. Road quality and accessibility issues are major concerns for the industry.

The Tablelands Highway (Barkly Highway to Borroloola NT) has been identified in the Northern Australia Infrastructure Audit Report as a core arterial route for northern beef producers providing access and egress for the cattle industry and linking properties to domestic and international markets.

An infrastructure gap in terms of demand and service standard has been identified with the key infrastructure requirement to address single lane seals and pavement widening.

The project will upgrade and improve the Tablelands Highway to enhance productivity, safety and northern development across the Barkly Tablelands region.

Having improved year round transport access will significantly benefit the existing Northern Australia Beef industry and facilitate accelerated growth of an industry with considerable growth potential.

The Tablelands Highway is used in the transportation of general goods to stations and indigenous communities on the Tablelands Highway and the connecting secondary roads, being the Ranken Road, Barkly Stock Route and Calvert Road. The road is a key supply route for the McArthur River mine near Borroloola, which is one of the world's largest providers of zinc in bulk concentrate. The road is also the shortest link between the McArthur River mine and the Mount Isa Mines (Queensland) with both of these mines being owned by the same company (Glencore).

The Tablelands Highway also supports tourism and recreational fishing in Borroloola and Gulf region, and is the main access for fishing tourists travelling from Queensland.

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

The project will bring benefits in terms of improved safety, reliability and productivity to these other road users through upgrading selected sections of the Tablelands Highway to two-lane sealed standard (with 7 metres wide seal on a 9 metres wide carriageway), flood immunity improvements together with pavement strengthening and widening as required. This aims to improve safety and reduce the number of closures and road restrictions imposed on this road during the wet season.

**Safety**

The Tablelands Highway was originally constructed as a single lane seal. The pavement is mostly built over black soil. These black soil sections are affected by pavement movement shoving and depressions, restricting heavy transport road trains with trailers moving and swaying on the uneven pavement.

This presents safety problems due to inadequate provision of safe passing opportunities particularly for large vehicles and road trains.

Whilst the overall traffic count figures are moderate, the road has a very high proportion of heavy vehicles and road trains. In 2016 the AADT (1 km North of Barkly Highway) was 47 vehicles per day with 29% of heavy vehicles and the AADT (5 km South of Carpentaria Highway) was 56 vehicles per day with 40% of heavy vehicles.

In the past 10 years from January 2007 to December 2016, there have been a total of 13 reported crashes on the Tablelands Highway including four persons admitted to hospital. Ten of these 13 crashes were either vehicle roll over or run off road accidents. The narrow seal, and deteriorating road pavements and shoulders may be a contributing factor to the prevalence of this crash type.

The project will improve safety by providing additional safe passing opportunities and widening of pavements, seal and culverts resulting in a reduction in vehicle roll over and runoff type crashes.

**Efficiency, Accessibility and Connectivity**

In the wet season the saturated gravel shoulders become very soft making passing on the narrow seal pavement very dangerous if not impossible. Vehicles frequently become bogged if traversing off the narrow seal and the entire road formation of the Tablelands Highway becomes saturated and pavement failures result under normal heavy vehicle loads. This requires substantial road closures and loading restrictions to minimise the pavement and to ensure vehicles safety.

In the past 10 years from 2007 to 2017, the Tablelands Highway has been closed to heavy vehicles (either Road Closed, Impassable or Light Vehicles only) on 26 separate occasions for a total duration of 217 days (average annual duration of closure to traffic and/or weight restriction to heavy vehicles of 22 days).

Axle mass and/or vehicle type restrictions have been required on a further 24 separate occasions for a total duration of 2,808 days (average annual duration of mass restriction of 281 days – 77% of any given year).

The project will result in improved freight capacity, efficiency and reliability through a reduction in the duration and frequency of wet season road closures and weight and/or vehicle type restrictions and provide improved connectivity for the local communities, particularly during wet season, which rely on this road for the supplies.



### *Template for Stage 1: Problem Identification and Prioritisation (continued)*

#### **Productivity and Economic Development**

Local pastoral properties are not being developed to their full potential specifically because of the condition of the Tablelands Highway and the fact that it isn't accessible to road trains at certain times of the year, depriving the region of investment opportunities.

The pastoral industry is heavily reliant upon road transport for the movement of livestock and produce. Road quality and accessibility issues are major concerns for the industry.

Anecdotally, pastoralists estimate a doubling of production over a few short years if the supporting road infrastructure was accessible for longer periods of the year.

Having improved year-round use of sealed beef roads will significantly benefit the existing industry and facilitate accelerated growth of an industry with considerable growth potential.

Increased access will also benefit tourism, mining and services delivery to residents.

#### **Problem Analysis**

The cattle industry has been identified as one of the Northern Territory's industry sectors with the most potential for growth. Insufficient and deteriorating roads will severely inhibit growth potential.

Much of the demand will come from Asia where steadily increasing incomes and populations are projected to see the demand for protein accelerate rapidly.

The Northern Territory is very well placed to be a supplier to Asia over the long-term.

The overall low standard and poor condition of the Tablelands Highway significantly impacts on the Territory's key industries and the delivery of important services. The limited year-round access for heavy vehicles impedes business efficiencies and profitability.

Upgrading of the Tablelands Highway is critical to improve cattle movement between the Northern Territory and both domestic and export markets.

Sections of the road are particularly rough and more akin to an unsealed road in terms of rideability.

Upgrading the Tablelands Highway also benefit the wider community as this road also services remote aboriginal communities and often provides access for both the resources and tourism industries.

#### **Problem Prioritisation**

The Tablelands Highway is considered to be an extremely high priority cattle road. It is estimated by industry that in excess of 100,000 head of cattle are transported on the road each year. This is consistent with the TRANsport Network Strategic Investment Tool (TRANSIT) predictions of 122,160 head per year for the southern section of the road.

This volume of cattle transport makes the Tablelands Highway the most heavily trafficked road within the Northern Territory for cattle transport outside of the National Network (Stuart, Barkly and Victoria Highways).

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

If we equate the 100,000 head of cattle with the estimated 20kg loss per head of cattle due to the road condition, multiplied by the \$3 per kg financial loss to the pastoralist, this equates to a \$6 million annual loss due to the road condition on the Tablelands Highway alone.

The TRANSIT model predicts further travel cost savings of \$30,756 per annum equating to savings per head of \$0.41.

The Northern Territory Cattlemen's Association have frequently expressed concerns regarding the poor standard and condition of the Tablelands Highway and upgrading of the road is now regarded as a critical priority to the Northern Territory Cattlemen's Association.

- ***Tanami Road***

Refer to the attached submission currently with Infrastructure Australia and the project fact sheet. (Refer Attachment C)

- ***Barkly Stock Route***

The Barkly Stock Route extends 229 kilometres from the Stuart Highway to Tablelands Highway near Anthony Lagoon. The road runs generally in an eastern alignment through much of the Barkly Tablelands in the Northern Territory. The Barkly Stock Route is a vital rural secondary road that provides access for the cattle industry, pastoralists, local Indigenous communities and tourists.

The Barkly Tablelands incorporates some of the most important cattle grazing areas in the Northern Territory. The region consists largely of open grass plains and some of the world's largest cattle stations both by area and number of head. The Barkly Stock Route connects the Stuart Highway with the Tablelands Highway through the centre of the Barkly Tablelands. The Barkly Stock Route supports heavy vehicle movement of cattle to the port of Darwin for live cattle export markets, to domestic market supply chains in both Queensland and South Australia and transport between pastoral properties.

Upgrading of the Barkly Stock Route will be critical to supply the growing demand for beef and support growth in cattle production across the Barkly Tablelands and surrounding districts.

The Barkly Stock Route is considered to be a high priority cattle road. It directly services the cattle stations of Tandyidgee, Ucharonidge, Helen Springs, Eva Downs, Mungabroom and Anthony Lagoon. It is estimated by industry that in excess of 45,000 head of cattle are transported on the road each year. This exceeds the Transport Network Strategic Investment Tool (TRANSIT) predictions of 20,400 head per year for the eastern section of the road. This volume of cattle transport makes the Barkly Stock Route one of the most heavily trafficked roads within the Northern Territory for cattle transport outside of the National Network (Stuart, Barkly and Victoria Highways). The existing investment of \$10 million to upgrade the Barkly Stock Route was estimated to fetch a savings of \$0.56 per head through the TRANSIT model.

This Barkly Stock Route dissects one of the most productive pastoral production regions in the Northern Territory. Cattle to the value of approximately \$158 million are moved via this road annually. The Barkly Tablelands region has been earmarked as one of the biggest production growth areas in the Northern Territory

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

and all season access is critical to facilitating infrastructure investment on these properties to allow this potential to become reality.

There are a number of very large cattle stations adjacent to this road that are solely reliant on the Barkly Stock Route for access, both for production and for families/staff/supplies, etc. This region produces cattle that access both the live export market in Darwin, the new abattoir in Darwin, and eastern grower and slaughter markets via Mt Isa. Cost of production is also hindered by a \$0.05/deck/kilometre charge by transport companies when servicing these stations.

The Barkly Stock Route is also used in the transportation of general goods and personnel to and from stations and to indigenous communities, being the only connector between the Stuart Highway and Tablelands Highway in the Tablelands area. The Corella Creek indigenous community use this road to shorten the distance to Elliot or Darwin when passable in the dry season. The Barkly Stock Route also acts as a key supply route for the McArthur River mine near Borroloola, which is one of the world's largest providers of zinc in bulk concentrate. Tourism and recreational fishing also access Borroloola and the gulf region are via the Barkly Stock Route.

The Barkly Stock Route is a narrow 6.0 metres wide dual lane unsealed road with a minimal formation height. The road is mostly built over black soil that expands and contracts with changing weather conditions. These conditions result in large potholes, pavement cracking with loss of gravel, slippery surfaces and corrugations that restrict heavy transport operations due to the poor pavement conditions. Flooding during wet periods is also a major issue for the road as the formation is generally at or below the surrounding ground surface. The road is typically impassable to traffic for an average annual period of three months.

The current poor condition of the Barkly Stock Route and limited year-round heavy vehicle access significantly impacts on the Territory's key industries and the delivery of important services. The pastoral industry is heavily reliant upon road transport for the movement of livestock and produce. Road quality and accessibility issues are major concerns for the industry.

The project aims to upgrade the Barkly Stock Route to two-lane sealed standard (with 7 metres wide seal on a 9 metres wide formation) to improve safety, reduce the number of closures due to flooding and reduce the load and vehicle restrictions imposed on this road during the wet season.

**Safety**

The Barkly Stock Route is a 6 metre wide partly gravelled and partly formed unsealed road. The pavement is mostly built over black soil. It is affected by pavement movement, potholes, low formation, flooding, pavement corrugation and depressions, restricting heavy transport road trains with trailers moving and swaying on the uneven pavement.

The pavement material on these black soil sections is non-plastic gravel that corrugates very easily. Due to the poor vertical alignment, the material is washed to the eastern side of the Barkly Stock Route from the intersection with the Stuart Highway and results in large sand drifts that block access to the triple road trains. The heavy vehicles are forced to break their loads to climb through the sand. The road also passes through floodplains and is regularly flooded, making the road impassable for long periods during the wet season.

This presents safety problems due to impassability of the vehicles in the wet season when the road is bogged and covered with water due to poor pavement and inadequate drainage provision.

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

Whilst the overall traffic count figures are low, the road has a very high proportion of heavy vehicles and road trains. In 2015 the AADT (5 kilometres East of Stuart Highway) was 32 vehicles per day. More than 69% the total AADT is comprised of heavy vehicles.

The project will improve safety by upgrading the selected unsealed section to seal, lifting and gravel re-sheeting and provision of culverts resulting in a reduction in the risk for vehicles to be bogged. There is currently no safety data available.

**Efficiency, Accessibility & Connectivity**

In the wet season, the black soil formation and gravel pavement becomes very soft that make the road either impassable or very dangerous for road users. This requires substantial road closures and load restrictions to minimise pavement failure and to ensure vehicle safety.

In the past 10 years from 2007 to 2017, the Barkly Stock Route has been closed to heavy vehicles (either Road Closed, Impassable or Light Vehicles only) on 14 separate occasions for a total duration of 860 days (average annual duration of closure to traffic and/or weight restriction to heavy vehicles for 86 days – 24% of any given year).

The project will result in improved freight capacity, efficiency and reliability through a reduction in the duration and frequency of wet season road closures and weight and/or vehicle type restrictions and provide improved connectivity for the local communities, particularly during wet season, which rely on this road for the supplies.

**Productivity and Economic Development**

Local pastoral properties are not being developed to their full potential because of the condition of the Barkly Stock Route and the fact that it isn't accessible to road trains at certain times of the year, depriving the region of investment opportunities.

The pastoral industry is heavily reliant upon road transport for the movement of livestock and produce. Road quality and accessibility issues are major concerns for the industry.

Anecdotally, pastoralists estimate a doubling of production over a few short years if the supporting road infrastructure was accessible for longer periods of the year. Also, pastoralists have quoted that each time a single head of cattle travels over unsealed road, they lose 20kg to 40 kg of weight – and at \$3 a kg, this is a significant productivity loss.

Having year-round use of beef roads will significantly benefit the existing industry and facilitate accelerated growth of an industry with considerable growth potential.

Increased access will also benefit tourism, mining and services delivery to residents.

**Problem Analysis**

The overall low standard and poor condition of the Barkly Stock Route significantly impacts on the Territory's key industries and the delivery of important services. The limited year-round access for heavy vehicles impedes business efficiencies and profitability.

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*Template for Stage 1: Problem Identification and Prioritisation (continued)*

Upgrading of the Barkly Stock Route is critical to improve cattle movement between the Northern Territory and both domestic and export markets and will also benefit the wider community as this road also services remote aboriginal communities and often provides access for both the resources and tourism industries.

The Barkly Stock Route is considered to be a high priority cattle road by the Northern Territory Cattlemen's Association (NTCA). It directly services the cattle stations of Tandyidgee, Ucharonidge, Helen Springs, Eva Downs, Mungabroom and Anthony Lagoon. It is estimated by industry that in excess of 45,000 head of cattle are transported on the road each year.

If we equate the 45,000 head of cattle with the estimated 20kg loss per head of cattle due to the road condition, multiplied by the \$3 per kg financial loss to the pastoralist, this equates to a \$2.7 million annual loss due to the road condition on the Barkly Stock Route alone.

- ***Sandover Highway***

The Sandover Highway is a 562 kilometres long road which links the Plenty Highway to the Queensland border. The road comprises of 18 kilometres of sealed road and 544 kilometres of gravelled and formed road of varying standards.

There are a number of major stakeholders on the Sandover Highway including the indigenous communities of Arlparra, Ampilatwatja and Alpurrurulam (Lake Nash), the cattle and transport industries, tourism, mining and exploration, as well as the Northern Territory Government services of health, education and police.

There are no major crossings on the Sandover Highway. However, there are numerous floodways which are subject to closures during wet weather. The objective of this proposal is to improve access and minimise outages due to flooding in periods of wet weather. The priority section which closes the road regularly in wet weather is between Allan's Well Creek and the Arlpara community. Much of this section traverses drainage systems which pond water or flow with relatively high velocity causing loss of formation and pavement.

Verdant Minerals and Ammaroo Phosphate, "The Northern Territory of Australia is one of the few parts of the world where the key fertiliser ingredients are available within close proximity and with competitive access to a number of significant agricultural markets" The Ammaroo Phosphate Project is the largest JORC compliant rock phosphate resource in Australia. Objective to develop a 2 million tonne per annum phosphate rock concentrate production operation. Staged development planned in 1 million tonne increments. Circa A\$300m in capital for stage 1 including the rail spur. Seeking NAIF funding for rail spur. Approximately 160 operational jobs at full production.

In the past 10 years from January 2007 to December 2016, there have been a total of 66 reported crashes on the Sandover Highway causing 23 persons admitted to hospital. A total of 47 of these crashes (71 %) were either vehicle roll over or run off road crashes. The uneven, unsealed surface may be a contributing factor to the prevalence of this crash type.

*Template for Stage 1: Problem Identification and Prioritisation (continued)*

- ***Marindja Road***

Marindja Road connects to Darwin via Litchfield Park Road, Cox Peninsula Road and the Stuart Highway to Darwin. It services Labelle Downs, a large cattle station and a small community at Chanel Point.

The Northern Territory Cattleman's Association has indicated that in the past, former owner RM Williams used the Labelle Downs property mainly for carbon credits. However, the new owners are extensively expanding the cattle production up to 100,000 head of cattle in the next couple of years. The Northern Territory Cattleman's Association have indicated sealing of Marindja Road will likely double this production from Labelle Downs to 200,000 head of cattle.

Additionally, the recent investment in the sealing of Litchfield Park Road has made cattle production attractive to surrounding areas including Twin Hill Station and adjacent Aboriginal Land which the Traditional Owners have expressed a desire to develop.

Currently, Marindja Road is a gravel road with 171 days of on average annual days of heavy vehicle weight and/or vehicle type restriction and a total road closure on average of 80 days annually.

In the past 10 years from 2007 to 2016, there have been a total three reported crashes on the Marindja Road, including three persons admitted to hospital. Out of these three crashes two were either vehicle roll over or run off road crashes.

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### **2.3 Problem/opportunity root causes and forecast time period**

Refer to the information contained in this submission and attachments.

### **2.4 Information about the problem and opportunity**

All of the projects require a reliable access to markets and better resilience in transport infrastructure. The evidence for each is contained within this submission and attachments as well as suggested programs. A total of \$2 billion is required to upgrade all of these roads.

*Template for Stage 1: Problem Identification and Prioritisation (continued)*

## 2.5 Stakeholder impact

Stakeholder	Impact
Australian Government	Potential to fund the upgrades
Northern Territory Government	Asset Owner. Potential to fund the upgrades
Traditional Owners through Northern Land Council	Land Owners
Road users, businesses, general public	Quicker, safer travel times, cheaper business operating costs
The Northern Territory Cattlemen's Association	Improved business performance

## 2.6 Problem/opportunity alignment with relevant government policy objectives, strategies and other problems/opportunities/programs

*Please provide details and evidence describing how the identified problem/opportunity is consistent with relevant government policy objectives and other projects.*

The upgrading and sealing of the Central Arnhem Road aligns with several government policies and strategies including:

- White Paper of Developing Northern Australia. The Commonwealth Government's vision is well stipulated in "Our North Our Future: White Paper on Developing Northern Australia" and highlights the Commonwealth Government's commitment to:
  - ensuring northern Australia has the appropriate infrastructure to support economic and population growth with a focus on funding high priority public infrastructure (such as roads), and;
  - improving northern cattle supply chains through upgrades to key roads might facilitate alternative, shorter and more direct routes to market and addressing capacity limitations (vehicle weight and/or size limits) on roads or at specific points in the supply chain.
- Northern Australia Infrastructure Audit – Noted a number of these roads as a "road critical infrastructure requirement"
- Northern Territory Government Economic Development Framework (<https://edf.nt.gov.au/>), Infrastructure Strategy (<https://edf.nt.gov.au/supporting-strategies-and-plans>) and 10 Year Infrastructure Plan. (<https://dipl.nt.gov.au/publications/10-year-infrastructure-plan>) – A major part of the future economic development of the Northern Territory.
- The National Road Safety Strategy 2011-2020 was released by the Australian Transport Council, The strategy is firmly based on the Safe System principles to reduce the annual numbers of both deaths and serious injuries on Australian roads by at least 30 per cent. Safety and mobility are two major milestones of the strategy.

### *Template for Stage 1: Problem Identification and Prioritisation (continued)*

- These global and national objectives have been adopted in the NT Government's Transport and Roads Strategies. It is emphasized in these policy documents to continue efforts making Northern Territory a trade route for the nation and supporting ongoing mineral, energy, horticultural and live cattle exports, and tourism. The targets of safe and efficient freight road network are enshrined in these documents.
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### **3. Confidentiality**

#### *Confidentiality*

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*Please identify if any of the information provided to Infrastructure Australia in this template is confidential. Please provide a brief explanation of the reasons for the request of confidentiality.*

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