

# KURANDA RANGE ROAD



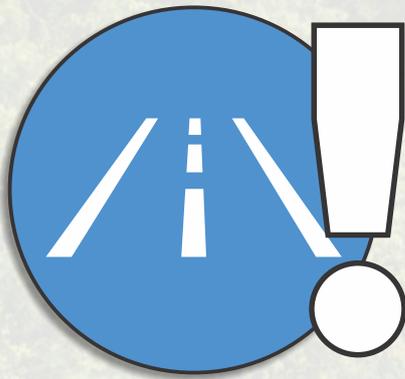
*Far North Queensland Regional Priority*

AUGUST 2019

## REGIONAL PRIORITY: KURANDA RANGE ROAD

### Priority Recommendation

\$21 million for a Strategic Assessment of Service Requirements, Preliminary Evaluation and Detailed Business Case funded by State & Federal Governments



**Road of  
Strategic  
Importance**



**Inhibiting  
Economic  
Growth**



**8871**

Vehicles per day.  
Regularly surpassing  
10,000 vehicles  
per day.



**1084**

Commercial  
vehicles per day



**1.3**

Unplanned  
closures each week



**0.7**

Times per month  
that both Kuranda  
Range Road & Gillies  
Highway are both closed

# KURANDA RANGE ROAD

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## Overview

Kuranda Range Road links Smithfield with Kuranda and is the coastal gateway to Mareeba, Atherton Tablelands, Cape York Peninsula and the Gulf Savannah.

It is a national 'Road of Strategic Importance' (ROSI).

In 2000, Munsell McIntyre (now AECOM) undertook an Impact Assessment Study (IAS) Report, commissioned by the then Department of Main Roads. The integrated transport study was undertaken on a 12.5 km section of the Kennedy Highway known as Kuranda Range Road. At the time it was a two lane road of relatively low geometric standard and limited capacity.

In 18 years, little has changed with regard to the geometric standard of the road and the capacity of 8,100 vehicles per day (VPD) identified in a 2000 report commissioned by the Department of Transport and Main Roads (TMR) now exceeded.

TMR advise the capacity of the road is now 9,500 VPD, permanent traffic counters indicate this number is regularly exceeded.

### Snap shots<sup>123</sup>:

- An average of 26.2 incidents per year resulting in 36 people requiring medical/hospitalisation
- Annual human capital cost \$9,631,317
- Hospitalisations per 100mil VKT is 37.06; 2.5 times the 2016 federal average of 14.7
- 1.3 unplanned closures of the road each week
- 0.7 times per month that both the Kuranda Range Road and Gillies Highway (91km alternative route) are both closed
- Industries reliant on the road have increased beyond expectations:
  - Commercial vehicle growth on average is 4.4% per annum since 1998
  - Primary Production Growth was estimated to be 2.6% per annum, it has been 5.9% per annum since 1994/95. We now have approximately 2.7 million hectares of active primary production land
  - Construction was estimated to grow by 4-5% per annum, the average has been 8.7% per annum since 1995/96
  - Mining has grown 3.2% per annum since 1995/96.

This road is now demonstrably stifling economic development and urban growth in the Cairns, Mareeba, Cape York Peninsula, Atherton Tablelands and Gulf Savannah regions.

### Known economic constraints:

- KUR-World development which is a \$640 million proposal generating 348 full-time and part-time jobs during peak construction and 970 FTE operational jobs.
- The CSIRO TraNSIT modelling based on agricultural, fuel and forestry vehicles identified savings of \$1.42 per tonne for existing vehicles. Should the upgrade of Kuranda Range Road occur enabling B-Double and or A-Double vehicles, the saving per tonne are \$2.41 and \$3.00 respectively.

<sup>1</sup>Table 18 Estimation of crash costs by injury severity, Human Capital (HC) values, June 2013 <https://atap.gov.au/parameter-values/road-transport/4-crash-costs.aspx> (\$2,622,924/fatality, \$608,184/hospitalisation, \$24,217/injury, \$9,257/property damage)

<sup>2</sup>TMR Crash data from Queensland roads <https://data.qld.gov.au/dataset/crash-data-from-queensland-roads>

<sup>3</sup>Kuranda and Gillies unplanned closures – RTI 135-05880

## 2000 & 2004 Impact Assessment Study and Addendum<sup>4</sup>

In 2000, the consequences of not upgrading the road included:

- Net loss of regional biodiversity values
- Increased freight costs and loss of economic development opportunities
- Inability to accommodate urban and economic growth
- Increased travel time and cost
- Loss of tourism trade
- Reduced access for residents to services located in Cairns
- Poor reliability.

In 2000 and 2004, it was identified that the key shortcomings included:

- The existing road has severe geometric and structural inadequacies that result in:
  - Poor safety
  - Poor economic performance (travel times, vehicle operating costs and inability to accommodate freight-efficient vehicles), and
  - Poor reliability
- Capacity problems that will restrict growth at even modest rates and certainly prohibit orderly urban development on the northern Tablelands, and
- Inability to accommodate freight-efficient vehicles and consequential excessive cost of freight transport.

The Department of Main Roads in the terms of reference for the *Integrated Transport Study* identified the existing Kuranda Range Road:

- Is likely to experience unacceptable levels of service for road transport by 2005 if current growth continues;
- Has a poor safety record
- Has inadequacies in terms of:
  - vertical and horizontal alignment
  - road width
  - crossfalls and super elevation
  - maintenance and slop stability
  - pavements
  - drainage
  - potential for tree falls
  - accommodating emergency vehicles when the road is blocked by accidents, earth slips or tree falls
- Is a barrier to fauna movement and experiences large numbers of road-kill.

### Community Support

Community responses to the *Draft Transport Options Study* indicates community support for and recognition of the need to upgrade the existing Kuranda Range Road.

### Impact on Freight

Freight consequences identified in the IAS 2000 recognized that if the road is not upgraded, the Kuranda Range Road will become increasingly uncompetitive as a freight route and this could impact on the economic performance of the Cairns Seaport and Airport. Limitations arise from extended travel times, increased vehicle operating costs, and the fact that freight-efficient vehicles cannot use the road.

Modern freight-efficient vehicles will seek alternative routes and possibly draw business away from Cairns. This could affect the economic performance of the Atherton Tablelands, Cape York Peninsula and Gulf of Carpentaria due to increasingly uncompetitive freight prices. Industries likely to be particularly affected are agriculture and mining.

There is evidence to suggest that some degree of lost economic activity is already occurring and the loss could be as high as \$250 million per year (2000).

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<sup>4</sup>Integrated Transport Study for Kuranda Range Impact Assessment Study Report (Final) August 2000 & Impact Assessment Study Addendum (draft) 22 September 2004

### Road Capacity

At the time (2000), rural roads were generally upgraded once they reached a Level of Service Category D. The eastern side of the Kuranda Range Road had been assessed as LOS Category D with an expectation to soon reach its capacity (LOS Category E). Usage of 9,500 vpd places the road in LOS Category E (if commercial vehicles remain around 9%).

The capacity of Kuranda Range Road is dependent on the volume of commercial vehicles traversing the range. The capacity of 8,100 vpd on the eastern side of the range summit (Smithfield to Myola Rd), and 14,800 vpd for the western side (Myola Rd to Mareeba) (Based on Austroads manual for mountainous terrain (eastern side) and undulating terrain (western side)).

Increases in the level of Commercial Vehicles from 9% to 15-20% results in a decrease in capacity on the eastern side of the range of 21% and 32% respectively.

Commercial vehicles now make up 12.23% (2017) of the AADT. Permanent traffic counters identify the road regularly exceeds 10,000 VPD which indicates the road is currently at LOS Category E.

## Situation in 2018

### Safety

Between 2013/14 and 2017/18 there have been a total of 131 incidents resulting in 180 individuals requiring medical/hospital treatment.

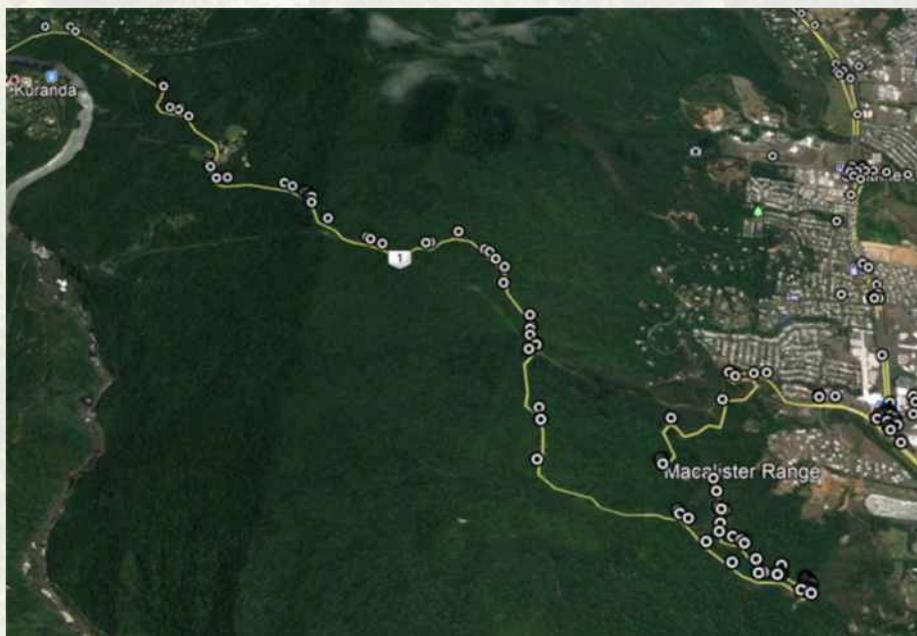


Figure 1: Kuranda Range Road, incidents 2013/14 to 2017/18 (5 years)

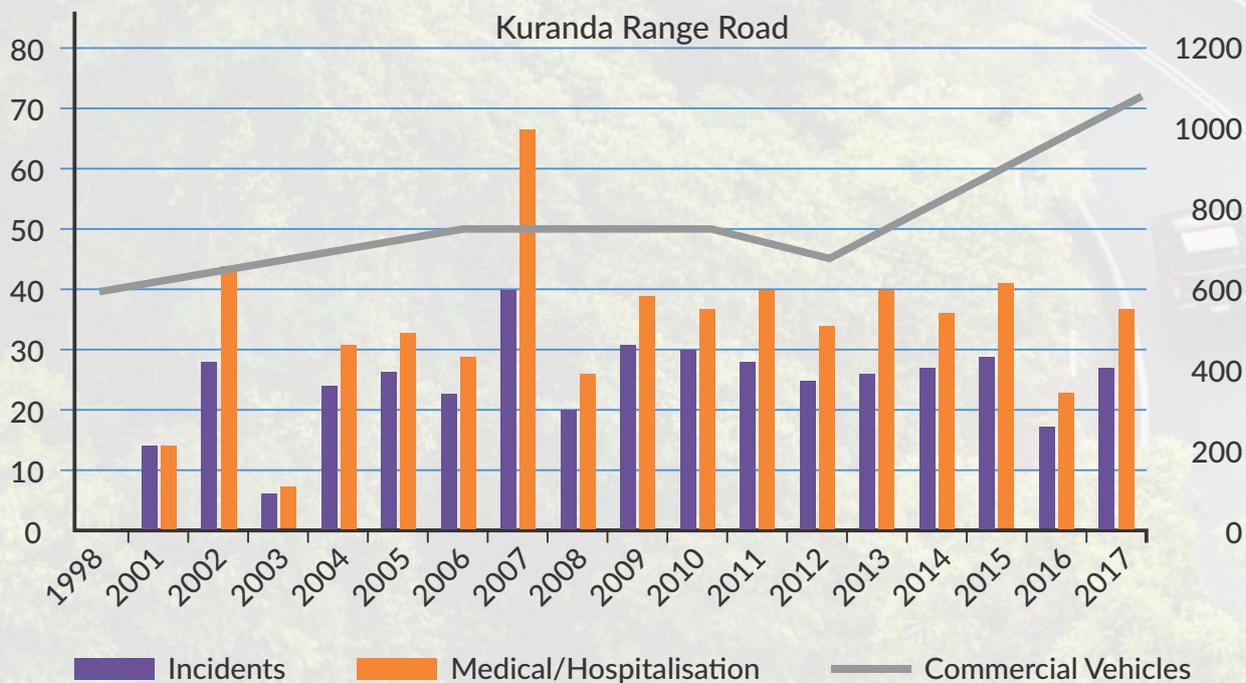


Figure 2: Kuranda Range Road; Commercial vehicle growth, and Incidents Medical/Hospitalisation

**Capacity**

At the time (2000), rural roads were generally upgraded once they reached Level of Service Category D (LOS D). The eastern side of the Kuranda Range Road had been assessed LOS Category D.

It is estimated that the current LOS is Category E, approaching F where flow breakdown occurs and queuing and delays result if development is not constrained in Kuranda, Mareeba, Cape York Peninsula and the Gulf of Carpentaria.

**Constraining growth in these regions is not a viable option**

Based on the study's assessment that an increase in the level of Commercial Vehicles from 9% to 15-20% results in a decrease in capacity on the eastern side of the range of 21% and 32% respectively with 12.35% commercial vehicles, the capacity of the road has decreased from 8,100 to 7,185 (a reduction of 11.3%).

TMR currently assess the capacity of the road as 9,500, there is no identified reduction due to commercial vehicle increase. Regardless of this, permanent traffic counters indicate the road regularly exceeds 9,500.

Eastern & Western Side Capacity & Commercial Vehicle Influence

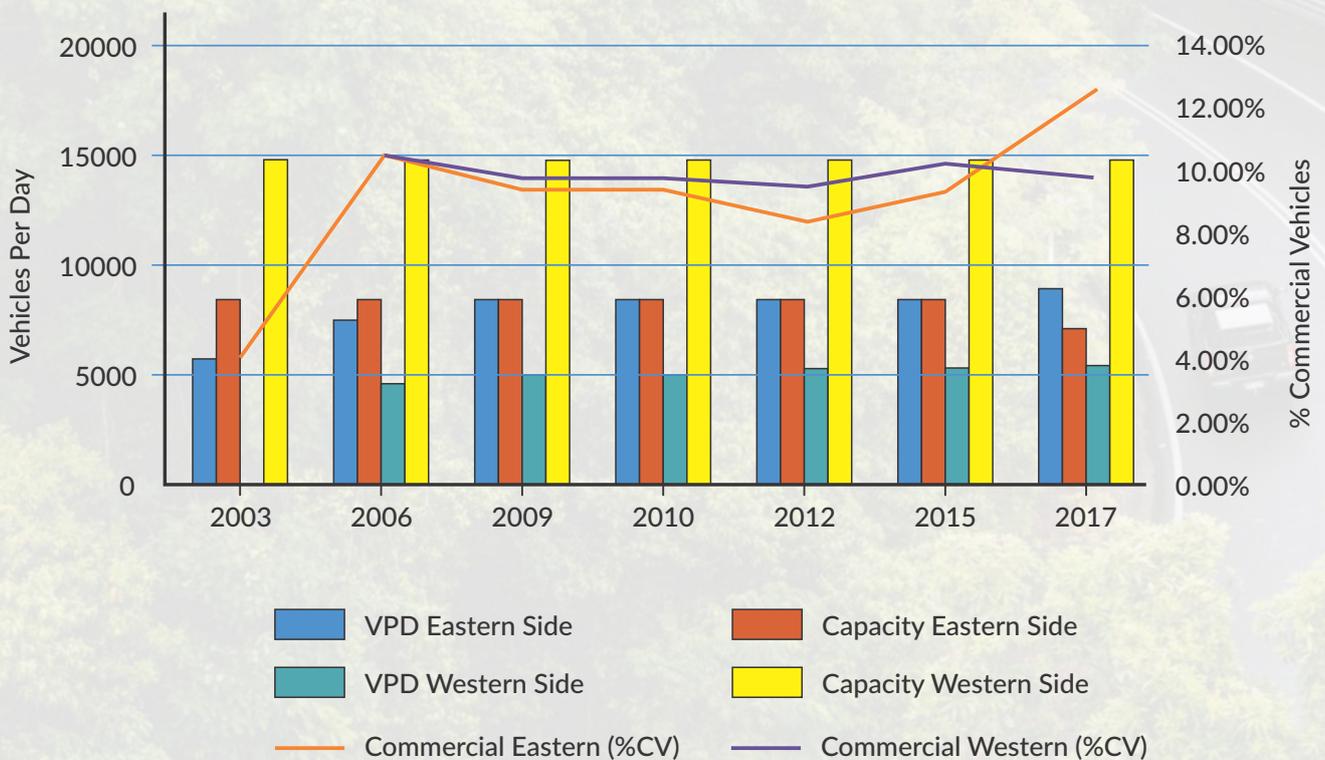


Figure 3: Kuranda Range Road Capacity

## Reliability

Kuranda Range Road unplanned closures numbered 62 in 2017 with the trend climbing. Closures on Kuranda Range Road places pressure on the alternative access being the Gillies Highway. This detour creates at minimum an additional 91.3km (1.5 hrs) to any planned travel. In addition to this, when either the Kuranda Range Road or Gillies Highway are closed it places additional traffic pressure on the road remaining open. The incidents of both the roads being closed at the same time are increasing.

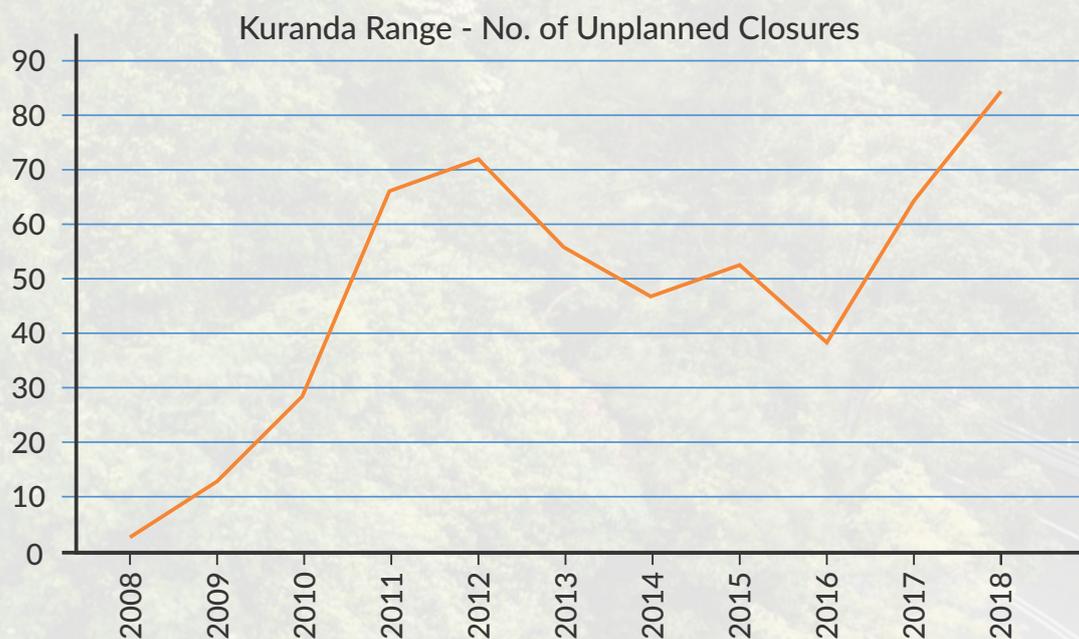


Figure 4: Kuranda Unplanned Closures 2008 - 2018

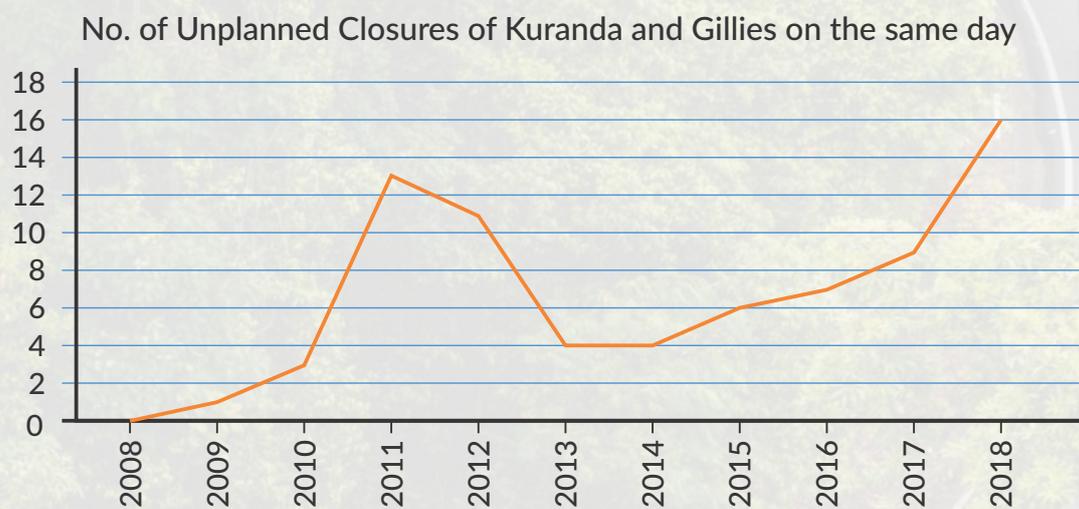


Figure 5: No. of unplanned closures of Kuranda and Gillies on the same day

## Economic Profile of Kuranda Range Road<sup>6</sup>

During the 2000 IAS study a number of industries related to Kuranda Range road were profiled in working paper 15 (Economic Issues)<sup>7</sup> (WP15). It was identified that:

- a. Cairns serviced the market
- b. Export was through Cairns
- c. Product was required from the region i.e. food, construction material (gravel, lime, sand etc)

The industries reviewed included Primary Production, Mining, and Construction.

It was noted in the WP15 that general freight from Cairns to Kuranda and Mareeba, Southern Tablelands, Cooktown and the Peninsula, Lower Mitchell area, to the Gulf will expand in line with population growth. Since 1996 (ERP) to today, population growth has been on average 1.4% per year.

### Commercial Vehicles

Commercial vehicle growth has been 4.4% on average per year. The usage has increased from 253 heavy vehicles (502 commercial vehicles) per day (1998) with an estimated 1062 tonnes to 1081 commercial vehicles per day (2017) with an estimated 4,539 tonnes/day (based on conservative 4.2 tonnes per vehicle used in 2000)

### Primary Production

In 1994/95 the gross value of primary production in FNQ was \$524million. In 2000 it was estimated to grow at 2.6% per annum. Across the FNQ region in 2015/16 there was approximately 2.7 million hectares of active primary production land with a value of \$1.75billion, which is on average an annual growth of 5.9%, well above the 2000 estimate 2.6% per annum.

In 2000, the Mareeba Dimbulah irrigation area had 14,000 ha under crop, it currently has around 25,000 ha under crop. Within the Mareeba and Tablelands local government areas there are 593,935 ha of dry and irrigated cropping across 1,830 farms.<sup>8</sup>

In addition to this, the FNQ Region has had the recent expansion of dry land cropping within the Etheridge Shire exceeding 20,000 ha.

There has been significant expansion and diversification across our region to mitigate risks from natural disasters and disease; especially for Banana and other horticultural crops. This region is the largest producer of bananas and avocados in Australia.

### Mining

1995/96 mining was valued at \$545million. In 16/17 output/total sales was \$1,057 million<sup>9</sup> which gives an annual growth of 3.2%.

### Construction

1995/96 construction was valued at \$561million with an estimate of 4-5% annual growth. In 2016/17 output/total sales was \$3.2 billion<sup>10</sup> which gives an annual growth of 8.7% since 1995/96.

<sup>6</sup>It is noted that the annual growth rates do not take into consideration inflation factors between 1995/1998 and 2016.

<sup>7</sup>Integrated Transport Study for Kuranda Range Road, Working Paper No. 15, Impact Assessment Study, Economic Issues May 2000

<sup>8</sup>Department of Agriculture and Fisheries, Tablelands Agricultural Profile - 2015

<sup>9</sup>National Institute of Economic and Industry Research (NIEIR). Compiled and presented in economy.id

<sup>10</sup>National Institute of Economic and Industry Research (NIEIR). Compiled and presented in economy.id

## Case Study Examples of Economic Constraint

WP 15 (P27) noted there were other economic benefits improving the Kuranda Range Road. Major road improvement can result in 'secondary' benefits to existing industries and activities in the region and 'developmental' benefit through stimulating new activity that would not have existed without the development taking place. We are now seeing the evidence of new activity being stifled because the road improvement did not take place.

### **KUR-World Integrated Eco-Resort**

The \$640 million proposal is to develop an integrated eco-resort including luxury hotel and residential accommodation, education and business facilities, rejuvenation, health and wellbeing services and adventure and recreation amenities. This project is a State Coordinated project and initial indications are that the impact on the Kuranda Range Road will be a significant inhibitor to the project being approved.

It is located approximately 20 kilometres north-west of Cairns and 4km west of Kuranda within Mareeba Shire Council.

#### <sup>11</sup>Key features:

- A 5-star, 200-room eco-resort
- A 4-star, 270 apartment hotel
- 56 lifestyle villas
- 286 premium villas and 2 multi units consisting of 60 units
- 21 Queenslander lots
- 25 glamping tents
- A 12-hole golf course and clubhouse
- A KUR-World retail, commercial and dining precinct
- A tertiary education campus and sporting facilities, including campus accommodation
- A health and wellbeing retreat, with up to 60 suites
- A nature based adventure park with adventure activities, including zip-line
- A rainforest education centre, including student accommodation
- An equestrian centre and farm theme park, including glamping accommodation.

#### Jobs:

- 348 full-time and part-time construction jobs at peak
- 970 FTE operational jobs

### **Freight limitations**

B-Doubles/Triples and Type 1 road trains have access to Mareeba however between Mareeba and Cairns (Smithfield) the Kennedy Highway, inclusive of the Kuranda Range Road, prohibits B-doubles/triples or Road Trains. This means that B-doubles/triples and Type 1 and 2 road trains need to decouple in Mareeba, travel to Cairns, drop their load and return to Mareeba for the remainder until their transfers are complete. Each time this is done it is a 96km round trip which is not only financially inhibiting it adds to the capacity issues of the road.

As seen by the growth in the region over the past twenty years, this will only grow and the financial and capacity implications further exasperated. This will continue to stifle Cairns' ability to an affordable service centre for the region.

The CSIRO TraNSIT modelling identified that upgrading the road to the original design (2004) would save \$1.42 per tonne for existing vehicles. Should the upgrade enable B-Double and or A-Double vehicles, the saving per tonne would be \$2.41 and \$3.00 respectively.

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<sup>11</sup>Details from the Departments Coordinated projects website <https://www.statedevelopment.qld.gov.au/assessments-and-approvals/kur-world-integrated-eco-resort.html> 2004

### **Future Development Application Risks**

The Department of Transport and Main Roads (TMR) response to KUR-World as a referrable development is of great concern to any other future development opportunities west of the range. Due to the high safety risk of the range any traffic impact is required to be less than 5%.

Given the road is now past capacity, there are two foreseeable consequences:

- a. TMR will start to assess projects based on their aggregated impact on Kuranda Range Road and declining applications based on this; and or
- b. Proponents will 'break down' their projects so they come just under the triggers for referral to TMR (leading to point a occurring).

With no future plans to fix the safety efficiency and capacity of Kuranda Range Road, forward investment in the region will suffer.

### **Organic Growth of the Region**

In addition to the economic impacts on Kuranda Range Road, we need to consider our community and those that live in the region.

Those that have to access health services (with Cairns as the hub), those that need to access education (university / boarding), those that need to visit friends and relatives.

Organic growth of the region will surpass the impact of KUR-World before KUR-World would have completed their staged development.

Organic growth in the region means we are past the time needed to start finding a solution to the economic, efficiency, capacity and safety issues associate with the use of Kuranda Range Road.

## State & Federal Alignment

### Transport and Infrastructure Council's themes which frame its priorities:

- **Integrating** national road, aviation, port and maritime supply chains, and improving integration between land use and infrastructure planning
- Improving system **efficiency** and extracting the greatest use from existing infrastructure, while at the same time meeting community expectations of safety, security, access and reliability
- Developing sustainable, efficient **funding** and delivery models
- Improving the **capacity** of infrastructure and transport systems to respond to new and emerging challenges and pressures – and to lessen the need for high cost new infrastructure
- Improving the **environmental performance** of infrastructure and transport systems – including mitigating adverse environmental effects, such as transport emissions
- Continuing a focus on **transport safety** while maintaining awareness of technological developments that may impact safety and security
- Removing barriers to **innovation**, and capitalizing on new and emerging technologies.

### State Infrastructure Plan

- Unlock the potential of critical supply chains by identifying and improving the **freight network**
- Seek innovation and technology solutions to create a better performing and a **lower emissions** transport system
- **Connect regional communities** with access to essential services and opportunities.

### Transport Coordination Plan

- **Customer experience and affordability** – transport meets the needs of all Queenslanders, now and into the future
- **Community connectivity** – transport connects communities to employment and vital services
- **Efficiency and productivity** – transport facilitates the efficient movement of people and freight to grow Queensland's economy
- **Safety and security** – transport is safe and secure for customers and goods
- **Environment and sustainability** – transport contributes to a cleaner, healthier and more liveable environment and is resilient to Queensland's weather extremes.

### FNQ Regional Transport Plan (Draft)

- **Priority 2:** It is identified that transport has a central role in supporting the economic function of the FNQ region and is required for an efficient and reliable supply chain that underpins regional productivity. The role extends beyond the freight and commercial transport function, to act as an economic driver for tourism, agriculture, mining and emerging industries. A transport system needs to support industry and unlock growth, plan and prioritise capacity upgrades and identify new infrastructure.



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