



Regional Roads Investment Strategy

Far North Queensland Regional Organisation of Councils

Heavy Vehicle Productivity

15 May 2021



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Executive Summary

Greater access for High Productivity Vehicles (HPVs) has been a high priority for government, industry, freight operators and end users of freight services because of the productivity gains and cost savings they generate. However, many freight journeys commence and / or end on local roads, and an inability to operate HPVs for the entire journey from origin to destination can substantially reduce the gains which would otherwise be achieved.

Australia has some of the most remote regions in the world where transport routes to communities, ports and major markets can be several thousand kilometres long. In such circumstances, it is not possible to undertake every desired upgrade or development.

This report examines HPV issues which limit the effectiveness of the Far North Queensland heavy vehicle freight network. Specifically, it seeks to identify deficiencies which restrict access to the existing heavy vehicle network in the following situations:

Primary Production (PP)	Deficiencies in roads which connect from the heavy vehicle network to primary production locations to processing centres e.g. farms to feedlots, sugarcane to mills, mine sites to refinement facilities
Community Access (CA)	Deficiencies in roads that provide a singular road freight lifeline to vulnerable communities
Improved Connectivity (IC)	Deficiencies in roads which provide a connection between two existing heavy vehicle routes and would benefit freight access if improved.

A comprehensive desktop analysis has identified a substantial number of possible opportunities for infrastructure upgrades. The principles of efficient infrastructure investment dictate that the economic and social benefits of upgrading a road should at least match the expenditure.

While each of the roads within the full list show characteristics of being a HPV investment opportunity, a filtering process has been applied to highlight those roads with greater potential. These roads have been assessed for the widening and sealing infrastructure investment required to facilitate this access. Bridges and culverts have been assessed for current structural integrity and width deficiency, however detailed structural assessments are required to determine loadbearing capacity.

The below table presents the results of the investment analysis, totalling \$472m. It is recommended that Councils consider each road's expected transition to more productive heavy vehicles to better understand the benefits generated by each potential investment.

Two particular routes currently not gazetted for HPVs have been identified as critical to future road freight movements, and are recommended for investment. These are:

- Almaden-Gingerella/Ootann Road which connects the Kennedy Highway and Burke Developmental Road
- Richmond-Croydon Road which connects the Gulf Development Road to the Flinders Highway

Heavy Vehicle Productivity

Road	Council	Improvements	Cost
Almaden-Gingerella Road / Ootann Road	Mareeba / Tablelands	PBS level 4 Full sealing	\$ 85.46 m
Battlecamp Road (Endeavour Valley Road to Isabella-Mclvor Road)	Cook	PBS level 3	\$ 2.35 m
Beantree Road	Tablelands	PBS level 2	\$ 0.15 m
Burketown-Normanton Road	Carpentaria	PBS level 4 Sealing of unsealed sections	\$ 171.50 m
Chewko Road	Mareeba	PBS level 2	\$ 7.14 m
Davidson Road	Cassowary Coast	PBS level 2	\$ 1.41 m
Euluma Creek Road	Mareeba	PBS level 2	\$ 4.94 m
Gunnawarra Road	Tablelands	PBS level 4 Sealing of unsealed sections	\$ 36.32 m
Ingham-Abergowrie Road	Hinchinbrook	PBS level 2	\$ 14.43 m
Maitland Road	Cairns	PBS level 2	\$ 1.30 m
Mapee Road	Tablelands	PBS level 2	\$ 0.51 m
Martyville Road	Cassowary Coast	PBS level 2	\$ 0.72 m
Musgrave-Strathgordon Road (to Pormpuraaw Boundary)	Cook	PBS level 4	\$ 17.65 m
North Walsh Road	Mareeba	PBS level 2	\$ 0.45 m
Portland Road (first 20.2 Kms)	Cook	PBS level 4	\$ 3.59 m
Richmond-Croydon Road	Croydon / Etheridge	PBS level 4 Full sealing	\$ 115.44 m
Strathmore Road (first 6.5 Kms)	Etheridge	PBS level 4 Sealing of unsealed sections	\$ 7.33 m
Willows Road	Tablelands	PBS level 2	\$ 1.21 m

1. Introduction

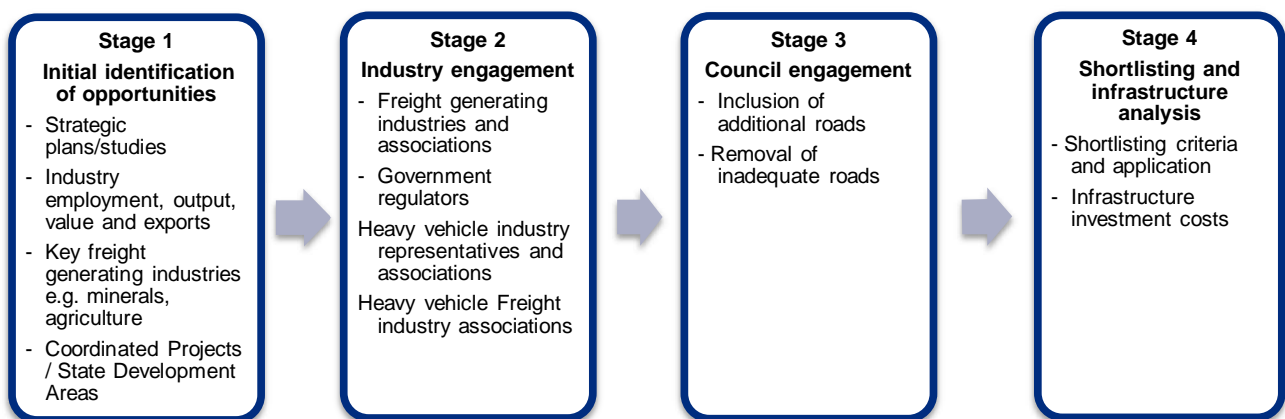
Greater access for High Productivity Vehicles (HPVs) has been a high priority for government, industry, freight operators and end users of freight services because of the productivity gains and cost savings they generate. However, many freight journeys commence and / or end on local roads, and an inability to operate HPVs for the entire journey from origin to destination can substantially reduce the gains which would otherwise be achieved.

This Report examines HPV issues which limit the effectiveness of the Far North Queensland heavy vehicle freight network. Specifically, it seeks to identify deficiencies which restrict access to the existing heavy vehicle network in the following situations:

Primary Production (PP)	Deficiencies in roads which connect from the heavy vehicle network to primary production and processing locations e.g. farms, feedlots, mine sites, quarries, abattoirs, sawmills. Commonly referred to as the first/ last mile.
Community Access (CA)	Deficiencies in roads that provide a singular road freight lifeline to vulnerable communities.
Improved Connectivity (IC)	Deficiencies in roads which provide a connection between two existing heavy vehicle routes and would benefit freight access if improved.

The overall approach to the analysis is illustrated in Figure 1-1.

Figure 1-1 Overall approach



This report is structured as follows:

- Section 2 contains the initial identification of HPV opportunities. This examines each of the local governments. The coastal local government areas of Cairns and Yarrabah, Cassowary Coast, Douglas, Hinchinbrook, Mareeba, Tablelands are examined individually. The Gulf Savannah local governments of Carpentaria, Croydon and Etheridge local government areas are examined as a subgroup. Cook, Wujal Wujal and Hope Vale are examined within the Cape York subgroup.
- Section 3 presents the outcomes of the engagement with key industry groups industry and Councils.
- Section 4 and 5 analyses the longer roads that act as connector roads between existing HPV connector routes, including Beef Roads.
- Section 6 examines the HPV opportunities identified throughout the report to reach a shortlist.

- Section 7 presents the consolidated list of opportunities and the associated infrastructure investment assessment.
- Section 8 discusses the productivity and community benefits that can be realised through expanding HPV access.

2. Initial identification of HPV opportunities

2.1 Methodology

The initial identification of HPV opportunities is undertaken by examining publicly available data and spatial layers to identify relevant freight generating industries and their locations. This information is supplemented with a review of local, state and federal planning documents. The location of these industries has been layered over the existing HPV network routes to identify potential expansion opportunities.

The key freight generating industries identified and assessed are:

- Mining (including quarries)
- Agriculture
- Aquaculture
- Forestry and logging
- Fishing

The identification also assesses lifeline freight routes by observing the road network linkages across FNQROC. Road closure duration and frequency is also incorporated where data is available. Further definition is provided in Section 2.1.2.

2.1.1 Agricultural data

The Qld Department of Agriculture and Fisheries (DAF) provides 2018/19 estimates of the gross value of agricultural production per local government area in Queensland. Data is based on ABS 2015/16 census data brought forward using AgTrends gross value for 2018/19.

It is important to note that the 2015/16 local government estimates developed by the ABS have been collected at the Statistical Area 2 level (SA2), and then apportioned to LGA regions based on the proportion of SA2 area that overlays each LGA region¹. As an example, an LGA that crosses over multiple SA2 regions might be approximated by:

- 100% of SA2 region A
- 60% of SA2 region B
- 45% of SA2 region C
- 90% of SA2 region D

This approach can produce anomalies by estimating particular commodities that are not actually produced within an LGA. This unreliability is likely the reason why the ABS has restricted estimates to SA4/NRM since 2015/16. The estimates provided by DAF is consequently indicative rather than absolute.

2.1.2 Lifeline routes

Austroroads (2016)² defines lifeline freight routes are roads of high strategic importance to the areas, communities and businesses they service, particularly if these include freight hubs or other substantial freight attractors and generators. The high intrinsic value to the communities that these routes serve is due to the lack of alternatives, or the relative inconvenience/ lower operating standards of alternative routes. Assessing a route as a lifeline considers the following dimensions:

¹ Refer datacube
https://www.abs.gov.au/AUSSTATS/subscriber.nsf/log?openagent&7503do006_201516.xls&7503.0&Data%20Cubes&740A1C99A25EFC6ECA2583350013C625&0&2015-16&30.10.2018&Previous

² <https://austroroads.com.au/publications/freight/ap-r525-16>

- The presence or absence of alternative freight transport routes and modes, and quality/appropriateness of the alternative to the assessed route's transport task
- The size and nature of the communities serviced and supported by the route
- The history of closures on the route and the outlook for closures into the future (recognising that the future could be different due to factors such as climate change and upgrades to the route or influencing infrastructure)
- The impact of closure on the communities and industries supported
- The likelihood that alternative freight transport routes are available when needed, specifically if weather or other incidents would also close alternatives

Freight lifelines are primarily concerned with the effects of significant disruption to freight movements, particularly to remote communities. This includes moving freight via alternative routes with less productive vehicles until the disruption is removed.

2.2 Almaden-Gingerella/Ootann Road and Richmond-Croydon Road

Two particular routes currently not gazetted HPV routes have been identified as critical to future road freight movements. These are:

- Almaden-Gingerella/Ootann Road which connects the Kennedy Highway and Burke Developmental Road
- Richmond-Croydon Road which connects the Gulf Development Road to the Flinders Highway

Both routes have been assessed and are recommended as HPV opportunities. Further discussion is provided in Section 4, 5 and 6.

2.3 Cairns and Yarrabah

2.3.1 Key freight routes

The key freight routes and their access restrictions are:

Key inter-regional routes

- Bruce Highway: 25m B-double and Higher Mass Limits route, State controlled road
- Captain Cook Highway (Cairns – Kennedy Highway intersection): 25m B-double route, State controlled road
- Captain Cook Highway (Kennedy Highway intersection – Mossman): 23m B-double route, State controlled road
- Kennedy Highway (Smithfield roundabout – Speewah): General access only, State controlled road

Cairns City CBD and surrounds

- Mulgrave Road (Bruce Highway – Captain Cook Highway): 25m B-double route, State controlled road
- Various roads in CBD between Bruce Highway and Mulgrave Road: 25m B-double route, local road
- Aumuller Street/Redden Street/Waste Street (Portsmith): 25m B-double and Higher Mass Limits route, local road which provides access to rail yards and adjoining industrial area
- Liberty Street/Cook Street/Draper Street (Portsmith): 25m B-double route, local road
- Draper Road/Cairns Road/Thumm Street/Gordon Street (Gordonvale): 25m B-double route, local road, which provides access to the Mulgrave sugar mill.
- Airport Avenue (Airport): 25m B-double route, partly controlled by Cairns Airport

- Kamerunga Road / Redlynch Connector Road / Redlynch Connector Road / Redlynch Intake Road (Captain Cook Highway – Redlynch Quarry): 25m B-double route, State and local roads

There are no heavy vehicle routes above general access in Yarrabah.

2.3.2 Freight generating industries

2.3.2.1 Mining (including quarries)

There is no mining within Cairns or Yarrabah.

The following quarries have direct access to the existing heavy vehicle network:

- Rock quarry at Redlynch with direct access to Redlynch Intake Road.
- Sand quarry on banks of Barron River at Barron with direct access to Captain Cook Highway.

The following quarries have indirect access to the existing heavy vehicle network:

- Sand quarry on banks of Barron River at Caravonica with access to Kamerunga Road via Lake Placid Road
- Sand quarry at Smithfield with access to Captain Cook Highway via Yorkeys Knob Road
- Rock quarry at Gordonvale with access to Bruce Highway via unnamed road and Maitland Road
- Rock quarry at Mount Peter with access to Bruce Highway via Hussey Road

Quarry operations mostly use six axle articulated vehicles and truck and dog combinations because of (a) restricted HPV access to destinations and (b) geometric manoeuvring advantages with shorter vehicles. B-doubles are therefore generally not viable practically or commercially. These routes offer a longer-term opportunities.

2.3.2.2 Agriculture

The total value of 2018/19 agricultural production in Cairns was \$173 million. The major commodities were sugar cane and bananas, contributing 68% of total value. The remaining value is spread amongst a number of commodities including nurseries, turf, cut flowers, other fruit and nuts, and cattle and calves.

DAF does not produce data for Yarrabah.

Table 2-1 Value of agricultural commodities 2018/19 - Cairns³

Commodity	\$ (thousand)	%
All other vegetables	\$39	0.0%
Avocados	\$13	0.0%
Bananas	\$65,643	38.0%
Barley	\$2	0.0%
Cattle & calves	\$1,947	1.1%
Cut flowers	\$4,681	2.7%
Eggs	\$122	0.1%
Grain sorghum	\$24	0.0%
Maize	\$6	0.0%
Mangoes	\$19	0.0%

³ As discussed in Section 2.1.1, the ABS methodology produces anomalies within the LGA estimates. There is no known milk production within Cairns.

Heavy Vehicle Productivity

Commodity	\$ (thousand)	%
Milk	\$22	0.0%
Nurseries	\$31,899	18.4%
Other crops	\$73	0.0%
Other fruit & nuts	\$3,296	1.9%
Potatoes	\$4	0.0%
Poultry	\$118	0.1%
Pumpkin	\$5	0.0%
Sugarcane	\$51,003	29.5%
Tomatoes	\$2	0.0%
Turf	\$13,996	8.1%
Total agriculture	\$172,914	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

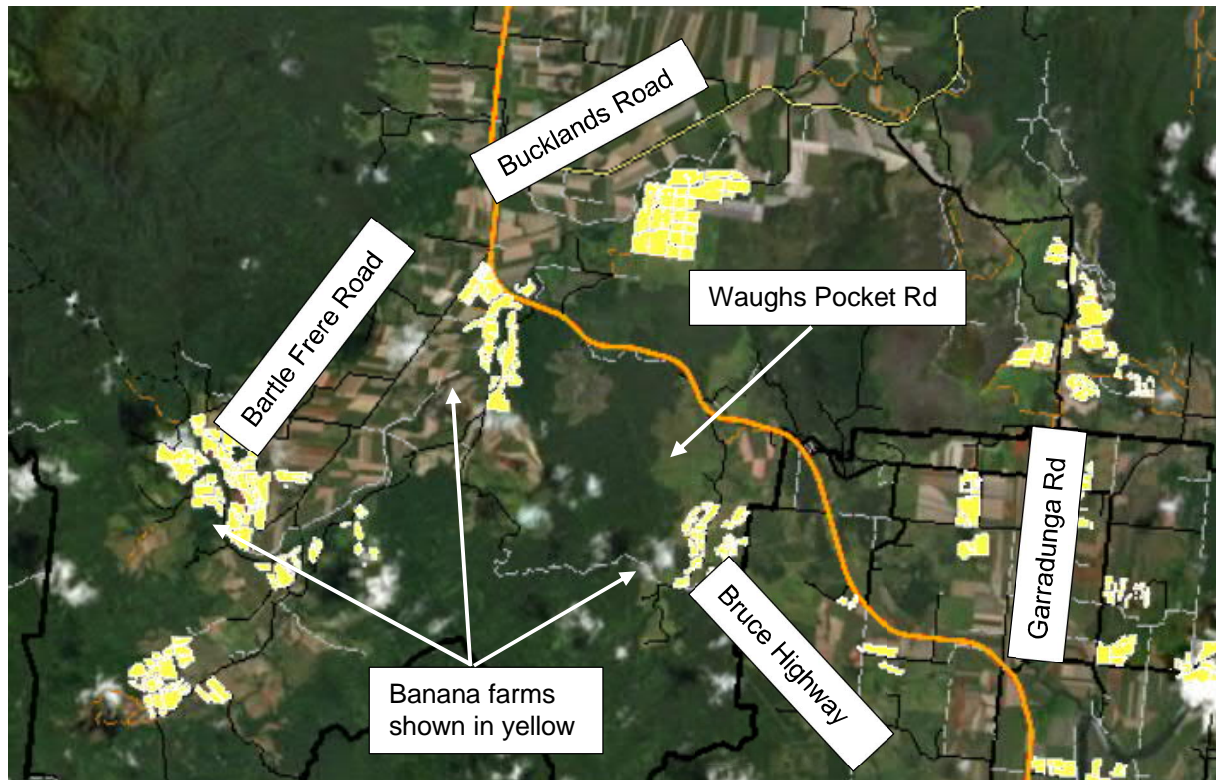
Sugar cane

Sugar cane is grown extensively throughout Cairns Regional Council. These areas are predominantly serviced by the Mulgrave Mill at Gordonvale however areas to the south around Babinda are also serviced by the South Johnstone Mill. The Mulgrave Mill is serviced by an extensive cane rail network and is accessed via the Bruce Highway, Draper Road, Cairns Road and Thumm Street and Gordon Street. The area planted to sugar cane is well serviced by rail or road. Preliminary analysis would suggest that there are not likely to be any significant HPV opportunities.

Bananas

The major horticulture crop grown is bananas which are grown south of Babinda, as shown in Figure 2-1. Access to this area from the Bruce Highway is via Bartel Frere Road and Waugh Pocket Road on western side of the highway and Bucklands Road and Garradunga Road on eastern side of highway.

Figure 2-1 Banana growing areas - south of Babinda



2.3.2.3 Aquaculture

Land based aquaculture farms with indirect access to the existing heavy vehicle network are as follows:

- Prawn farm located at Yorkeys Knob with access to Bruce Highway via Walkers Road
- Crocodile farm located at Gordonvale with access to Bruce Highway via Redbank Road and Warner Road
- Aquaculture (type unknown) at Gordonvale with access to Bruce Highway via Maitland Road

These farms individually are not considered to present a HPV opportunity.

There are also two tourist facilities at Little Mulgrave which are also identified as aquaculture farms. Catch-a-Barra and Mount 'n' Rides Adventures. Both are accessed via Little Mulgrave Road and Gillies Range Road.

2.3.2.4 Forestry and logging

There are no significant areas of forestry and logging or sawmills in Cairns or Yarrabah.

2.3.2.5 Fishing

ABAREs identify that Cairns is a key commercial fishing port in Queensland⁴. It is the fourth largest home port for the Commonwealth Eastern Tuna and Billfish Fishery and a home port for the Commonwealth Northern Prawn fishery. The diverse range of wild-caught species in this region include: prawns, barramundi, coral trout, Spanish mackerel, tuna and lobster. The East Coast Trawl Fishery is the largest of Queensland's commercial fisheries operating in the region targeting mostly prawns, but also harvests bugs, squid, and other species.

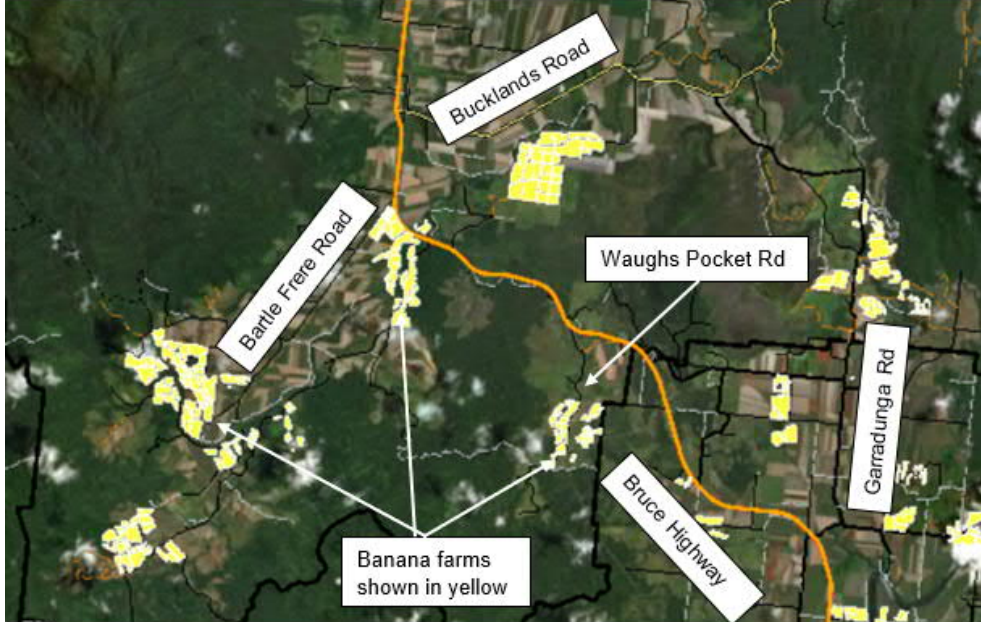
Cairns based trawlers operate out of a series of finger wharves at the mouth of Chinaman Creek. These wharves have access to Cook Street a 25m B-double route.

⁴ <http://www.agriculture.gov.au/abares/research-topics/aboutmyregion/qld-cairns#fisheries-sector>

2.3.2.6 Industry summary

A summary of the industry findings is presented in Table 2-2.

Table 2-2 Key industry findings for Cairns and Yarrabah

Industry sub-group	Conclusions
Mining (including quarries)	<p>The following quarries have indirect access to the existing heavy vehicle network:</p> <ul style="list-style-type: none"> Sand quarry on banks of Barron River at Caravonica with access to Kamerunga Road via Lake Placid Road Sand quarry at Smithfield with access to Captain Cook Highway via Yorkeys Knob Road Rock quarry at Gordonvale with access to Bruce Highway via unnamed road and Maitland Road Rock quarry at Mount Peter with access to Bruce Highway via Hussey Road
Agriculture - bananas	<p>The major horticulture crop grown is bananas which are grown south of Babinda. Access to this area from the Bruce Highway is via Bartel Frere Road and Waughs Road on western side of the highway and Bucklands Road and Garradunga Road on eastern side of highway at Mirriwinni.</p>  <p>The map shows an aerial view of a region with several roads and banana farms highlighted in yellow. The Bruce Highway runs diagonally from the bottom right towards the top left. To the west of the highway, Bartel Frere Road and Waughs Pocket Rd provide access to banana farms. To the east, Bucklands Road and Garradunga Rd provide access. A label 'Banana farms shown in yellow' points to the yellow-shaded areas.</p>

2.3.3 Freight lifelines

Cairns can be accessed by heavy vehicles via the Bruce Highway, Captain Cook Highway and Kennedy Highway. While HPV access is restricted on the Captain Cook and Kennedy Highways, critical freight can be moved by less productive vehicles. The Port of Cairns and airport also provide alternatives for freight movements if multiple roads are closed. Rail access is also available via the North Coast Line and Tablelands System.

The Yarrabah community is linked to the Bruce Highway by a single link, being the Warner Road/Pine Creek – Yarrabah Road. As a coastal community situated close to Cairns, critical freight to the community can be moved by boat or helicopter.

No lifeline routes are subsequently apparent.

2.4 Cassowary Coast

Cassowary Coast hosted a Heavy Vehicle Access Forum in August 2018. The purpose of the forum was to engage with industry and seek input into the development of Council's 5 year capital works program and annual maintenance budgets⁵. The findings from the Forum are incorporated into the analysis.

2.4.1 Key freight routes

The key freight routes and their access restrictions are:

Bruce Highway: 25m B-double and Higher Mass Limits route, State controlled road

Tully and surrounds

- Lentini Road (State controlled road) and Jack Evans Drive (local road), a loop which connects from/to Bruce Highway at Tully: 25m B-double route
- Butler St (from Bruce Hwy intersection), Hort St, Morris St, Bryant St, Tully Gorge Rd, Syndicate Rd (to McQuillan Road intersection) plus Dean Road (from Bruce Hwy intersection – Tully Gorge Rd intersection): 25m B-double route, local road
- Andersen Street: 25m B-double route, local road
- Tully-Mission Beach Road: 25m B-double and Higher Mass Limits route, State controlled road
- El Arish-Mission Beach Road (Bruce Highway – South Maria Creek Bridge, near Bingil Bay Road intersection): 25m B-double and Higher Mass Limits route, State controlled road; plus, Bingil Bay Road (El Arish-Mission Beach Road – near Midgeree Bar Rd): 25m B-double route only local road
- Ann Street (recently listed Local Road of Regional Significance (LRRS)): expected to be future Performance Based Standards level 2B (PBS2B)⁶ and Special Purpose Vehicle Class 5 (SPV5)⁷ route, local road

Innisfail and surrounds

- Mill Street, Mourilyan: 25m B-double route, local road
- Mourilyan Harbour Road: 25m B-double route, State controlled road
- Rifle Range Road: 25m B-double route, local road
- South Johnstone Road (Bruce Highway – Boogan Road), Mourilyan: 25m B-double and Higher Mass Limits route, State controlled road
- Boogan Road (Bruce Highway – South Johnstone): 25m B-double route, State controlled road
- Innisfail-Japoon Road (South Johnstone – Meyer Avenue): 25m B-double route, State controlled road
- Henderson Drive – (Myer Avenue – Palmerston Highway): 25m B-double route, State controlled road
- Friel Road and Riera Road (Henderson Drive – Henderson Drive): 25m B-double route, local road
- Palmerston Highway: 25m B-double, State controlled road (the first six kilometres is also an HML route)
- Goondi Mill and Clifford Roads (recently listed LRRS as part of developing the Goondi Industrial Estate transport hub): expected to be future PBS2B and SPV5 routes, local road

⁵ <http://www.cassowarycoast.qld.gov.au/council-roads>

⁶ Maximum vehicle length of 30 metres

⁷ Maximum mass of 50 tonnes

2.4.2 Freight generating industries

2.4.2.1 Mining (including quarries)

There are no mines within Cassowary Coast.

The following quarries have indirect access to the existing heavy vehicle network:

- Quarry at Coorumba with access to Palmerston Highway via Coorumba Road
- Quarry at Stoters Hill with access to Palmerston Highway via Quarry Road/ Catherina Creek Rd
- Quarry at Bilyana with access to Bruce Highway via Bilyana Road
- Quarry at Merryburn with access to Bruce Highway via Tully Mission Beach Road
- Quarry at Moody Road at Vasa Views with access to Bruce Highway (not yet operational)

As B-doubles are generally not viable practically or commercially without unrestricted access to destinations, these routes offer a longer-term opportunities.

2.4.2.2 Agriculture

The total value of agricultural production in Cassowary Coast is \$574 million, refer to the following table. The major commodities are bananas and sugar cane, contributing over 92% of total value. Nurseries, other fruit and nuts and cattle and calves largely make up the remaining value.

Table 2-3 Value of agricultural commodities 2018/19 - Cassowary Coast

Commodity	\$ (thousand)	%
All other vegetables	\$884.1	0.2%
Bananas	\$397,744.5	69.3%
Barley	\$31.3	0.0%
Cattle & calves	\$11,051.3	1.9%
Cut flowers	\$3,096.3	0.5%
Eggs	\$822.2	0.1%
Grain sorghum	\$300.9	0.1%
Maize	\$10.0	0.0%
Melons (rockmelon & cantaloupe)	\$419.0	0.1%
Milk	\$2.9	0.0%
Nurseries	\$16,044.5	2.8%
Other cereal grains	\$1,767.5	0.3%
Other crops	\$72.2	0.0%
Other fruit & nuts	\$7,983.9	1.4%
Pineapples	\$317.2	0.1%
Poultry	\$506.7	0.1%
Pumpkin	\$550.1	0.1%
Sugarcane	\$132,487.2	23.1%
Wheat	\$88.9	0.0%
Wool	\$1.1	0.0%
Total agriculture	\$574,184.1	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

Sugar cane

Sugar cane is grown extensively throughout the shire and serviced by the South Johnstone and Tully Mills. The South Johnstone Mill located at South Johnstone has indirect access to the existing 25m B-double route via the Innisfail – Japoon Road. Tully Sugar Mill has 25m B-double access.

The relatively short season and low production output combined with the numerous loading points limits the viability of increasing HPV access.

- **Innisfail**

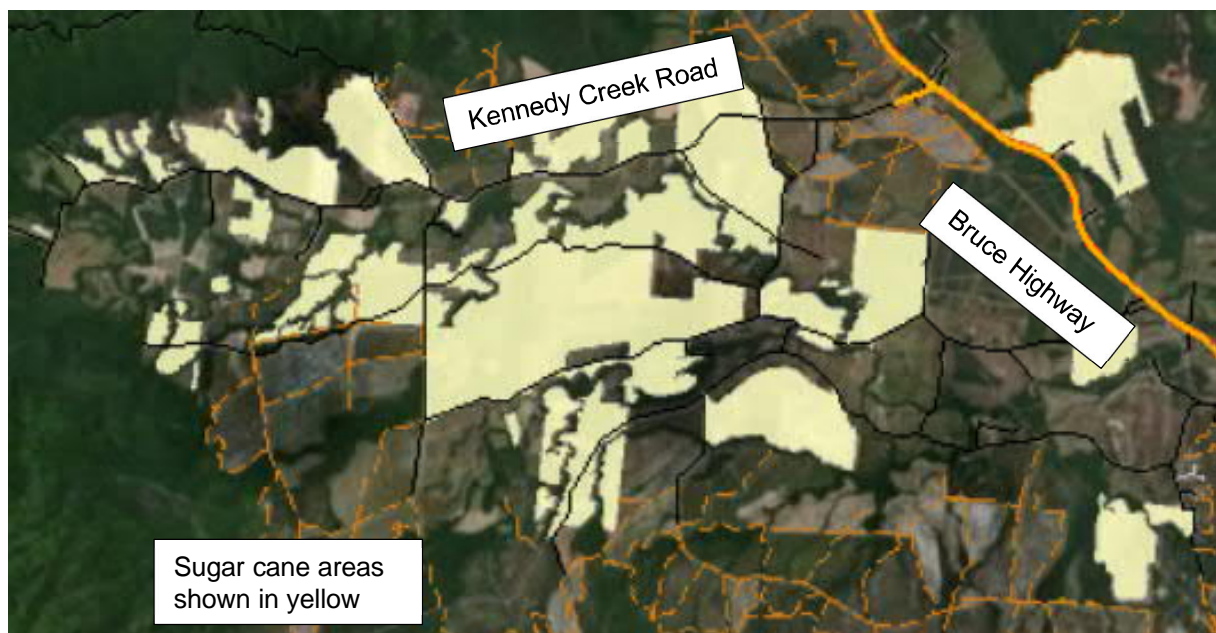
Sugar cane is grown in the North Johnstone and South Johnstone River valleys. There are also large growing areas to the south, either side of the Bruce Highway, in the various river valleys between Innisfail and El Arish. This area supplies cane predominantly to the South Johnstone Mill via an extensive cane train network. The area around Innisfail is also well serviced by the existing heavy vehicle network. There is no B-double access to the South Johnstone Mill.

- **Tully and Kennedy**

Sugar cane is grown in the Tully River valley. It is also grown on either side of Bruce Highway north to the area surrounding Tully-Mission Beach Road intersection and south to Kennedy. The area around Tully is well serviced by cane rail and the existing heavy vehicle network.

The cane growing around Kennedy Creek Road is not serviced by cane rail. The main access road to Bruce Highway is Kennedy Creek Road. This road may present a future HPV opportunity if production significantly increases and loading points can be consolidated.

Figure 2-2 Sugar cane growing areas - Kennedy



Bananas

The major horticulture crop is bananas with the majority of Australia's bananas grown around Tully (including Kennedy), Innisfail (including Babinda), Lakeland (including Hope Vale) and the Atherton Tablelands⁸.

⁸ There are currently about 13,000 hectares of bananas grown in Australia, 94 per cent of which are located in four north Queensland growing regions Tully, Innisfail, Lakeland and the Atherton Tablelands <http://www.planthealthaustralia.com.au/industries/bananas/>

Bananas are either processed on the farm or sent to a central processing area. Once processed, bananas are then sent to a central shipping area for consolidation and transport to their destination. Banana plantations, in many areas, are interspersed with sugar cane farms.

Feedback received during the Heavy Vehicle Access Forum suggests that banana farms are too small to warrant B-double access.

- **Innisfail**

Bananas are predominantly grown in the North Johnstone and South Johnstone River valleys as shown in Figure 2-3. All heavy vehicle routes with the exception of Mill Street provide access to banana plantations in these areas. A series of adjoining roads provide access to these heavy vehicle routes.

Figure 2-3 Banana growing areas - Innisfail



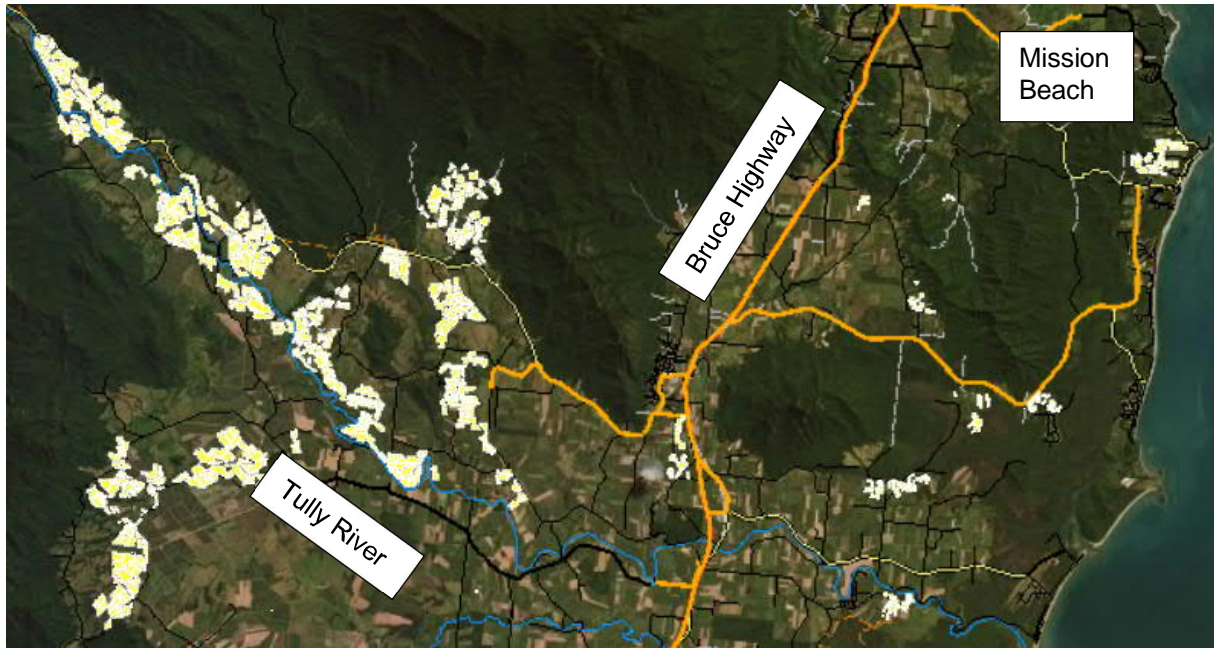
- **Tully**

To the west of Tully, bananas are grown in the Tully River Valley in the areas of Cardstone, Munro Plains, Dingo Pocket, Jarra Creek and Silky Oak. The plantations are interspersed with sugar cane farms. The major roads which serve these areas are Davidson Road, Dingo Pocket Road, Tully Gorge Road, Syndicate Road which all connect to the existing heavy vehicle network (Tully Gorge Road or Bruce Highway).

To the east of Tully there are smaller growing areas either side of the El Arish-Mission Beach Road, Tully-Mission Beach Road and Tully-Hull Road. There are also large plantations at Bingal Bay and Mission Beach.

The Heavy Vehicle Access Forum identified the low immunity of Whiting's crossing as a priority issue before B-double access to farms. The bridge at Whiting's Crossing, which has low flood immunity and is too narrow for existing heavy vehicle use."

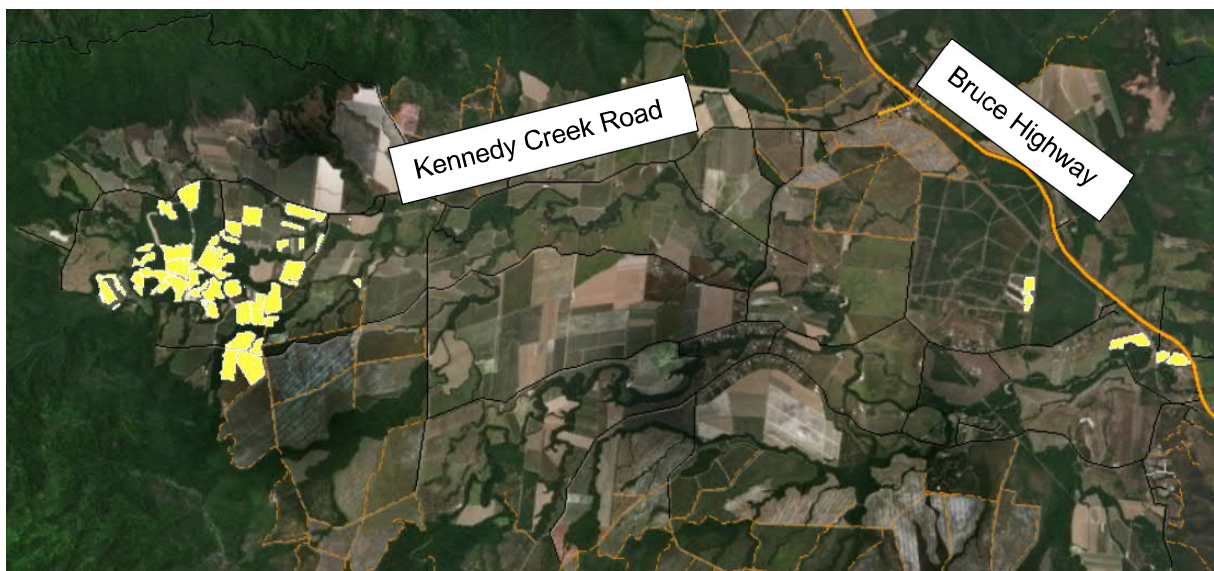
Figure 2-4 Banana growing areas - Tully



- **Kennedy**

To the west of Kennedy, bananas are grown in the Kennedy Creek Valley, refer to the following figure. The main access road to Bruce Highway is Kennedy Creek Road. This road may present HPV opportunities. There are smaller areas of bananas grown to the east of Bruce Highway.

Figure 2-5 Banana growing areas - Kennedy



Cattle and calves

There are numerous areas of grazing located throughout the Council area, and the largest areas are detailed below. Many of these areas are being used for a variety of uses other than grazing. There are no abattoirs or feedlots.

The relatively low production output and numerous loading locations limits the viability of increasing HPV access. The identified areas below consequently offer longer-term opportunities.

- **Tully and Kennedy area**

The larger grazing areas with direct access to the heavy vehicle network are as follows:

- Unnamed property at Bilyana with direct access to Bruce Highway
- Several unnamed properties at Maria Creeks with access to El Arish-Mission Beach Road
- Unnamed property at East Feluga with direct access to Tully-Mission Beach Road
- Several unnamed properties at Birkalla with direct access to Tully-Mission Beach Road
- Unnamed property at Mourilyan with direct access to Mourilyan Harbour Road
- Several properties at East Palmerston with direct access to Palmerstone Highway

The largest areas of grazing with indirect access to the existing heavy vehicle network are as follows:

- Three properties at Bilyana, two of which have access to Bruce Highway via Bluff Road and one which has access to Bruce Highway via Nash Road
- Several properties at Warrami and Munro Plains with access to Bruce Highway via North Davidson Road
- Several properties at Mena Creek with access to the heavy vehicle network via the Innisfail-Japoon Road

2.4.2.3 Aquaculture

Land based aquaculture farms with direct access to the heavy vehicle network are as follows:

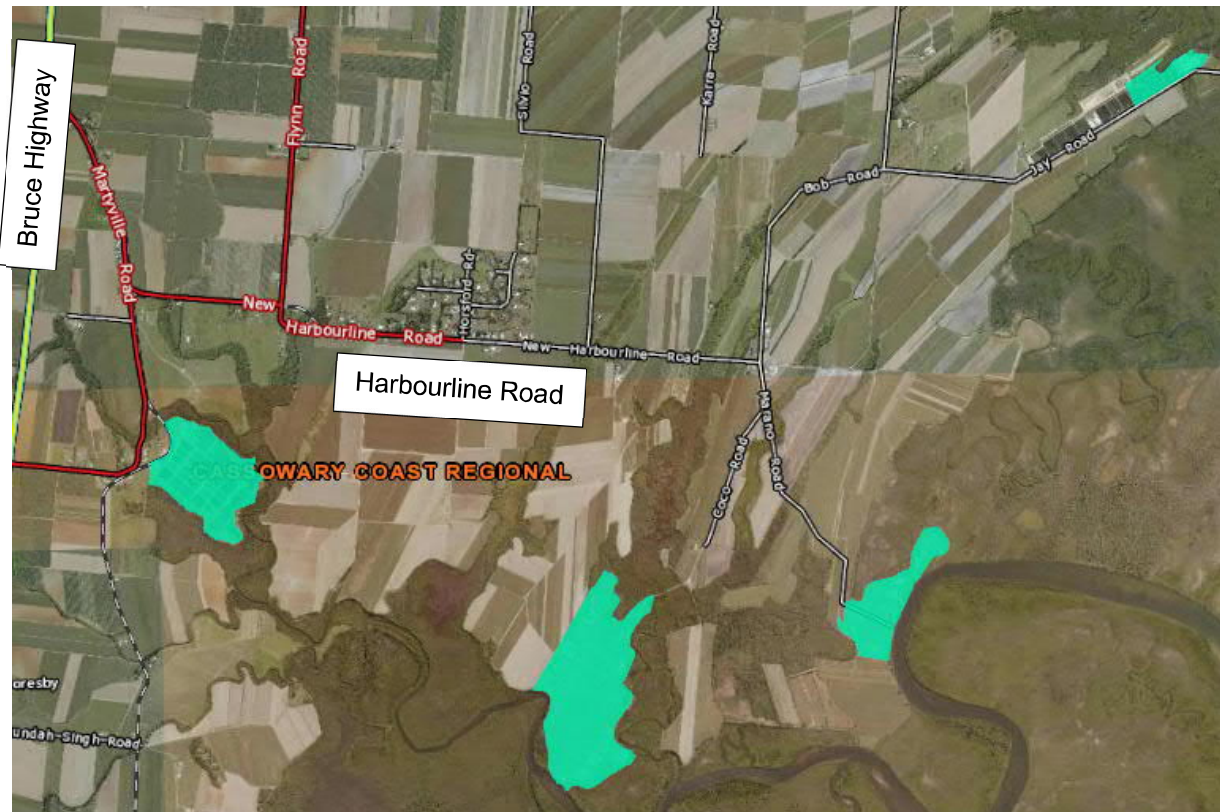
- Farm at Maria Creeks with direct access to El-Arish-Mission Beach Road
- Farm at East Feluga with direct access to Tully-Mission Beach Road (25m B-double and HML route)
- Farms at Damper Creek, south of Cardwell, with direct access to Bruce Highway

Land based aquaculture farms with indirect access to the existing heavy vehicle network are as follows. Farms with common access may present HPV opportunities.

Two or more farms with common access

- Two farms at Cowley with access to Bruce Highway via Cowley Creek Road
- Four farms at Martyville and New Harbourline with access to Bruce Highway via Martyville Road, New Harbourline Road and then either Coco Road, Marano Road or Bob Road and Jay Road
- Two farms at Midgere Bar with access to Bruce Highway via Daveson Road

Figure 2-6 Aquaculture farms - Martyville and Harbourline Roads



Single farms

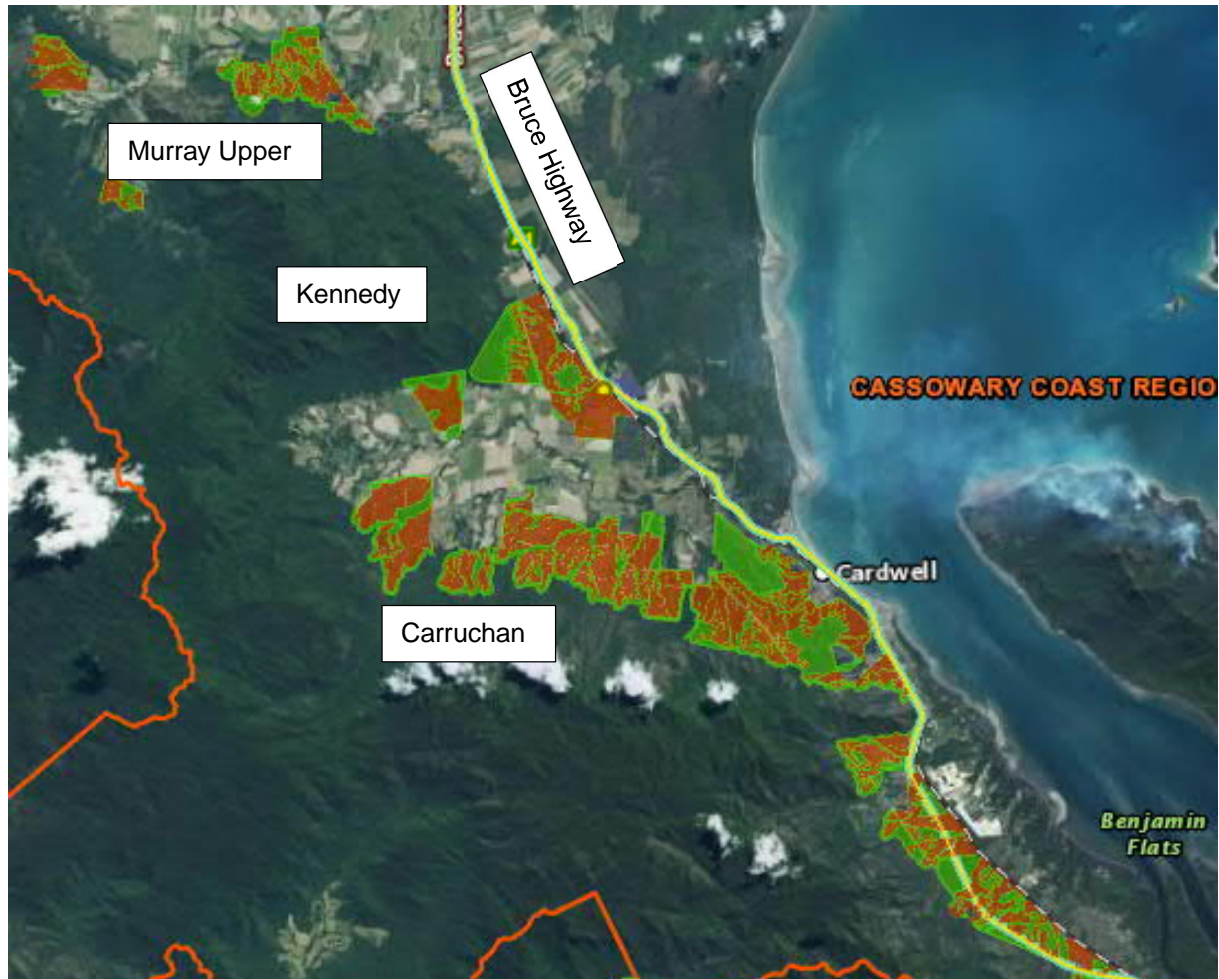
- Farm at Flying Fish Point with access to Bruce Highway via Grace Street, Fitzgerald Esplanade, Bergin Road, Flying Fish Point Road, Palm Avenue, Bay Road, Alice Street, Elizabeth Street, Esplanade, Ruby Street and Ella Bay Road
- Farm at Eaton with access to Bruce Highway via Grace Street, Fitzgerald Esplanade, Bergin Road and Flying Fish Point Road
- Farm at Sandy Pocket with access to Bruce Highway via Newman Road
- Farm at Cowley with access to Bruce Highway via Gill Road and Eden Road
- Farm at Cowley Creek with access to Bruce Highway via Cowley Creek Road
- Farm at Warrubullen with access to Bruce Highway via Cowley Creek Road, Warrubullen Road, Faviers Road and Hondroulis Road
- Farm at Kurrimine Beach with access to Bruce Highway via Murdering Point Road
- Farm at East Feluga Road with access to Bruce Highway via East Feluga Road
- Farm at Bilyana with access to Bruce Highway via Bluff Road

2.4.2.4 Forestry and logging

The very small forestry and logging industry limits the viability of increasing B-double access. The geometric constraints within plantations also diminishes the practicality of their use.

There are softwood plantations west of Cardwell, in Murray Upper, Kennedy and Carruchan. These areas access the Bruce Highway via Brasenose Street, Cardwell and Kennedy Creek Road, Bilyana Road and Lauder Road.

Figure 2-7 Forestry areas - Cassowary Coast



There is also a significant hardwood plantation in Cardstone (west of Tully) with access the Bruce Highway via Davidson Road.

Innisfail sawmilling (native timber) with access to Bruce Highway at Innisfail via Grace Street, Fitzgerald Esplanade and Flying Fish Point Road may offer a longer-term opportunity.

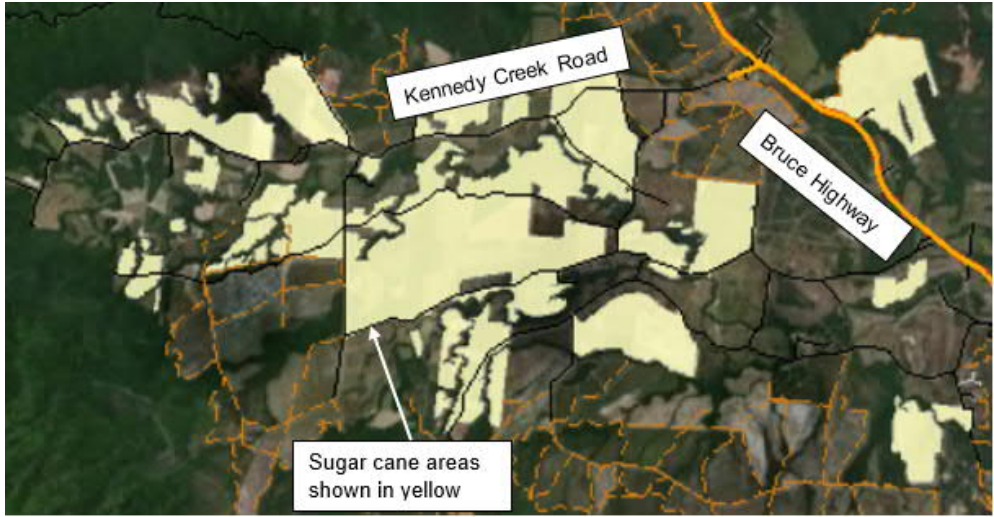
2.4.2.5 Fishing

There are no commercial fishing fleets based in Cassowary Coast.

2.4.2.6 Industry summary

A summary of the industry findings is presented in Table 2-4.

Table 2-4 Key industry findings for Cassowary Coast

Industry sub-group	Conclusions
Mining (including quarries)	<p>The following quarries have indirect access to the existing heavy vehicle network and have limited HPV opportunities:</p> <ul style="list-style-type: none"> • Quarry at Coorumba with access to Palmerston Highway via Coorumba Road • Quarry at Stoters Hill with access to Palmerston Highway via Quarry Road/ Catherina Creek Rd • Quarry at Bilyana with access to Bruce Highway via Bilyana Road • Quarry at Merryburn with access to Bruce Highway via Tully Mission Beach Road • Quarry at Moody Road at Vasa Views with access to Bruce Highway (not yet operational)
Agriculture – sugar cane	<p>The relatively short season and sugar cane production quantity combined with the numerous loading locations limits the viability of increasing HPV access.</p> <p>The South Johnstone Mill has indirect access to the existing 25m B-double route via Innisfail-Japoon Road. Tully Sugar Mill at Tully has 25m B-double access to the mill.</p> <p>Generally, sugar cane areas are well serviced by cane rail and heavy vehicle routes, however the cane growing around Kennedy is not serviced by cane rail. The main access road to the Bruce Highway is Kennedy Creek Road.</p>  <p>The map is an aerial photograph with yellow overlays indicating sugar cane fields. A white arrow points from a text box labeled 'Sugar cane areas shown in yellow' to one of these yellow areas. Two roads are labeled with white text boxes: 'Kennedy Creek Road' and 'Bruce Highway'. The Bruce Highway is shown as a prominent orange line running diagonally across the upper right portion of the map.</p>

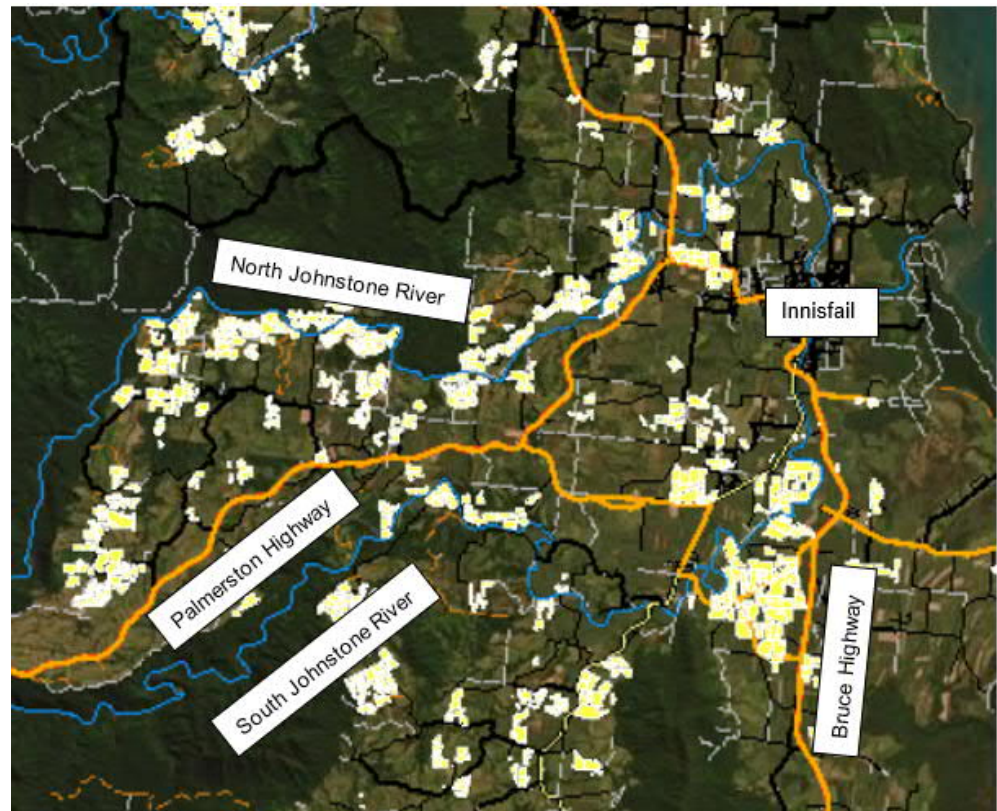
Agriculture - bananas

The major horticulture crop is bananas with the majority of Australia's grown around Innisfail, Tully and Kennedy (north of Cardwell).

Feedback received from industry suggests that banana farms are too small to warrant B-double access.

Innisfail



Bananas are predominantly grown in the North Johnstone and South Johnstone River valleys. All heavy vehicle routes except for Mill Street provide access to banana plantations in these areas. A series of adjoining roads provide access to these heavy vehicle routes.




Tully

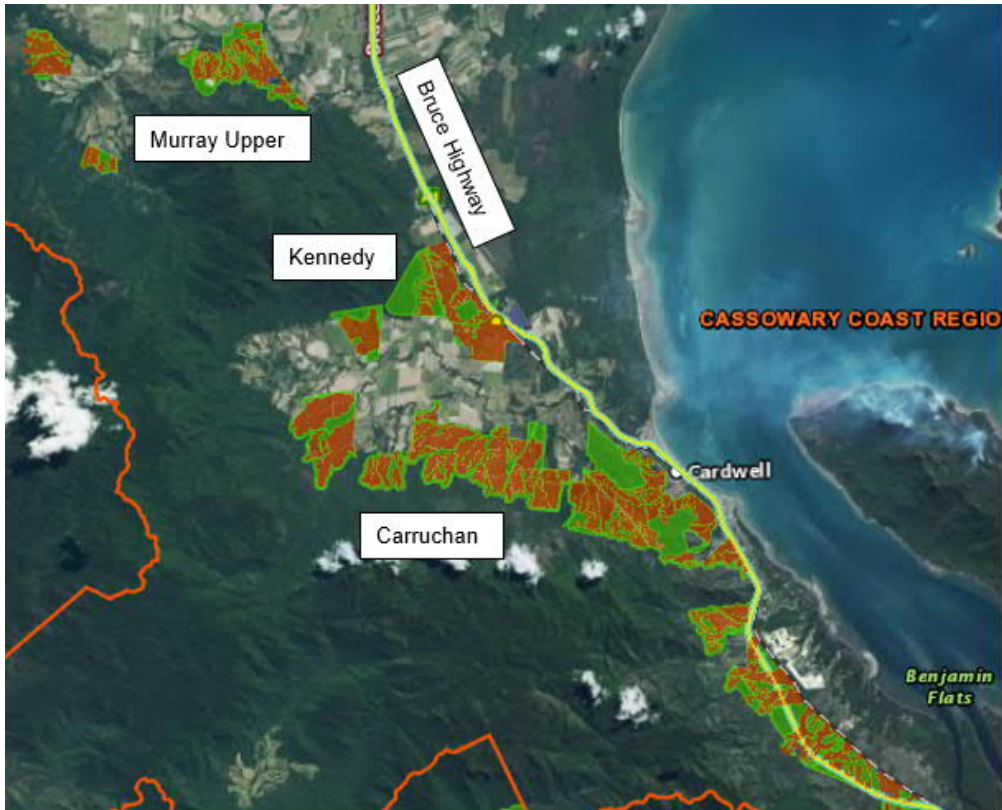
To the west of Tully, bananas are grown in the Tully River Valley in the areas of Cardstone, Munro Plains, Dingo Pocket, Jarra Creek and Silky Oak. They are interspersed with sugar canes. The major roads which serve these areas are Davidson Road, Dingo Pocket Road, Tully Gorge Road, Syndicate Road which all connect to the existing heavy vehicle network (Tully Gorge Road or Bruce Highway).

To the east of Tully there are smaller growing areas either side of El Arish-Mission Beach Road, Tully-Mission Beach Road and Tully-Hull Road. There are also large plantations at Bingal Bay and Mission Beach.

Industry sub-group	Conclusions
	 <p>Kennedy</p> <p>To the west of Kennedy, bananas are grown in the Kennedy Creek Valley. The main access road to the Bruce Highway is Kennedy Creek Road. There are smaller areas of bananas grown to the east of Bruce Highway.</p> 
Agriculture - Cattle and calves	<p>There are numerous areas of grazing located throughout the Council area. Many of these areas are being used for a variety of uses other than grazing.</p> <p>The relatively low production output and numerous loading locations limits the viability of increasing HPV access. The areas that offer longer-term opportunities are:</p> <ul style="list-style-type: none"> • Several unnamed properties at Maria Creeks with access to El Arish-Mission Beach Road • Several unnamed properties at Birkalla with direct access to Tully-Mission Beach Road • Several properties at East Palmerston with direct access to Palmerstone Highway • Three properties at Bilyana, two of which have access to Bruce Highway via Bluff Road and one which has access to Bruce Highway via Nash Road • Several properties at Warrami and Munro Plains with access to Bruce Highway via North Davidson Road • Several properties at Mena Creek with access to the heavy vehicle network via the Innisfail-Japoon Road

Heavy Vehicle Productivity

Industry sub-group	Conclusions
Aquaculture	<p>The following farms have indirect, and common, access to the existing heavy vehicle network:</p> <ul style="list-style-type: none"> • Four farms at Martyville, New Harbourline and Mourilyan Harbour with access to Bruce Highway via Martyville Road, New Harbourline Road and then either Coco Road, Marano Road or Bob Road and Jay Road • Two farms at Midgeree Bar with access to Bruce Highway via Daveson Road 

Industry sub-group	Conclusions
Forestry and logging	<p>The forestry and logging industry is very small within Cassowary Coast, which limits the viability of increasing B-double access. The geometric constraints within plantations also diminishes the practicality of their use.</p> <p>There are significant softwood plantations west of Cardwell, in Murray Upper, Kennedy and Carruchan. These areas access the Bruce Highway via Brasenose Street, Carwell and Kennedy Creek Road and Bilyana Road. There is also significant hardwood plantation in Cardstone with access the Bruce Highway via Davidson Road. Innisfail sawmilling (native timber) with access to Bruce Highway via Grace Street, Fitzgerald Esplanade and Flying Fish Point Road may offer a longer-term opportunity.</p> 

2.4.3 Freight lifelines

Cassowary Coast can be accessed by heavy vehicles via the Bruce Highway (north and south) and the Palmerston Highway. It is also supported by a developed sub-arterial and local road network.

The area is also serviced by the Port of Mourilyan, jetties and multiple aerodromes as alternatives for freight movements if multiple roads are closed. Rail access is available via the North Coast Line. No lifeline routes are subsequently apparent.

2.5 Douglas

2.5.1 Key freight routes

The key freight routes and their access restrictions are:

- Captain Cook Highway (Smithfield Roundabout to Mossman): 23m B-double route, State controlled road
- Mossman-Mt Molloy Road (Mulligan Highway intersection – Captain Cook Highway intersection): 23m B-double route, State controlled road

2.5.2 Freight generating industries

2.5.2.1 Mining (including quarries)

There are no mines within Douglas Shire.

A quarry with indirect access to the existing heavy vehicle network is located at Shannonvale. Access is to Mossman-Mount Molloy Road via Mountain View Road and Ponzo Road. As B-doubles are generally not viable practically or commercially without unrestricted access to destinations, this route may offer a longer-term opportunity.

2.5.2.2 Agriculture

The 2018/19 total value of agricultural production in Douglas Shire is \$19 million. Sugar cane and cut flowers contribute 90% of total value. Cattle and calves, other fruit nuts and turf largely make up the remainder.

Table 2-5 Value of agricultural commodities 2018/19 - Douglas

Commodity	\$ (thousand)	%
All other vegetables	\$59.3	0.3%
Cattle & calves	\$418.7	2.2%
Cut flowers	\$4,191.1	22.1%
Grain sorghum	\$12.8	0.1%
Lettuce	\$8.6	0.0%
Maize	\$3.7	0.0%
Nurseries	\$88.8	0.5%
Other crops	\$1.2	0.0%
Other fruit & nuts	\$701.1	3.7%
Other livestock	\$41.2	0.2%
Sugarcane	\$12,828.6	67.8%
Turf	\$572.9	3.0%
Total agriculture	\$18,928.5	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

Sugar cane

Sugar cane is grown extensively around Port Douglas and Mossman, from Mowbray to Bamboo. It is also grown further north around Lower Daintree. These areas including an area around Julattan/Mt Molloy in Mareeba Shire are serviced by the Mossman Central Mill which has 23m B-double access. The following figure shows the location of these sugar cane areas.

Cane growing areas between Mowbray and Bamboo are serviced by a cane rail network. Areas to the south of Mossman also serviced by the existing heavy vehicle network.

The cane growing areas of Lower Daintree are not serviced by cane rail. These farms access the Mossman Mill via the Mossman-Daintree Road and Cape Tribulation Road. Extreme horizontal geometric constraints along the coastline and substantial traffic management reconfiguration within Mossman limit the opportunities to permit 23m B-double access.

Figure 2-8 Sugar cane areas - Upper Daintree



2.5.2.3 Aquaculture

There is a land-based aquaculture farm at Killaloe (immediately north of Port Douglas) with direct access to Captain Cook Highway.

A land-based aquaculture farm at Wonga Beach (north of Mossman) has indirect access to Captain Cook Highway via the Mossman-Daintree Road.

2.5.2.4 Forestry and logging

There is no forestry or logging in Douglas Shire.

2.5.2.5 Fishing


Commercial fishing fleets are not based in Douglas Shire.

2.5.2.6 Industry summary

A summary of the industry findings is detailed in Table 2-6.

Table 2-6 Key industry findings for Douglas

Industry sub-group	Conclusions
Agriculture – sugar cane	<p>Sugar cane is grown extensively around Port Douglas and Mossman, and further north around Lower Daintree. It is serviced by the Mossman Central Mill which has 23m B-double access.</p> <p>The cane growing areas of Lower Daintree are not serviced by cane rail. These farms access the Mossman Mill via the Mossman-Daintree Road and Cape Tribulation Road. This may present a HPV opportunity.</p>

Industry sub-group	Conclusions
	

2.5.3 Freight lifelines

Douglas can be accessed by heavy vehicles via the Bruce Highway and Mount Molloy-Mossman Road. While HPV access is restricted to 23m B-doubles, critical freight can be moved by less productive vehicles. The area is serviced by jetties and boat ramps and the Wonga Beach aerodrome as alternatives for critical freight movements.

The general access Mossman-Daintree Road shows characteristics of a lifeline route because it is the single road to the lower Daintree. Frequency of closure data is not available. Noting the road is sealed and no structural deficiencies have been identified on this road, closures are anticipated as being infrequent. Considering these factors along with the freight alternatives, the route is not deemed as a lifeline route.

2.6 Hinchinbrook

2.6.1 Key freight routes

The key freight routes and their access restrictions are:

- Bruce Highway: 25m B-double and Higher Mass Limits route, State controlled road
- Ingham-Forest Beach Road: 25m B-double route, State controlled road
- Ingham – Halifax – Bemerside Road (Halifax Road, Eddleston Drive, Four Mile Road): 25m B-double route, State controlled road
- Halifax – Lucinda Point Road: 25m B-double route, State controlled road
- Fulton Drive / Farrell Drive: 25m B-double route, local road
- Challands Street: 25m B-double route, local road which services a small industrial area

2.6.2 Freight generating industries

2.6.2.1 Mining (including quarries)

There is no mining within Hinchinbrook Shire.

Heavy Vehicle Productivity

The following quarries have in-direct access to the existing heavy vehicle network and may present HPV opportunities:

- Quarry at Mount Cordelia with access to Halifax Road and Four Mile Road (both are 25m B-double routes) via Quarry Road/ Catherina Creek Rd and Cooks Lane
- Quarry at Abergowrie with access to the Bruce Highway via Abergowrie Road

2.6.2.2 Agriculture

The total value of 2018/19 agricultural production in Hinchinbrook was \$114 million. Sugar cane contributed 91% and cattle and calves another 8%.

Table 2-7 Value of agricultural commodities 2018/19 - Hinchinbrook

Commodity	\$ (thousand)	%
All other vegetables	\$268.0	0.2%
Bananas	\$12.7	0.0%
Barley	\$1.0	0.0%
Cattle & calves	\$8,669.1	7.6%
Grain sorghum	\$13.5	0.0%
Maize	\$4.5	0.0%
Melons (rockmelon & cantaloupe)	\$455.0	0.4%
Other cereal grains	\$12.8	0.0%
Other crops	\$36.6	0.0%
Other fruit & nuts	\$214.1	0.2%
Pigs	\$88.4	0.1%
Pumpkin	\$78.1	0.1%
Sugarcane	\$104,463.5	91.4%
Total agriculture	\$114,318.6	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

Sugar cane

Sugar cane which is grown extensively throughout the shire. There are two sugar mills, Macknade Mill and Victoria Sugar Mill. Both mills are serviced by extensive cane rail networks and are located on existing 25m B-double routes.

As most of the sugar cane area is well serviced by rail or road, no immediate HPV opportunities are identified.

Cattle and calves

The larger grazing properties with direct access to the heavy vehicle network are as follows:

- Muralambeen at Forest Beach with direct access to Ingham-Forrest Beach Road
- Wharps at Wharps with direct access to Bruce Highway

The larger grazing properties with indirect access to the existing heavy vehicle network. Properties with common access may present HPV opportunities.

Two or more properties with common access

- Two unnamed properties at Helens Hill with access to Bruce Highway via Pappins Road
- Michael Creek and Knuckle Downs at Mount Fox with access to Bruce Highway via Abergowrie Road, Stone River Road and Mount Fox Road
- Two unnamed properties at Upper Stone with access to Bruce Highway via Abergowrie Road and Stone River Road

Single properties

- Burnside at Toobanna with access to Bruce Highway via Pinnacle Hill Road
- Orient at Orient with access to Bruce Highway via Tokalan Road and Orient Road
- Loughmoore at Abergowrie with access to Bruce Highway via Abergowrie Road
- Unnamed property at Lannercost with access to Bruce Highway via Abergowrie Road and Crotons Road
- Unnamed property at Dalrymple Creek with access to Bruce Highway via Hawkins Creek Road

2.6.2.3 Aquaculture

The following land-based aquaculture farms have in-direct access to the heavy vehicle network. Limited HPV opportunities are evident as single entities.

- Farm at Macknade with access to Ingham – Halifax – Bemerside Road via Neames Inlet Road
- Farm at Bemerside with access to Bruce Highway via Mount Cudmore Road
- Farm at Lannercost with access to Stone River Road via Liobris Road

2.6.2.4 Forestry and logging

There are no sawmills in Hinchinbrook Shire. There are the following defined forest areas⁹ which may present HPV opportunities:

- Mount Fox Tableland State Forest, with access to Bruce Highway via Mount Fox Road, Stone River Road and Abergowrie Road.

⁹ A defined forest area is the area of State-owned native forest over which the Department of Agriculture and Fisheries (DAF) applies its forest management system and is subject to the requirements of the Australian Standard for Sustainable Forest Management. Refer <https://www.business.qld.gov.au/industries/farms-fishing-forestry/forests-wood/native-forests/defined-area>

- Lannercost State Forest, with access to Bruce Highway via Liborios and Wallarman Falls Roads, which both connect to Stone River Road and then Abergowrie Road
- Abergowrie State Forest, with access to Bruce Highway via Broadwater Park Road, Elphinstone Pocket Road and Abergowrie Road
- Small unnamed forest area at Abergowrie, with access to Bruce Highway via Kokoda Road and Abergowrie Road
- Ingham State Forest in Ingham, with access to Bruce Highway via Market Street, Industrial Avenue and Plywood Street

There are the following forest consent areas¹⁰ which may present HPV opportunities:

- Large area at Upper Stone, with access to Bruce Highway via Allendale Road and Pappins Road
- Small area at Upper Stone, with access to Bruce Highway via Mount Fox Road, Stone River Road and Abergowrie Road

Figure 2-9 Forestry areas - Hinchinbrook



¹⁰ The holder of certain types of leases can apply to convert their lease to freehold. As part of this process an assessment is made to determine if the land contains commercial timber. If so, the State government can (amongst other things) require the establishment and registration of a forest consent area over the entire lease area or a surveyed part of the lease, as a condition of the State's acceptance of the application. A forest consent agreement allows the State to retain the ownership of the commercial timber on land. Refer <https://www.publications.qld.gov.au/dataset/e6669bdf-ade0-4b21-9e5a-356882075230/resource/05958c2e-1fd0-4266-bb14-37a11920570f/download/factsheet-forestconsentareas.pdf>.

2.6.2.5 Fishing


No commercial fishing fleets are based in Hinchinbrook.

2.6.2.6 Industry summary

A summary of the industry findings is detailed in Table 2-8.

Table 2-8 Key industry findings for Hinchinbrook

Industry sub-group	Conclusions
Mining (including quarries)	<p>The following quarries have indirect access to the existing heavy vehicle network and have limited HPV opportunities:</p> <ul style="list-style-type: none"> Quarry at Mount Cordelia with access to Halifax Road and Four Mile Road via Catherina Creek Road Quarry at Abergowrie with access to Bruce Highway via Abergowrie Road
Agriculture – cattle and calves	<p>The larger grazing properties with indirect, and common, access to the existing heavy vehicle network and may present HPV opportunities:</p> <ul style="list-style-type: none"> Two unnamed properties at Helens Hill with access to Bruce Highway via Pappins Road Michael Creek and Knuckle Downs at Mount Fox with access to Bruce Highway via, Stone River Road and Mount Fox Road Two unnamed properties at Upper Stone with access to Bruce Highway via Abergowrie Road and Stone River Road
Forestry and logging	<p>There are the following defined forest areas which may present HPV opportunities:</p> <ul style="list-style-type: none"> Mount Fox Tableland State Forest, with access to Bruce Highway via Mount Fox Road, Stone River Road and Abergowrie Road Lannercost State Forest, with access to Bruce Highway via Liborios and Wallarman Falls Roads, which both connect to Stone River Road and then Abergowrie Road Abergowrie State Forest, with access to Bruce Highway via Broadwater Park Road, Elphinstone Pocket Road and Abergowrie Road Small unnamed forest area at Abergowrie, with access to Bruce Highway via Kokoda Road and Abergowrie Road Ingham State Forest in Ingham, with access to Bruce Highway via Market Street, Industrial Avenue and Plywood Street <p>There are the following forest consent areas which may present HPV opportunities:</p> <ul style="list-style-type: none"> Large area at Upper Stone, with access to Bruce Highway via Allendale Road and Pappins Road Small area at Upper Stone, with access to Bruce Highway via Mount Fox Road, Stone River Road and Abergowrie Road

Industry sub-group	Conclusions
	 <p>The map displays the Chinbrook Shire area with various geographical features and infrastructure. Key locations and features labeled include:</p> <ul style="list-style-type: none"> Un-named State Forest (top left) Abergowrie State Forest (top center) Lannercost State Forest (center left) Un-named State Forest (center right) Upper Stone (bottom center) Mt Fox Tableland State Forest (bottom left) Buce Highway (top right) Lucinda (top right) Halifax (center right) Ingham (center right) Trebonne (center right) Toobanna (center right) CHINBROOK SHIRE (bottom right)

2.6.3 Freight lifelines

The Bruce Highway is the key inter-regional freight route, from both the north and south. The area is also serviced by Port of Lucinda, jetties and boat ramps. Ingham Airport and the North Coast Line provide further alternatives by air and rail. No lifeline routes are subsequently apparent.

2.7 Mareeba

2.7.1 Key freight routes

The key freight routes and their access restrictions below are as defined by both TMR and the National Heavy Vehicle Regulator:

- Mossman-Mt Molloy Road (Mulligan Highway intersection – Captain Cook Highway intersection): 23m B-double route, State controlled road
- Mulligan Highway (Mareeba-Dimbulah Road intersection – Cooktown): Type 1 Roadtrain route, State controlled road
- Mareeba-Dimbulah Road (Mulligan Highway intersection – Dimbulah): Type 1 Roadtrain route, State controlled road
- Burke Developmental Road (Dimbulah – Mungana Road intersection (north of Chillagoe)): Type 1 Roadtrain route, State controlled road
- Burke Developmental Road (Mungana Road intersection (north of Chillagoe) – Karumba): Type 2 Roadtrain route, State controlled road
- Kennedy Highway (Mareeba – Tolga): 25m B-double route, State controlled road
- Kennedy Highway (Mareeba – Speewah): 25m B-double route, State controlled road
- Hansen Road / Springmount Road / Chettle Road / Springmount Road: 25m B-double route, local road, access to Tablelands Sugar Mill

As presented in Section 2.2, Almaden-Gingerella/Ootann Road is not currently a gazetted heavy vehicle route. It is however recognised as a key freight route that is becoming increasingly important, and is recommended as a HPV opportunity.

2.7.2 Freight generating industries

2.7.2.1 Mining (including quarries)

- A tungsten mine is located at Mount Carbine with direct access to Mulligan Highway
- The Tartana Copper and Zinc mine is located approximately 40km north of Chillagoe with direct access to Burke Developmental Road
- There are marble quarries at Chillagoe with direct access to Burke Developmental Road
- A rock quarry near Mareeba has direct access to Kennedy Highway
- Iron ore operations are planned west of Mount Garnet with access to the Kennedy Highway via Mount Carbine Road/Nymbool Road

The following quarries have indirect access to the existing heavy vehicle network and may present HPV opportunities:

- Several marble quarries at Chillagoe with access to Burke Developmental Road via Smelter Road, Georgetown Road (also known as Exchange Road) and Bolwarra Roads.
- Unknown quarry at Mutchilba with access to Mareeba-Dimbulah Road via Borzi Road
- Sand quarry at Arriga with access to Mareeba-Dimbulah Road via North Walsh Road

2.7.2.2 Agriculture

The total value of 2018/19 agricultural production in Mareeba was \$377 million. The major commodities are mangoes, cattle & calves, other fruit & nuts and avocados. These add a combined 71% of total value.

Heavy Vehicle Productivity

Table 2-9 Value of agricultural commodities 2018/19 - Mareeba

Commodity	\$ (thousand)	%
All other vegetables	\$4,712.9	1.3%
Avocados	\$45,935.9	12.2%
Bananas	\$16,516.9	4.4%
Beans	\$26.1	0.0%
Capsicums	\$564.9	0.2%
Cattle & calves	\$86,501.9	23.0%
Cut flowers	\$142.0	0.0%
Eggs	\$6.2	0.0%
Grain sorghum	\$2,436.5	0.6%
Lettuce	\$28.8	0.0%
Macadamias	\$2.0	0.0%
Maize	\$20.8	0.0%
Mandarins	\$79.5	0.0%
Mangoes	\$64,880.5	17.2%
Melons (rockmelon & cantaloupe)	\$191.0	0.1%
Milk	\$18.3	0.0%
Nurseries	\$3,789.0	1.0%
Other cereal grains	\$1,068.0	0.3%
Other crops	\$499.3	0.1%
Other fruit & nuts	\$71,546.6	19.0%
Other livestock	\$3.7	0.0%
Pigs	\$1.9	0.0%
Pineapples	\$2,634.0	0.7%
Potatoes	\$32.6	0.0%
Poultry	\$29,096.4	7.7%
Pumpkin	\$7,826.7	2.1%
Sugarcane	\$30,981.2	8.2%
Sweet corn	\$35.4	0.0%
Table grapes	\$1,070.5	0.3%
Tomatoes	\$524.0	0.1%
Turf	\$4,638.3	1.2%
Wheat	\$751.3	0.2%
Total agriculture	\$376,564.1	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

A large proportion of these crops are grown in the Mareeba-Dimbulah irrigation area, an area which is irrigated using water from the Tinaroo Dam on the Baron River. The area irrigated by the distribution system is about 17,000 hectares. Crops grown include sugar cane, bananas, mangoes avocados, papaya, lychees, citrus, coffee, tea trees and a wide range of vegetable crops¹¹.

¹¹ <https://lmairrigation.com.au/schemes/investigationschemes/mareeba-dimbulah/>

Figure 2-10 Mareeba - Dimbulah Irrigation Area



The existing heavy vehicle network within the Mareeba – Dimbulah irrigation area is the Mareeba-Dimbulah Road, Hansen Road, Mulligan Highway and Kennedy Highway.

Many farms within the irrigation area have direct access to the heavy vehicle network. There are however a considerable number which access the heavy vehicle network via a series of adjoining roads which may present HPV opportunities.

Sugar cane

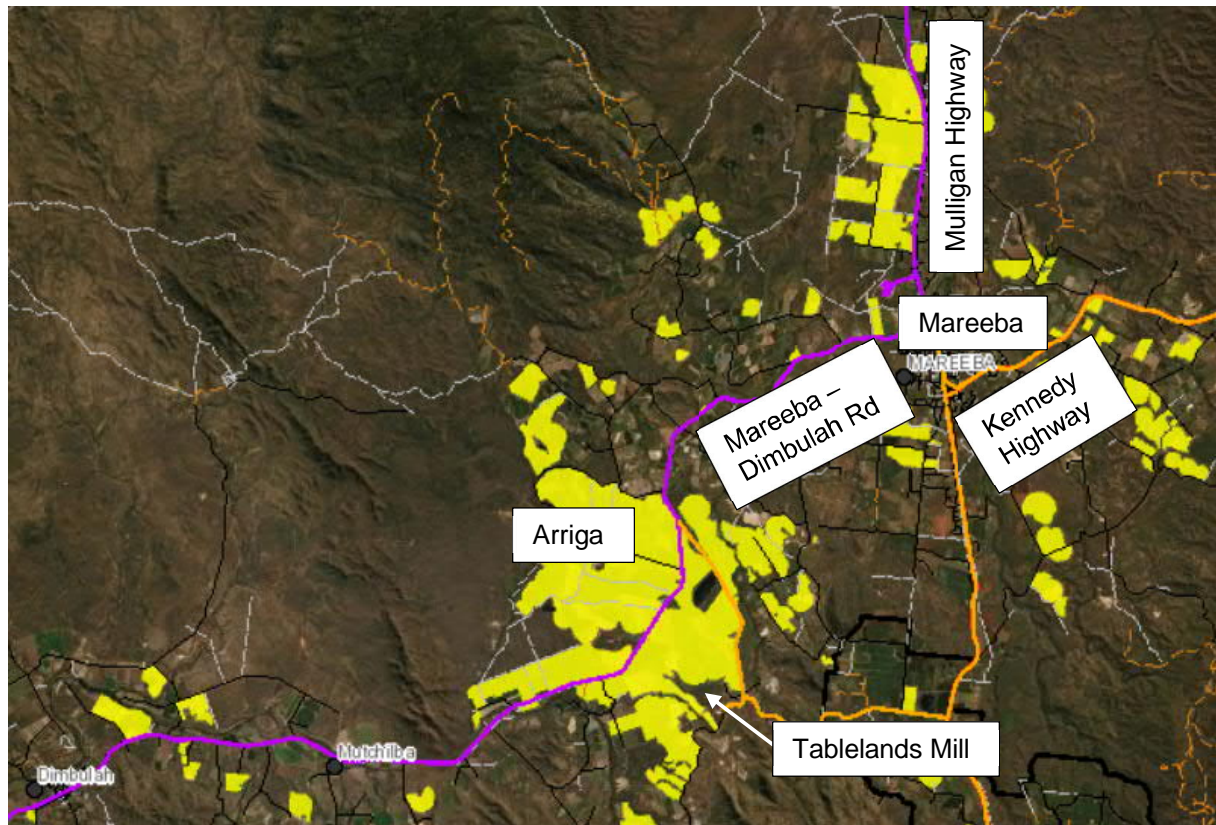
- **Sugar grown at Mareeba – Dimbulah**

The majority of sugar cane in this area is grown in Arriga in close proximity to the Tablelands Mill. It is also grown in Dimbulah, Mutchilba, Chewko, Paddy's Green, Biboohra and Mareeba. Sugar cane is

transported by road to the Tablelands Mill. The Tablelands Mill which is located on Springmount Road, has 25m B-double access from the east only.

Many farms have direct access to the existing heavy vehicle network. There are however many farms which access the heavy vehicle network via a series of adjoining roads which may present HPV opportunities. The roads that provide access to the largest areas of sugar cane within Arriga are Arriga Road, North Walsh Road and Springmount Road and the connecting Oakey Valley Avenue.

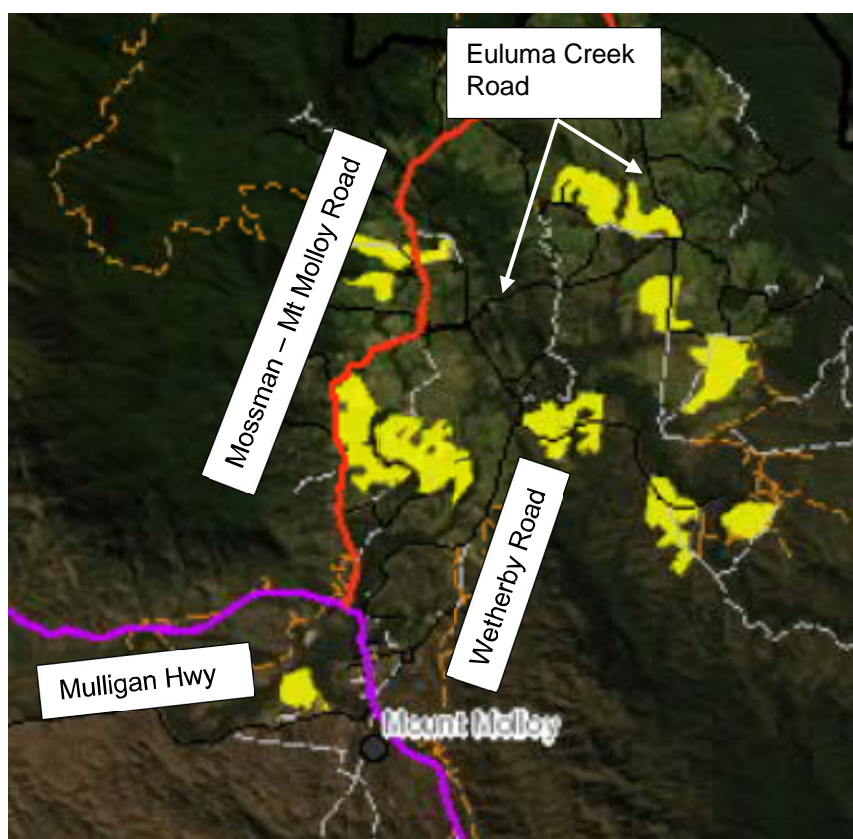
Figure 2-11 Sugar cane areas - Mareeba



- **Sugar grown at Julattan/Mt Molloy**

Sugar cane is also grown at Julattan/Mt Molloy and is transported by road to the Mossman Central Mill. The Mossman Central Mill has 23m B-double access. These areas access the Mossman-Mt Molloy Road via a series of adjoining roads which may present HPV opportunities. These roads are Wetherby Road and Euluma Creek Road (and adjoining roads Rasmussen Road, Black Mountain Road, Pashen Road and Morrish Road).

Figure 2-12 Sugar cane areas - Julattan/Mt Molloy



Citrus

The Mareeba area (Mareeba, Bibbohra, Paddys Green and Chewko), has the greatest number of farms (472 ha across 65 farms), however the Dimbulah area (Dimbulah, Arriga and Mutchilba) has the greatest amount of land under citrus production (644 ha across 56 farms). Limes are by far the most prominent citrus category grown, followed by lemon, pummelo, mandarin, orange and grapefruit. Most growers in this region have citrus orchards of less than 5 hectares in size. Citrus are grown in addition to other agricultural commodities¹², therefore opportunities are viewed in conjunction with other commodities.

Avocadoes

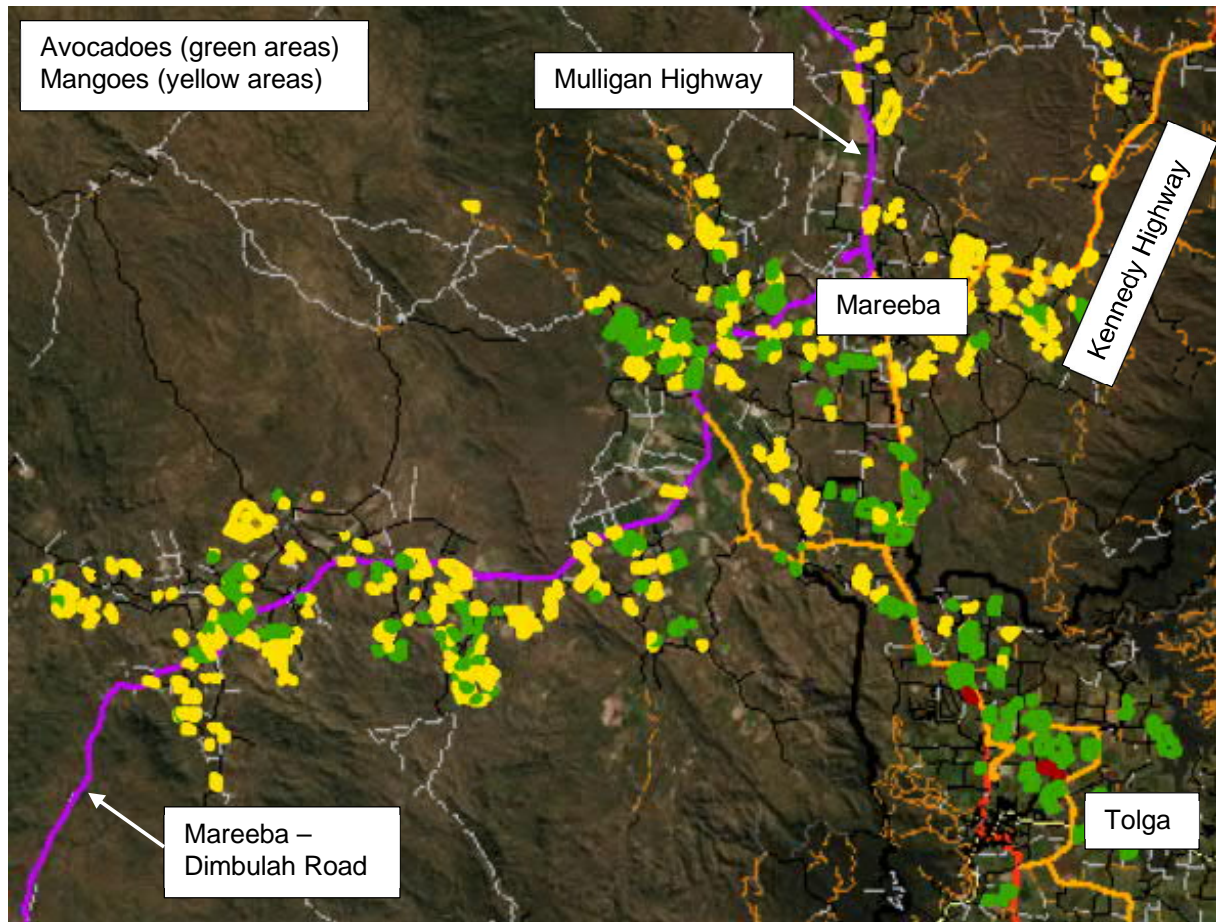
Avocadoes are grown widely across the Dimbulah – Mareeba irrigation areas. The locations of avocado and mango orchards within Mareeba and Tablelands is shown in the following figure. Avocado crops like citrus and mangoes, are interspersed with a range of other agricultural commodities. This makes it extremely difficult to identify individual orchards. Due to the dispersed nature of orchards and their close proximity to the existing heavy vehicle network, it is unlikely that any roads will present a HPV opportunity.

Mangoes

Mangoes are grown widely across the Dimbulah – Mareeba irrigation areas. The locations of avocado and mango orchards within Mareeba and Tablelands is shown in the Figure 2-13. Mangoes like citrus and avocadoes, are interspersed with a range of other agricultural commodities. This makes it extremely difficult to identify individual orchards. Due to the dispersed nature of orchards and their close proximity to the existing heavy vehicle network, it is unlikely that any roads will present a HPV opportunity.

¹² <https://publications.qld.gov.au/dataset/87c8a8c6-79b3-4ae1-baaf-1eaf608aa443/resource/668f31e4-14b6-4855-b04a-867f2059dbcd/download/profile-of-the-atherton-tablelands-citrus-industry.pdf>

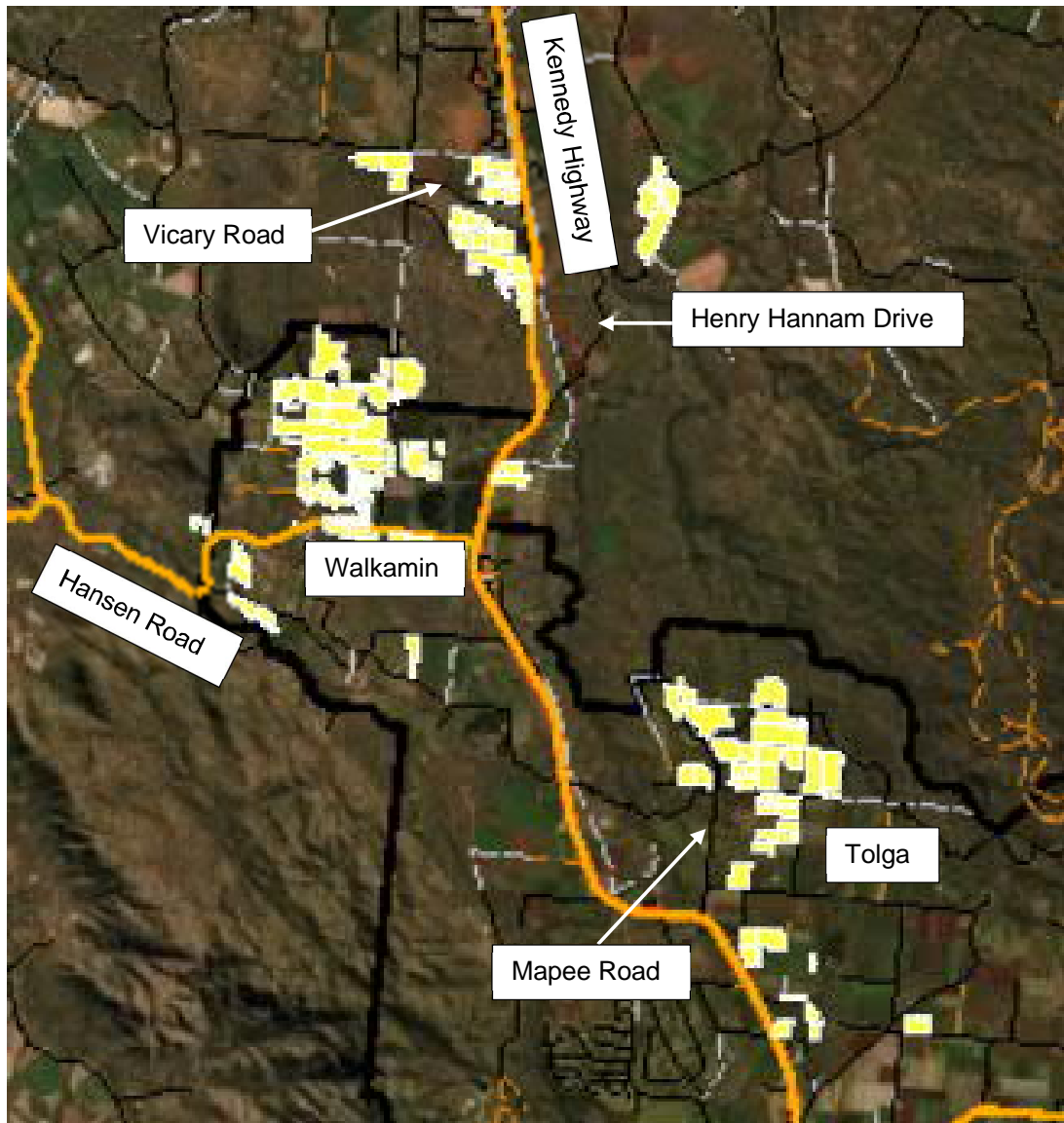
Figure 2-13 Avocado and mango growing areas - Mareeba and Tablelands



Bananas

Figure 2-14 shows the location of banana growing areas within Mareeba and Tablelands Shires. Within Mareeba banana growing areas have indirect access to Kennedy Highway via Henry Hannam Drive and Vicary Road. The farms on Vicary Road are in close proximity to Kennedy Highway and are therefore not expected to present HPV opportunities. There is one farm on Henry Hannam Drive, on its own it is unlikely to present a HPV opportunity.

Figure 2-14 Banana growing areas - Mareeba and Tablelands



Cattle and calves

The location of homesteads has been taken as the reference point for assessing HPV opportunities. Secondary accesses, while important have not been assessed. The location of main homesteads and the existing road network (both local government and state controlled) are shown in Figure 2-15.

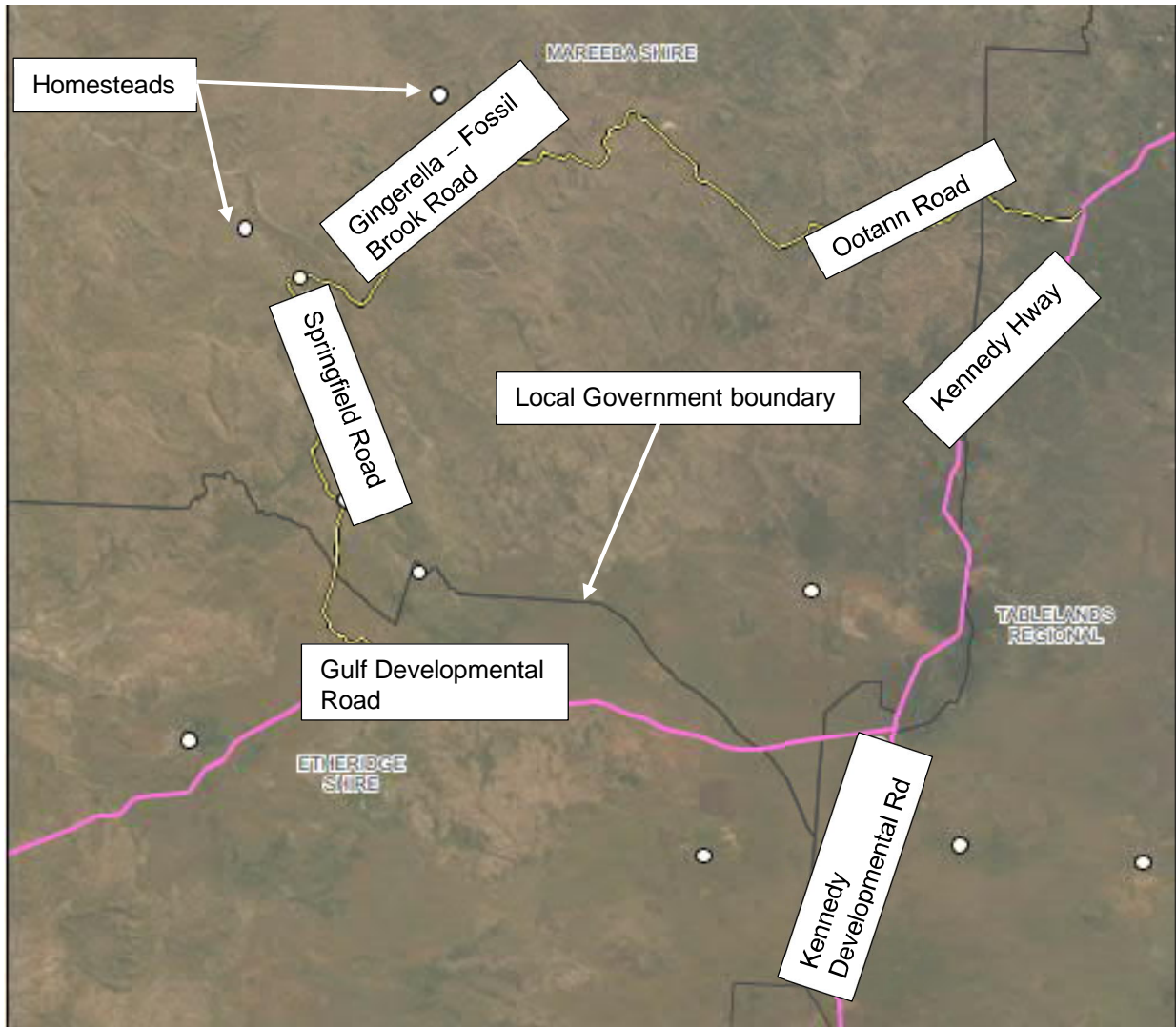
Many homesteads have direct access to the existing heavy vehicle network. Other major roads which connect three or more properties to the heavy vehicle network are as follows. These roads, which form a loop and connect back to the Kennedy Highway, could potentially be considered as HPV opportunities.

- Springfield Road
- Gingerella-Fossil Brook Road (between Springfield Road and Ootann Road)
- Almaden-Gingerella/Ootann Road

Hurricane Road is an approximately 40km unsealed road providing access to Hurricane and Karma Waters Stations west of Mount Carbine. It connects to the Mulligan Highway, an existing Type 1 roadtrain route.

Nychum Road is a primary route connecting Nychum Station to the Burke Developmental Road, an existing Type 2 roadtrain route.

Figure 2-15 Roads which service three or more grazing homesteads – Mareeba



Poultry (excluding eggs)

Steggles operate a processing plant at Mareeba with access to Mareeba- Dimbulah Road via Moody Street. Steggles also operate a hatchery at Mareeba with access to Mareeba- Dimbulah Road via Springs Road. Both locations are unlikely to present a HPV opportunity due to their proximity to the existing heavy vehicle network.

2.7.2.3 Aquaculture

Land based aquaculture farms with direct access to the existing heavy vehicle network are as follows:

- Aquaculture (type unknown) at Julattan with direct access to the Mareeba-Mt Molloy Road

Land based aquaculture farms with indirect access to the existing heavy vehicle network are as follows:

- Aquaculture (type unknown) at Southedge with access to Mulligan Highway via Bakers Road
- Aquaculture (type unknown) at Mt Molloy with access to the Mulligan Highway via Weatherby Road
- Aquaculture (type unknown) at Julattan with access to the Mareeba-Mt Molloy Road via Mt Perseverance Road

- Aquaculture (type unknown) at Bibbohra with access to the Mulligan Highway via Hodzic Road
- Aquaculture (type unknown) at Koah with access to the Mulligan Highway via Hodzic Road
- Two aquaculture farms (type unknown) at Koah with access to the Kennedy Highway via Koah Road
- Aquaculture (type unknown) at Kuranda with access to the Kennedy Highway via Myola Road
- Aquaculture (type unknown) at Speewah with access to the Kennedy Highway via Douglas Track and Speewah Road
- Aquaculture (type unknown) at Koah with access to the Kennedy Highway via Spena Road
- Aquaculture (type unknown) at Dimbulah with access to the Mareeba-Dimbulah Road via Stephens Street

These farms are not expected to present HPV opportunities as singular entities.

2.7.2.4 Forestry and logging

The following defined forest areas have direct access to the existing heavy vehicle network are as follows:

- Defined forestry area at Koah with direct access to the Kennedy Highway
- Defined forestry area at Kuranda with direct access to the Kennedy Highway

The following defined forest areas (and plantations) may present HPV opportunities:

- Defined forest area (and plantation) at Mona Mona, with access to the Mulligan Highway via Hodzic Road
- Defined forest area at Bibbohra with access to the Mulligan Highway via Bilwon Road and Vallely Road
- Defined forest area at Mareeba with access to the Kennedy Highway via Gilmore Road
- Defined forest area (and plantation) at Mona Mona, with access to the Kennedy Highway via Black Mountain Road

The following forest consent areas have direct access to the existing heavy vehicle network are as follows:

- Defined forest areas at Mt Molloy with direct access to the Mulligan Highway

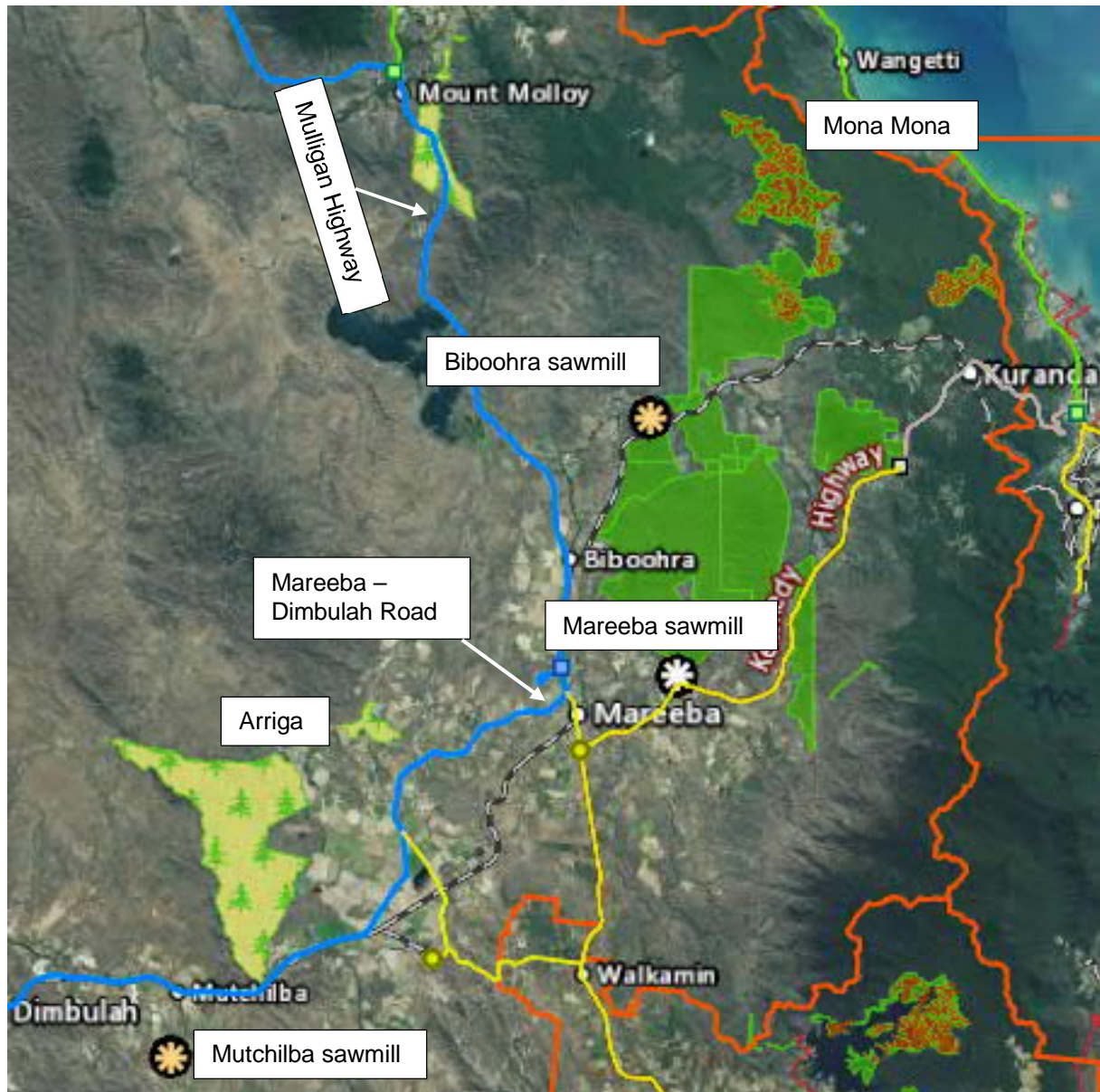
There are the following forest consent areas which may present HPV opportunities:

- Forest consent area at Arriga with access to the Mareeba-Dimbulah Road via North Walsh Road and Kimalo Road

The following sawmills have indirect access to the existing heavy vehicle network and may present HPV opportunities:

- Unnamed sawmill (native timber) at Bibbohra with access to the Mulligan Highway via Hodzic Road
- Unnamed sawmill (plantation timber) at Mareeba with access to the Kennedy Highway via Gilmore Road and Trimble Road
- Unnamed sawmill (native timber) at Mutchilba with access to the Mareeba-Dimbulah Road via Mutchilba Road

Figure 2-16 Forestry areas - Mareeba

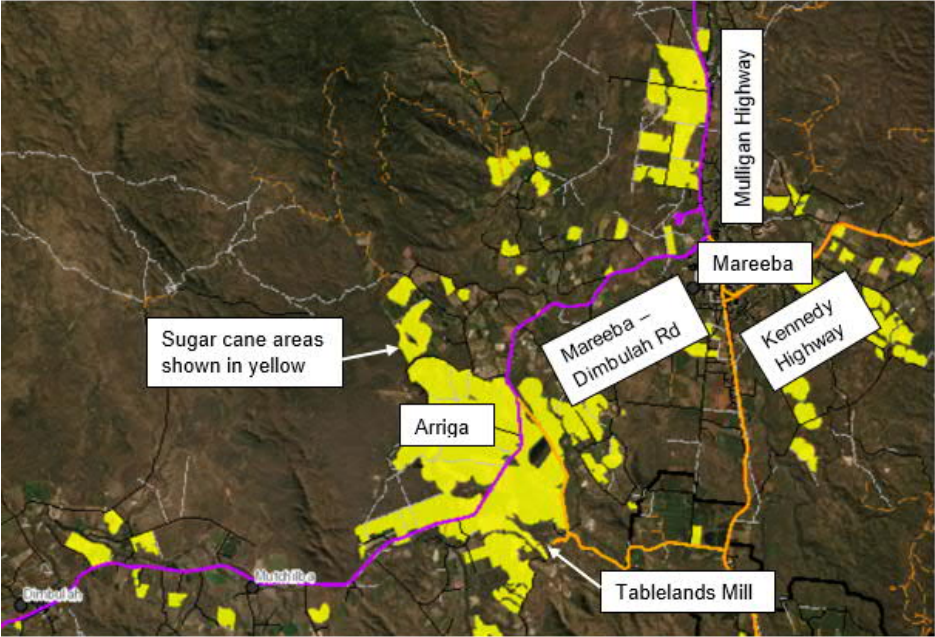


2.7.2.5 Industry summary

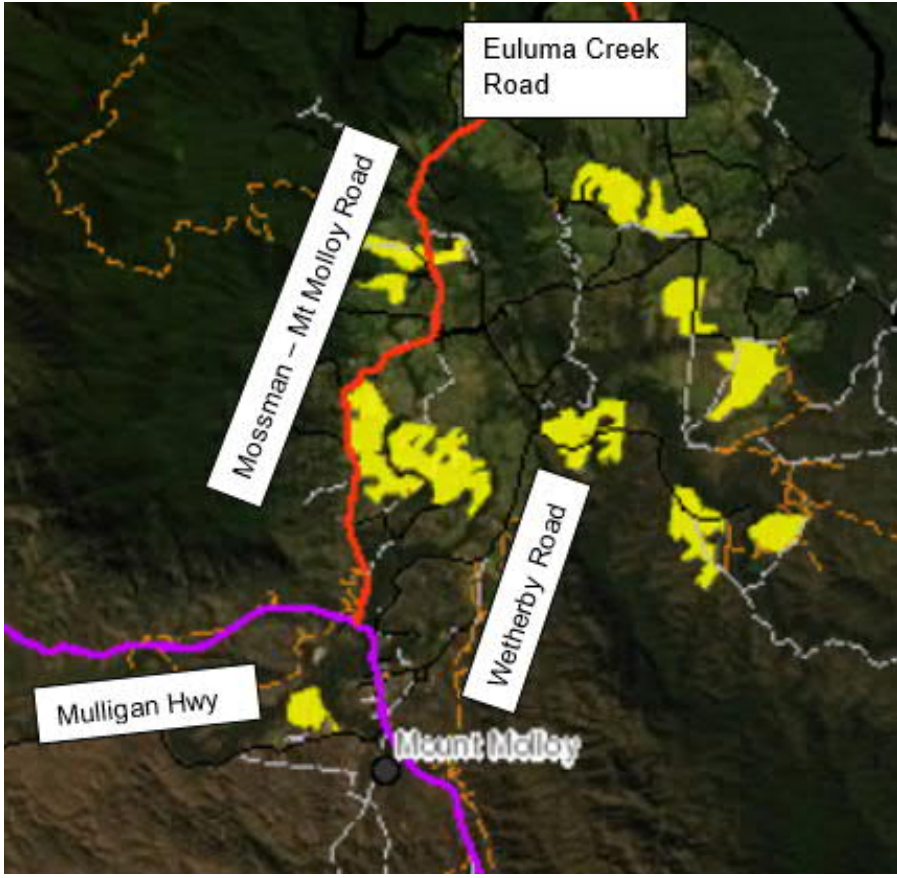
A summary of the industry findings is detailed in Table 2-10.

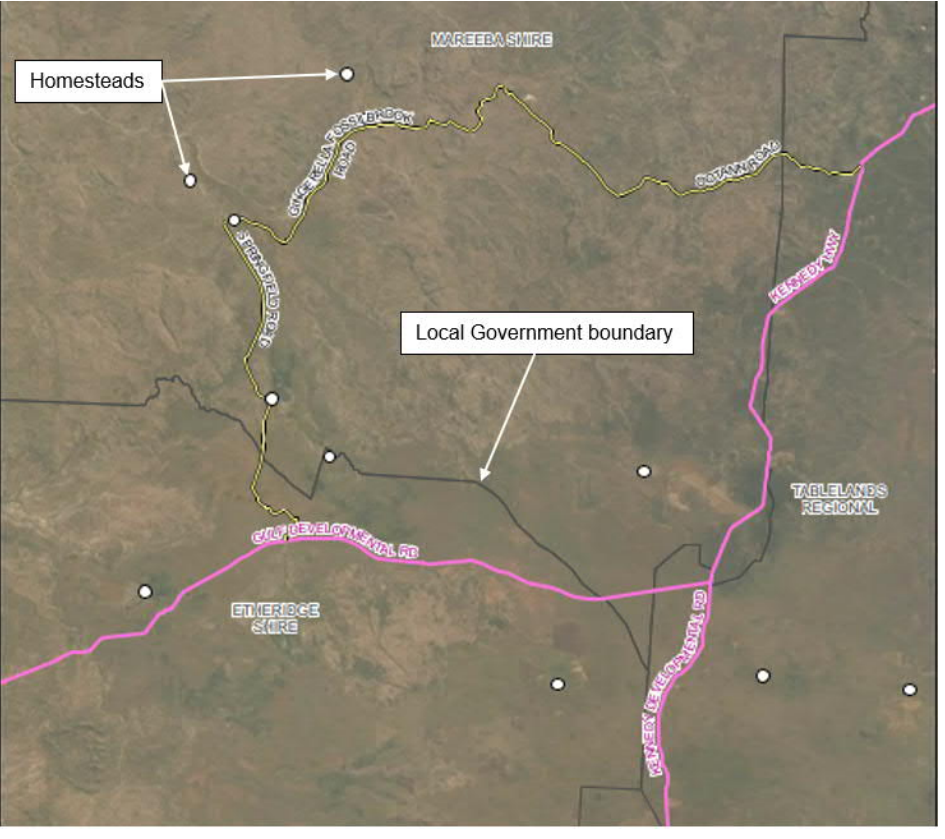
Table 2-10 Key industry findings for Mareeba

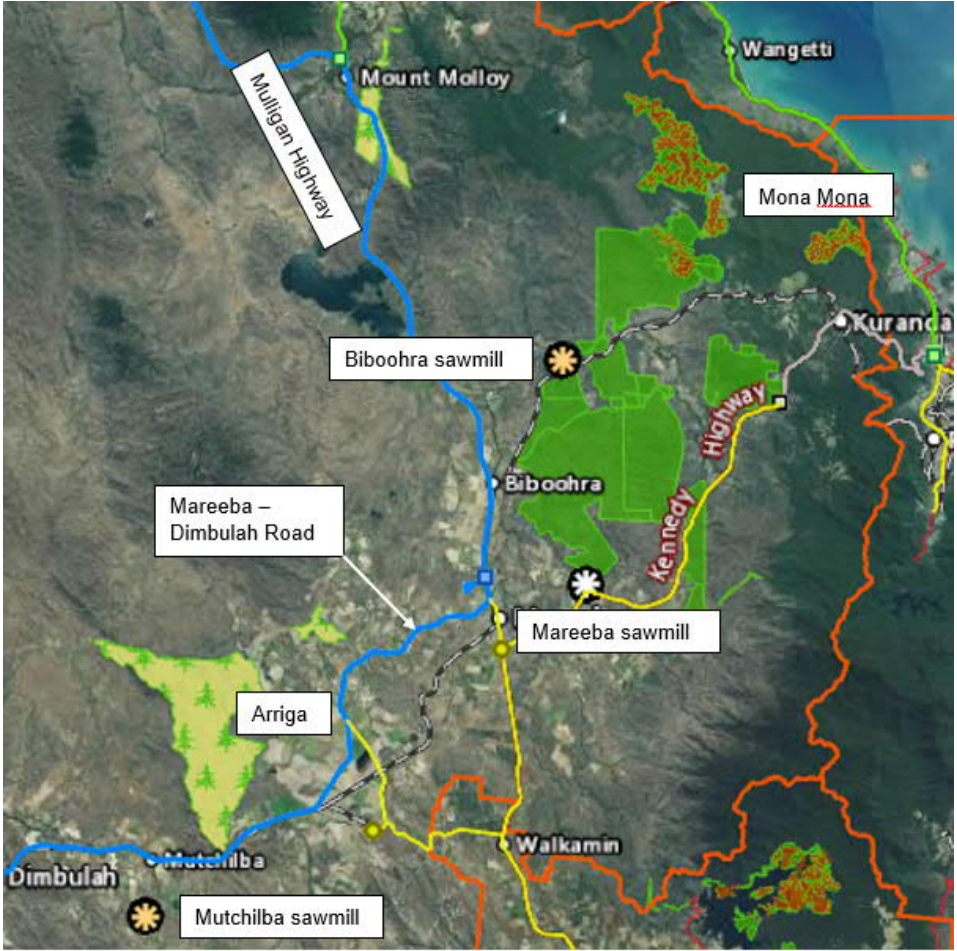
Industry sub-group	Conclusions
Mining (including quarries)	<p>The following quarries have indirect access to the existing heavy vehicle network and may present HPV opportunities:</p> <ul style="list-style-type: none"> • Several marble quarries at Chillagoe with access to Burke Developmental Road via Smelter Road, Exchange Road and Bolwara Roads. • Unknown quarry at Mutchilba with access to Mareeba-Dimbulah Road via Borzi Road • Sand quarry at Arriga with access to Mareeba-Dimbulah Road via North Walsh Road

Industry sub-group	Conclusions
<p>Agriculture-sugar cane</p>	<p>Sugar cane is transported by road. The growing areas around Mareeba / Dimbulah are serviced by the Tablelands Mill in Arriga which has 25m B-double access from the east only. There is also sugar cane grown at Julattan / Mt Molloy. These areas are serviced by the Mossman Central Mill. The Mossman Central Mill has 23m B-double access.</p> <p>A large number of farms have direct access to the heavy vehicle network there are however many farms which access the heavy vehicle network via a series of adjoining roads which may HPV opportunities. The roads that provide access to the largest areas of sugar cane are:</p> <ul style="list-style-type: none"> Local roads which provide access to Mareeba-Dimbulah Road: Leadingham Creek Road at Dimbulah, Fumar Road and Robinson Road at Dimbulah, Arriga Road at Arriga, North Walsh Road and then either Kimalo Road or Bower Road then either Mcbean Road or Kerlin Road at Arriga, Springs Road and Rains Road or Fassio Road and Hawkins Road at Paddy's Green Local roads which provide access to Hansen Road: Chewko Road and then Narcotic Creek Road or Paglietta Road at Chewko Local roads which provide access to the Mulligan Highway: Adil Road and Peters Road at Mareeba, Pickford Road at Bibohra Local roads which provide access to the Kennedy Highway: Tinaroo Creek Road, Cobra Road and Emerald Falls Road at Mareeba, Malone Road Mareeba, Gilmore Road <p>The Tablelands Mill is on Springmount Road. Springmount Road west of the Mill is not a heavy vehicle route. There are a significant number of farms to the west of the Mill on Springmount Road and the connecting Oakey Valley Avenue. These roads may also present HPV opportunities.</p>  <p>Sugar grown at Julattan / Mt Molloy</p> <p>Cane growing areas around Julattan are serviced by the Mossman Central Mill. These areas access the Mossman-Mt Molloy Road via a series of adjoining roads which may present HPV opportunities. These roads are Wetherby Road, Euluma Creek Road, Rasmussen Road, Black Mountain Road, Pashen Road and Morrish Road.</p>

Heavy Vehicle Productivity

Industry sub-group	Conclusions
	
Agriculture – cattle and calves	<p>The following roads, which form a loop and connect back to the Kennedy Highway, could potentially be considered as HPV opportunities.</p> <ul style="list-style-type: none"> • Springfield Road (off Gulf Developmental Road which connects to Kennedy Highway) • Almaden-Gingerella-Ootann Road

Industry sub-group	Conclusions
	
Forestry and logging	<p>The following defined forest areas (and plantations) may present HPV opportunities:</p> <ul style="list-style-type: none"> • Defined forest area (and plantation) at Mona Mona, with access to the Mulligan Highway via Hodzic Road • Defined forest area at Bibbohra with access to the Mulligan Highway via Bilwon Road and Valley Road • Defined forest area at Mareeba with access to the Kennedy Highway via Gilmore Road • Defined forest area (and plantation) at Mona Mona, with access to the Kennedy Highway via Black Mountain Road <p>The following forest consent areas may present HPV opportunities:</p> <ul style="list-style-type: none"> • Forest consent area at Arriga with access to the Mareeba-Dimbulah Road via North Walsh Road and Kimalo Road <p>The following sawmills have indirect access to the existing heavy vehicle network and may present HPV opportunities:</p> <ul style="list-style-type: none"> • Unnamed sawmill (native timber) at Bibbohra with access to the Mulligan Highway via Hodzic Road • Unnamed sawmill (plantation timber) at Mareeba with access to the Kennedy Highway via Gilmore Road and Trimble Road • Unnamed sawmill (native timber) at Mutchilba with access to the Mareeba-Dimbulah Road via Mutchilba Road

Industry sub-group	Conclusions
	

2.7.3 Freight lifelines

Mareeba and the surrounding area is connected to the Mulligan Highway, Mossman-Mt Molloy Road and Kennedy Highway. It is also supported by a developed sub-arterial and local road network. The area is serviced Mareeba Aerodrome and the Tablelands Rail System as alternatives for critical freight movements.

Dimbulah is connected to the east by the Mareeba-Dimbulah Road, an existing B-double route. The township is connected to the Tablelands Rail System, and is serviced by a gravel airstrip. The townships of Almaden and Chillagoe are connected via the Burke Developmental Road. Almaden is serviced by the Tablelands Rail System, and Chillagoe is serviced by a sealed airstrip. Rail loading facilities are constrained in each township. Remote communities that are reliant on air as an alternative transport mode are faced with high costs.

While the frequency of road closures is unknown, both the Mareeba-Dimbulah Road and Burke Developmental Road can be considered as freight lifelines. The roads are essential for freight movements through the north west of Mareeba Shire, continuing through Carpentaria. The gazetted HPV access on both roads is consistent with the adjoining network.

2.8 Tablelands

2.8.1 Key freight routes

The key freight routes and their access restrictions are:

- Kennedy Highway (Mareeba – Tolga): 25m B-double route, State controlled road

- Lawson Street / Tolga-Kairi Road / Tinaroo Falls Road / Mark's Lane / Malanda-Atherton Road / Malanda-Millaa Millaa Road / Palmerston Highway: 25m B-double route, State and local roads
- East Evelyn Road (Kennedy Highway – Malanda-Millaa Millaa Road): 25m B-double route, State controlled road
- Kennedy Highway (East Evelyn Road – Mt Garnet): 25m B-double route, State controlled road
- Kennedy Highway (Mt Garnet – The Lynd): Type 1 Roadtrain route, State controlled road

2.8.2 Freight generating industries

2.8.2.1 Mining (including quarries)

The following mines have indirect access to the existing heavy vehicle network and may present HPV opportunities:

- Zinc mine at Mt Garnet with access to Kennedy Highway via Rutile Street
- Limestone mine at Mt Garnet with access to Kennedy Highway via Mica Street, Opal Street and Coolgarra Road
- Tin mine at Mt Garnet with access to Kennedy Highway via Mica Street, Opal Street, Coolgarra Road and Mount Veteran Road
- Quarry at Mt Garnet with access to Kennedy Highway via Nymbool Road
- Quarry near Herberton with access to Herberton-Petford Road via Silver Valley Road
- Tin mine at Mt Garnet with access to Kennedy Highway via Top Nettle Mount Misery Road and Silver Valley Road
- Quarry near Herberton with access to Herberton-Petford Road via Silver Valley Road
- Quarry at Gunnawarra with access to Kennedy Highway via Gunnawarra Road
- Iron ore operations are planned west of Ravenshoe with access to the Kennedy Highway via Wild River Road

The following quarries have indirect access to the existing heavy vehicle network:

- Rock quarry at Ravenshoe which has access to Kennedy Highway via Moore Street, Grigg Street and Monument Street
- Rock and gravel quarry at Wongabel which has access to Malanda-Atherton Road via Hastie Road, Atherton-Herberton Road and Wongabel Road
- Rock quarry at Pearamon with access to Malanda-Atherton Road via Curtain Fig Tree Road and Ball Road

2.8.2.2 Agriculture

The total 2018/19 value of agricultural production in Tablelands is \$333 million. Adding 63% of total value are avocados, bananas, cattle and calves. Milk and nurseries contribute another 15%.

Table 2-11 Value of agricultural commodities 2018/19 - Tablelands

Commodity	\$ (thousand)	%
All other vegetables	\$6,104.9	1.8%
Avocados	\$70,877.6	21.3%
Bananas	\$89,875.4	27.0%
Barley	\$3.8	0.0%

Heavy Vehicle Productivity

Commodity	\$ (thousand)	%
Cattle & calves	\$49,327.1	14.8%
Cut flowers	\$16,294.5	4.9%
Eggs	\$3,885.7	1.2%
Grain sorghum	\$81.7	0.0%
Macadamias	\$432.3	0.1%
Maize	\$3,006.3	0.9%
Mangoes	\$2,020.1	0.6%
Milk	\$25,123.2	7.5%
Nurseries	\$26,617.4	8.0%
Onions	\$77.4	0.0%
Other cereal grains	\$1,660.4	0.5%
Other crops	\$597.3	0.2%
Other fruit & nuts	\$3,764.1	1.1%
Pigs	\$466.7	0.1%
Potatoes	\$12,102.4	3.6%
Poultry	\$8,244.0	2.5%
Pumpkin	\$259.7	0.1%
Strawberries	\$248.4	0.1%
Sugarcane	\$12,037.2	3.6%
Sweet corn	\$18.7	0.0%
Wheat	\$35.9	0.0%
Wool	\$4.1	0.0%
Total agriculture	\$333,167.7	100.0%

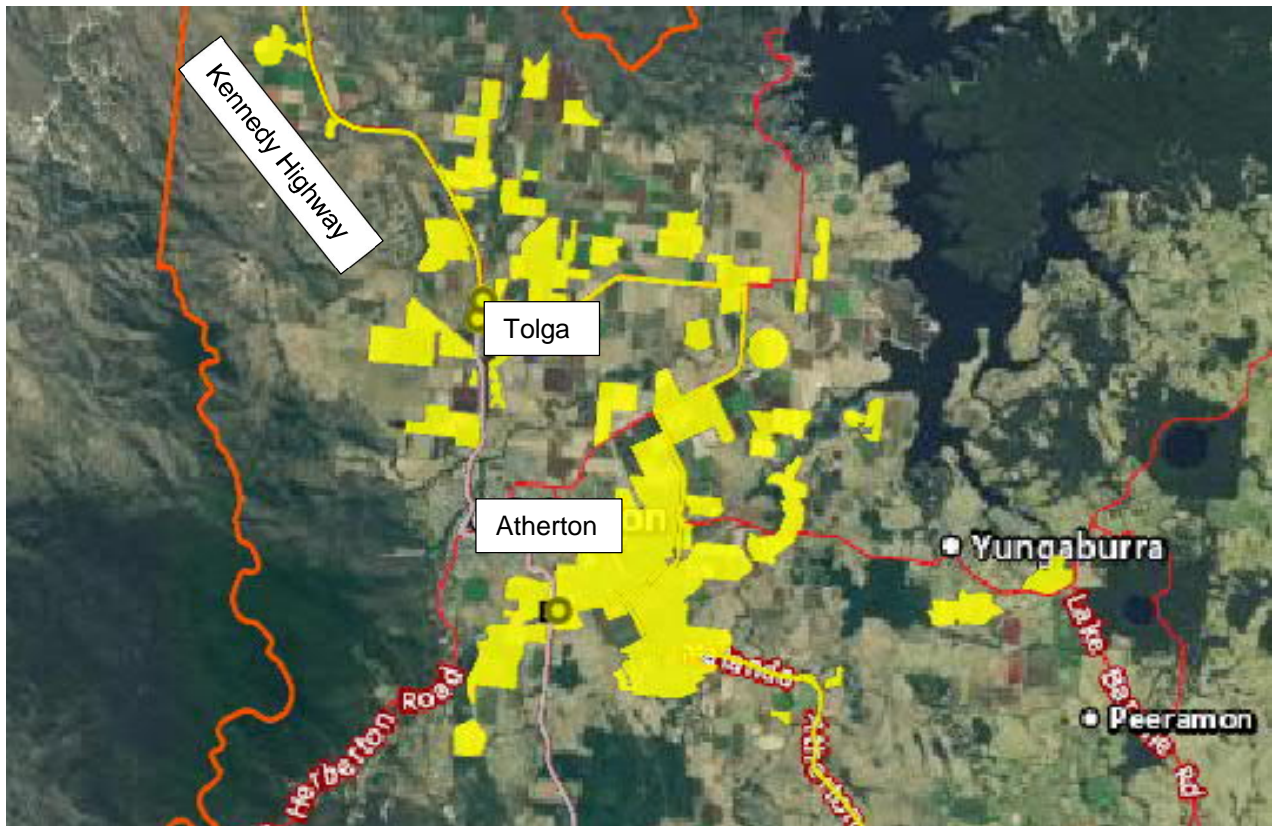
Note: May not total due to commodities valued at less than \$1,000 not included

Sugar cane

The major broadacre crop is sugar cane which is transported by road to the Tablelands Mill in Arriga. Major sugar cane areas are around Atherton and Tolga. These areas are located close to or have direct access to the existing heavy vehicle network

Farms are also located on Herbert River Road south of Innot Hot Springs, and Minnamoolka on Gunnawarra Road. Both areas connect to the Kennedy Highway.

Figure 2-17 Sugar cane areas - Tablelands



Potatoes

The potato growing locations within the Tablelands are unable to be identified.

Avocados

Walkamin and Tolga are the major avocado growing areas in Tablelands. Avocadoes are interspersed with a range of other agricultural commodities, and opportunities are viewed in conjunction with other commodities. Figure 2-13 shows the location of avocado orchards within the combined Tablelands-Mareeba areas. Due to the dispersed nature of orchards and their close proximity to Kennedy Highway, it is unlikely that any roads will present HPV opportunities.

Bananas

Within Tablelands, the major banana growing area is located at Walkamin close to the intersection of the Kennedy Highway and Hansen Road. Due to the close proximity of these farms to the heavy vehicle network, they are unlikely to present any HPV opportunities.

There are also a number of farms at Tolga which access the Kennedy Highway via Mapee Road. Their close proximity to Kennedy Highway means they are unlikely to present any HPV opportunities. Figure 2-14 presented within the analysis of Mareeba shows the location of the farms.

Milk

Milk is processed at the Malanda Dairy factory. Milk is supplied to the factory by 48 farmers spread across the the Atherton Tableland¹³. Mungalli Creek Dairy is a smaller operation located on Brooks Road, connecting to the Palmerston Highway. It is supplied by its own farm and two others within the area.

¹³ Refer <https://dfmc.org.au/lion-marks-malanda-centenary/>.

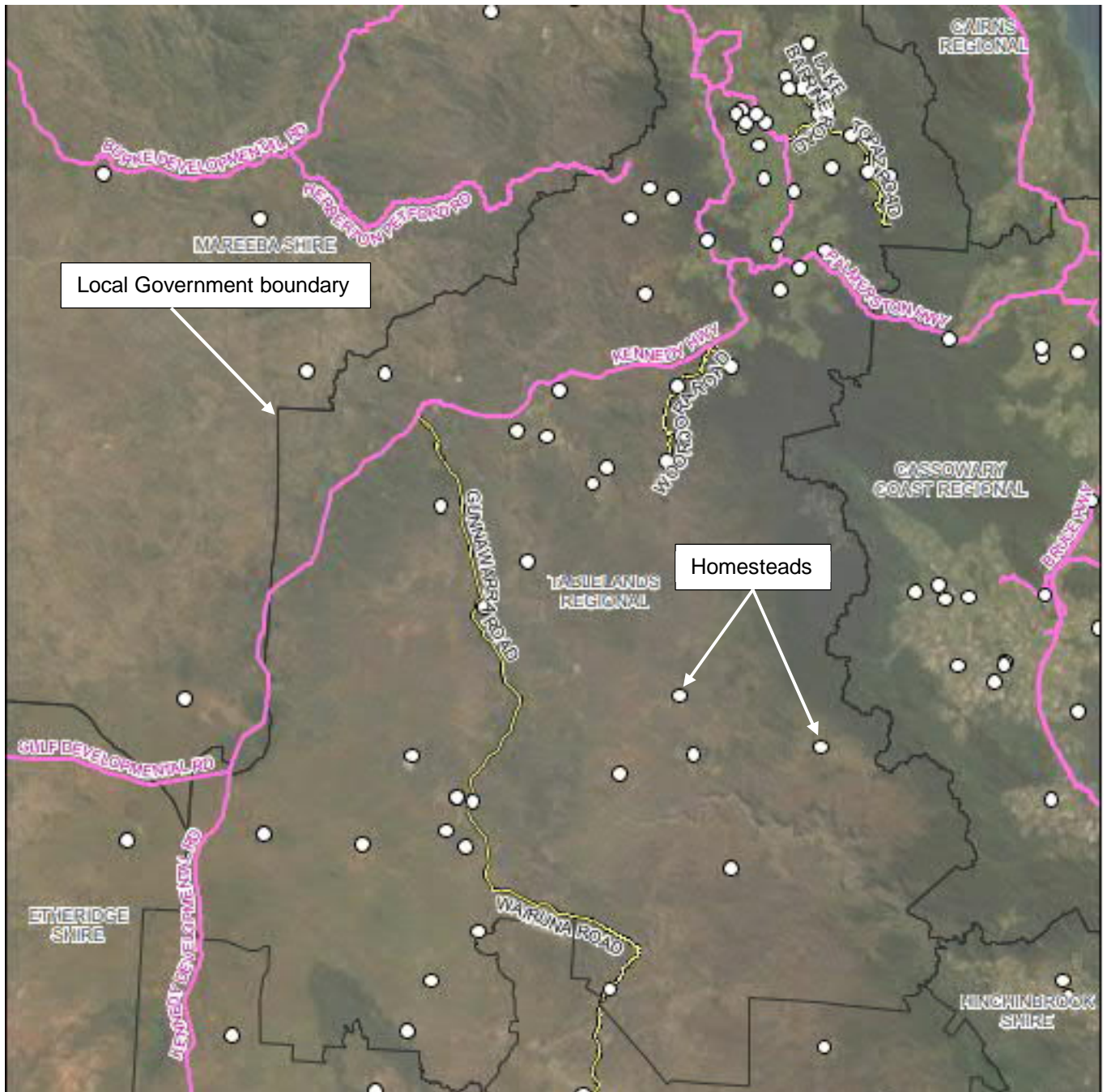
Cattle and calves

The location of homesteads has been taken as the reference point for assessing HPV opportunities. Secondary accesses, while important have not been assessed. The location of main homesteads and the existing road network (both local government and state controlled) is shown in Figure 2-18.

Many homesteads have direct access to the existing heavy vehicle network. Other major roads which connect three or more properties to the heavy vehicle network are:

- Lake Barrine Road/Topaz Road at Yungaburra, Lake Eacham, North Johnstone, Glen Allyn and Topaz
- Gunnawarra Road at Minnamoolka, Gunnawarra and Innot Hot Springs
- Wooroora Road at Millstream and Innot Hot Springs

Figure 2-18 Roads which serve three or more grazing homesteads - Tablelands



2.8.2.3 Aquaculture

Land based aquaculture farms with direct access to the existing heavy vehicle network are:

- Aquaculture operation at Minbun with direct access to Malanda-Millaa Millaa Road

Land based aquaculture farms with indirect access to the existing heavy vehicle network are:

- Aquaculture operation at Walkamin with access to Kennedy Highway via Morganbury Road
- Aquaculture operation at Tolga with access to Kennedy Highway via Frazer Road and Marnane Road
- Aquaculture operation at Lake Barrine with access to Malanda-Atherton Road via Gillies Range Road and Wright's Creek Road

- Aquaculture operation at Upper Barron with access to Malanda-Atherton Road via Upper Barron Road and Stonehouse Road
- Aquaculture operation at Topaz with access to Malanda-Millaa Millaa Road via Lake Barrine Road and Topaz Road
- Aquaculture operation at Kaban with access to Kennedy Highway via Moore Street, Topaz Street, Tumoulin Road and Kaban Road
- Aquaculture operation at Kalunga with access to Malanda-Atherton Road via the Atherton-Herberton Road and Longlands Gap Road

These farms are not expected to present HPV opportunities as singular entities.

A.1.1.1 Forestry and logging

The defined forest area at Millstream (Ravenshoe) has direct access to Kennedy Highway.

The following defined forest areas that may present HPV opportunities:

- Lake Tinaroo, with access to Tolga-Kairi Road via Irvine Street, Tinaroo Falls Dam Road and Danbulla Road
- Atherton with access to Tolga-Kairi Road via the Kennedy Highway and Sims Road
- Atherton with access to Tolga-Kairi Road via Herberton Road and Rifle Range Road
- Atherton with access to Tolga-Kairi Road via the Atherton-Herberton Road
- East Barron with access to Malanda-Atherton Road via the Kennedy Highway
- Moomin with access to Tolga-Kairi Road via the Atherton-Herberton Road
- Millstream, Tumoulin and Kaban with access to Kennedy Highway via Tumoulin Road
- Wondecla with access to Kennedy Highway via Tumoulin Road and Jonsson Road

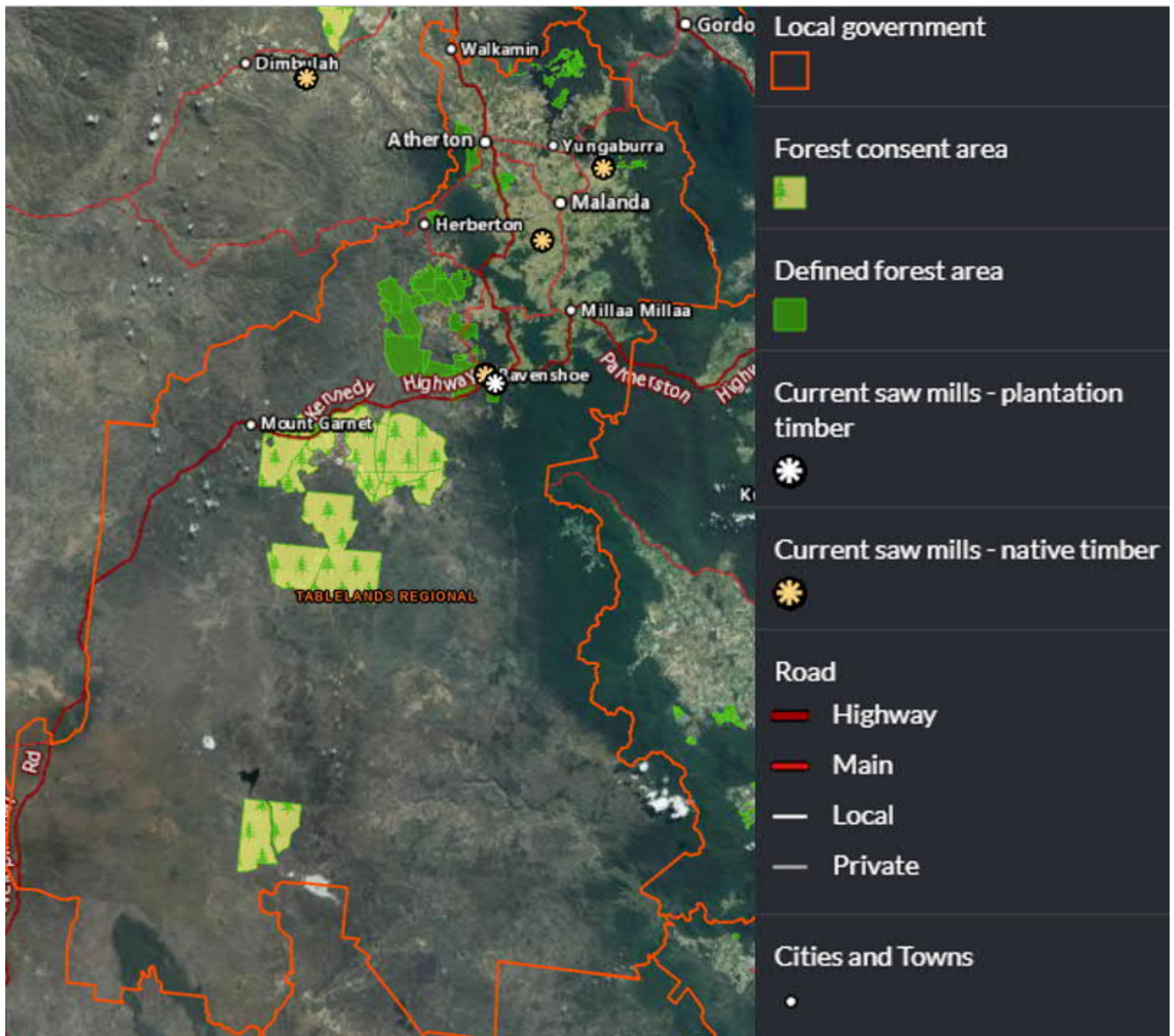
The forest consent areas Innot Hot Springs has direct access to Kennedy Highway.

A forest consent area with potential HPV opportunity is at Innot Hot Springs, Minnamoolka with access to Kennedy Developmental Road via Gunnawarra Road Gunrawarra Road and Glen Dhu Station Road

The following sawmills have indirect access to the existing heavy vehicle network:

- Ravenshoe Timber Mill (planation timber) near Ravenshoe with access to Kennedy Highway via Tully Falls Road
- Millstream timbers (native timber) at Ravenshoe with access to Kennedy Highway via Wakooka Street, Grigg Street and Moore Street
- Small sawmill (native timber) near Lake Eacham with access to Malanda-Millaa Millaa Road at Malanda via James Street, Lake Barrine Road, Moore Road, Russell Road and Fuller Road
- Small sawmill (native timber) at Jaggan with access to Malanda-Millaa Millaa Road (via Landry Road)

Figure 2-19 Forestry areas - Tablelands



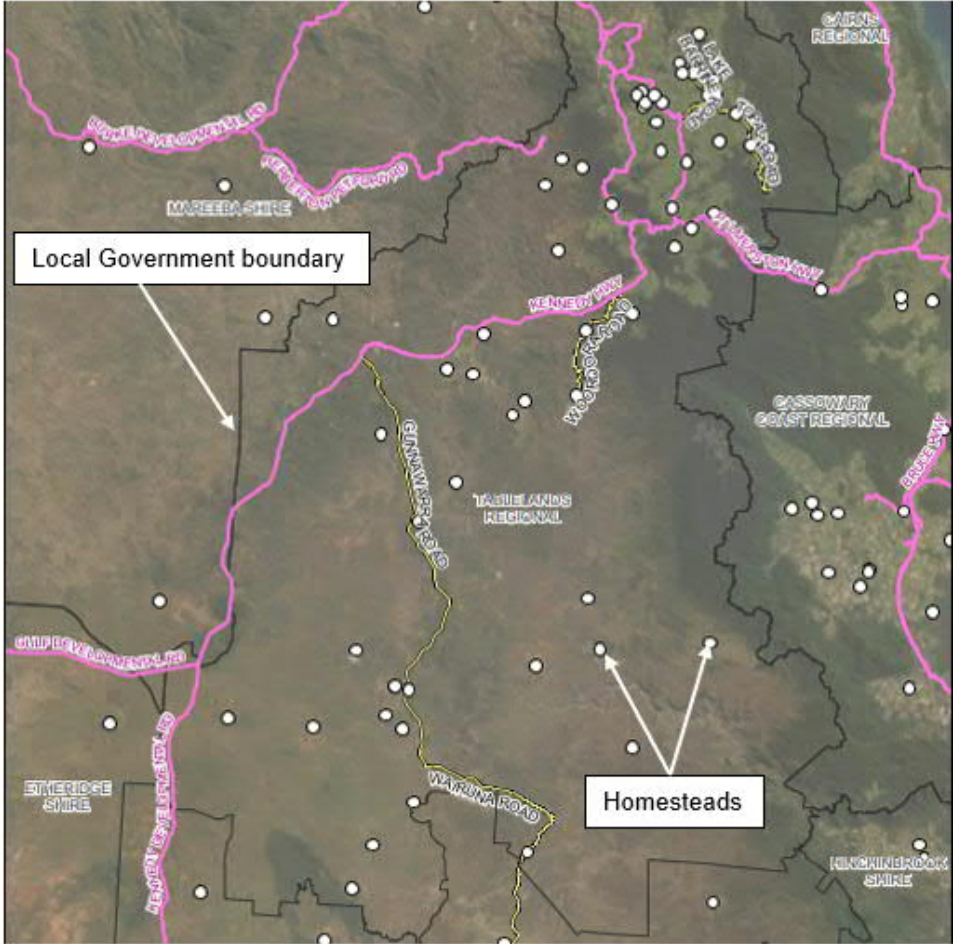
2.8.2.4 Industry summary

A summary of the industry findings of this analysis are detailed in Table 2-12. The Kennedy Highway, particularly to the Gulf Developmental Road intersection, is considered a freight lifeline.


Table 2-12 Key industry findings for Tablelands

Industry sub-group	Conclusions
Mining (including quarries)	<p>The following mines have indirect access to the existing heavy vehicle network and may present HPV opportunities:</p> <ul style="list-style-type: none"> Zinc mine at Mt Garnet with access to the Kennedy Highway via Rutile Street. Limestone mine at Mt Garnet with access to the Kennedy Highway via Mica Street, Opal Street and Coolgarra Road. <p>The following quarries have indirect access to the existing heavy vehicle network and may present HPV opportunities:</p>

Heavy Vehicle Productivity

Industry sub-group	Conclusions
	<ul style="list-style-type: none"> Rock quarry at Ravenshoe which has access to the Kennedy Highway (25m B-double route) via Moore Street, Grigg Street and Monument Street Rock and gravel quarry at Wongabel which has access to the Malanda-Atherton Road (25m B-double route) via Hastie Road, Atherton-Herberton Road and Wongabel Road with an alternate access via Deep Creek Road, Hemmings Lane and Kennedy Highway.
<p>Agriculture – cattle and calves</p>	<p>The following roads which provide access to three or more properties may present HPV opportunities:</p> <ul style="list-style-type: none"> Lake Barrine Road/Topaz Road at Yungaburra, Lake Eacham, North Johnstone, Glen Allyn and Topaz Gunnawarra Road at Minnamoolka, Gunnawarra and Innot Hot Springs Wooroora Road at Millstream and Innot Hot Springs 
<p>Forestry and logging</p>	<p>The following defined forest areas may present HPV opportunities:</p> <ul style="list-style-type: none"> Lake Tinaroo, with access to the Tolga-Kairi Road via Irvine Street, Tinaroo Falls Dam Road and Danbulla Road Atherton with access to the Tolga-Kairi Road via the Kennedy Highway and Sims Road Atherton with access to the Tolga-Kairi Road via the Kennedy Highway and Dawson Road Atherton with access to the Tolga-Kairi Road via the Atherton-Herberton Road and Rifle Range Road Atherton with access to the Tolga-Kairi Road via the Atherton-Herberton Road Wongabei with access to the Tolga-Kairi Road via the Atherton-Herberton Road, Wongabei Road and Deep Creek Road Wongabel with access to the Malanda-Atherton Road via the Kennedy Highway and Pavey Road

Industry sub-group	Conclusions
	<ul style="list-style-type: none"> • Moomin with access to the Tolga-Kairi Road via the Atherton-Herberton Road • Millstream, Tumoulin and Kaban with access to the Kennedy Highway (South of Evelyn) via Kennedy Highway and Tumoulin Road • Wondecla with access to the Kennedy Highway via Tumoulin Road and Jonsson Road <p>There are the following forest consent areas which may present HPV opportunities:</p> <ul style="list-style-type: none"> • Innot Hot Springs, Minnamoolka with access to the Kennedy Developmental Road area via Gunrawarra Road <p>The following sawmills have indirect access to the existing heavy vehicle network and may present HPV opportunities:</p> <ul style="list-style-type: none"> • Ravenshoe Timber Mill (plantation timber) near Ravenshoe with access to the Kennedy Highway via Tully Falls Road • Millstream timbers (native timber) at Ravenshoe with access to the Kennedy Highway via Wakooka Street, Grigg Street and Moore Street • Small sawmill (native timber) near Lake Eacham with access to the Malanda-Millaa Millaa Road at Malanda via James Street, Lake Barrine Road, Moore Road, Russell Road and Fuller Road • Small sawmill (native timber) at Jaggan with access to the Malanda-Millaa Millaa Road (via Landry Road)

Industry sub-group	Conclusions
	 <p>The map displays the Tablelands Region, highlighting the Kennedy Highway (yellow line) running north-south. Key towns and locations marked include Walkamin, Targa, Atherton, Yungaburra, East Barron, Malanda, Jaggan, Tarzali, Wondecla, Millstream, Tumoulin and Kaban, Tumoulin, Ravenshoe, and Millaa Millaa. Several sawmills are indicated with star symbols near East Barron, Jaggan, Ravenshoe, and Tumoulin. Lake Tinaroo is located in the northeast. The region is bordered by the Gulf Developmental Road to the east and the Kennedy Developmental Road to the south.</p>

2.8.3 Freight lifelines

The northern and eastern areas of the Tablelands are connected by the Kennedy Highway (north and south), Gillies Range Road, Malanda-Atherton Road, Malanda-Millaa Millaa Road and the Palmerston Highway. It is also supported by a developed sub-arterial and local road network. The Atherton aerodrome has a grassed runway that mainly caters to sport and recreational aviation aerodrome.

West of Ravenshoe is primarily reliant on the Kennedy Highway, particularly Innot Hot Springs and Mount Garnet. The Kennedy Highway also connects to the Gulf Developmental Road as a key route through to Normanton in Carpentaria, and to the Kennedy Developmental Road through Etheridge Shire. It is subsequently considered a freight lifeline. The gazetted HPV access is consistent with the adjoining network.

2.9 Gulf Savannah (Carpentaria, Croydon and Etheridge)

The Gulf Savannah sub-region encompasses Carpentaria, Croydon and Etheridge local government areas.

2.9.1 Key freight routes

The key freight routes and their access restrictions within the FNQROC sub-region are:

- Gulf Developmental Road (Normanton – Mt Garnet): Type 2 roadtrain route, State controlled road
- Burke Developmental Road (Cloncurry – Dimbulah): Type 2 roadtrain route, State controlled road
- Karumba Developmental Road: Type 2 roadtrain route, State controlled road
- Forsyth Road: Type 2 roadtrain route, State controlled road
- Gregory Developmental Road (Charters Towers – Einasleigh River Bridge): Type 2 roadtrain route, State controlled road
- Kennedy Developmental Road (The Lynd – Hughenden): Type 2 roadtrain route, State controlled road

As presented in Section 2.2, Richmond-Croydon Road is not currently a gazetted heavy vehicle route. It is however is recognised as a key freight route that is becoming increasingly important, and is recommended as a HPV opportunity.

2.9.2 Freight generating industries

2.9.2.1 Mining (including quarries)

Karumba is the export terminal for the Century (Zinc) Mine which is located at Lawn Hill, 250km north-west of Mt Isa. Zinc concentrate is transported by a 304km pipeline to Karumba. At Karumba the zinc concentrate is dewatered and stockpiled prior to being loaded onto a transfer vessel. The transfer vessel then takes the concentrate to export ships anchored in the Gulf of Carpentaria¹⁴.

There are no other major mining operations in the sub-region. There are however several small gold mines in the Georgetown, Forsyth and Croydon areas. Semi-precious stones are mined in a variety of other places within the sub-region. These areas generate minimal heavy vehicle traffic.

The former Golden Gate gold mine is located to the north of Croydon. This mine is currently not in operation, however there has been drilling in recent times.

Most quarries within the sub-region are located beside each of the heavy vehicle routes.

2.9.2.2 Agriculture

The total 2018/19 value of agricultural production across the Gulf Savannah sub-region is \$290 million. Over 99% of the value is generated by cattle and calves.

Table 2-13 Value of agricultural commodities 2018/19 - Carpentaria

Commodity	\$ (thousand)	%
Cattle & calves	\$136,132.2	99.9%
Other cereal grains	\$185.1	0.1%
Other livestock	\$2.0	0.0%
Wool	\$4.4	0.0%
Total agriculture	\$136,325.1	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

¹⁴ <https://www.newcenturyresources.com/century-mine-project/infrastructure/>

Table 2-14 Value of agricultural commodities 2018/19 - Croydon

Commodity	\$ (thousand)	%
Cattle & calves	\$65,508.1	99.4%
Mangoes	\$324.7	0.5%
Other cereal grains	\$31.9	0.0%
Other livestock	\$6.3	0.0%
Pigs	\$1.2	0.0%
Wool	\$3.0	0.0%
Total agriculture	\$65,876.7	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

Table 2-15 Value of agricultural commodities 2018/19 - Etheridge

Commodity	\$ (thousand)	%
Cattle & calves	\$87,082.3	99.4%
Mangoes	\$431.7	0.5%
Other cereal grains	\$42.4	0.0%
Other livestock	\$8.3	0.0%
Pigs	\$1.6	0.0%
Sheep & lambs	\$1.2	0.0%
Wool	\$4.0	0.0%
Total agriculture	\$87,572.3	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

Cattle and calves

Cattle grazing is the major agricultural land use in the Gulf.

The location of homesteads has been taken as the reference point for assessing HPV opportunities. The location of main homesteads and the existing road network (both local government and state controlled) is shown in Figure 2-20.

Many homesteads have direct access to the existing heavy vehicle network. Other major roads which connect three or more properties to the heavy vehicle network are:

Carpentaria Shire

- Lotus Vale-Stirling Road
- Dunbar-Kowanyama Road (note, this road also provides access to Kowanyama)
- Burketown-Normanton Road

Croydon Shire

- Coralie Road
- Esmeralda-Prospect Road
- Claraville-Prospect Road

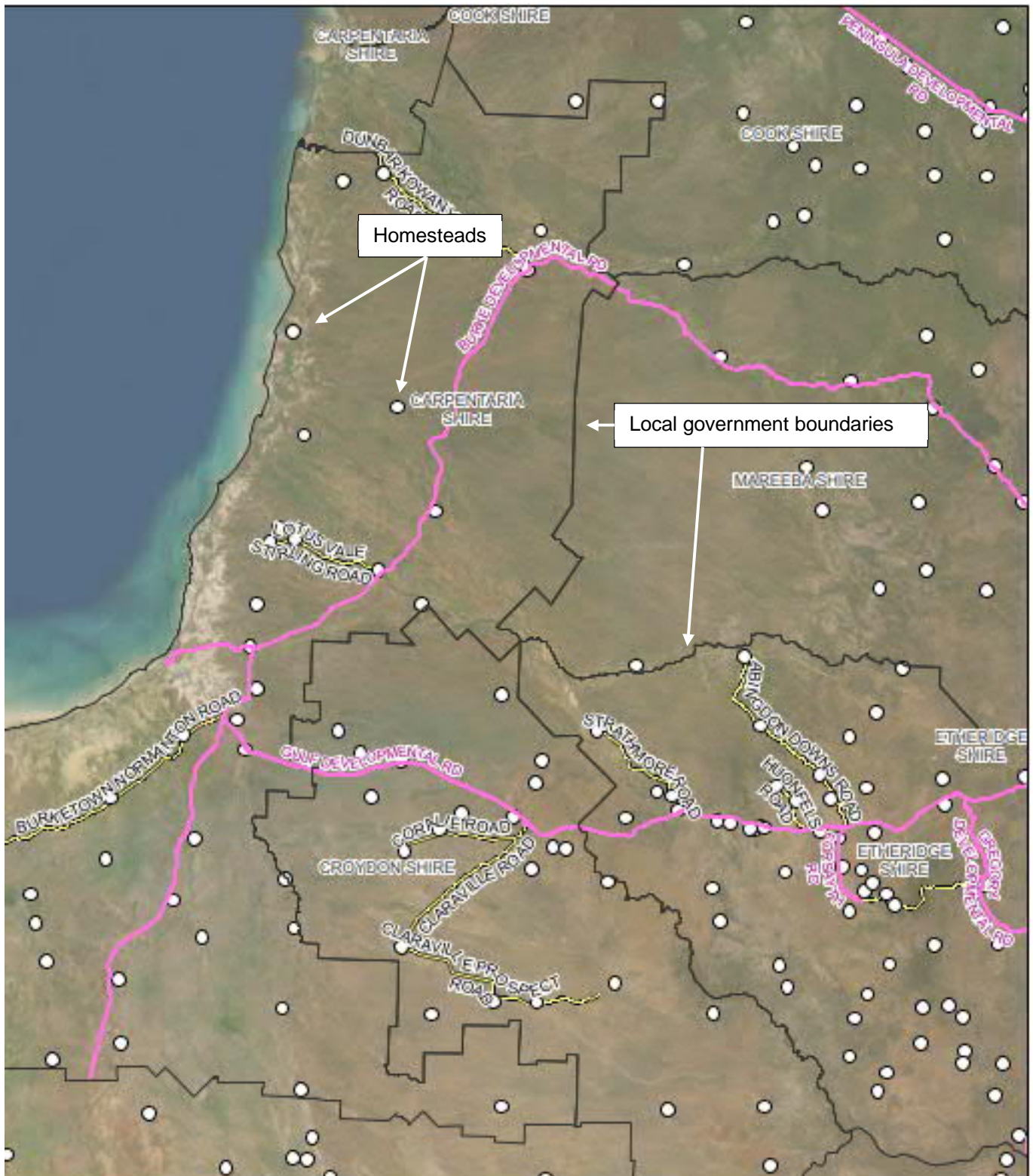
Etheridge Shire

- Abingdon Downs Road

Heavy Vehicle Productivity

- Huonfels Road
- Einasleigh Road
- Strathmore Road

Figure 2-20 Roads which service three or more grazing homesteads - Gulf Savannah



Broadacre cropping

There are areas of dry land broadacre cropping along the banks of the Gilbert River, in Etheridge Shire, to the north of Croydon. Access from these areas to Gulf Developmental Road is via Strathmore Road.

There is an area of irrigated dry land broadacre cropping between Croydon and Georgetown which has direct access to Gulf Developmental Road.

2.9.2.3 Aquaculture

The Barramundi Discovery Centre is in Karumba. It is a hatchery and visitor centre. Fish are bred for restocking local waterways in north-west Queensland. There is direct access to the existing heavy vehicle network via Yapper Street.

2.9.2.4 Forestry and logging

There are two forestry consent areas located either side of Georgetown. The area to the west lies either side of Gulf Developmental Road on the Gilbert River. The area to the east is approximately 7km north of Gulf Developmental Road at Talaroo.

2.9.2.5 Fishing

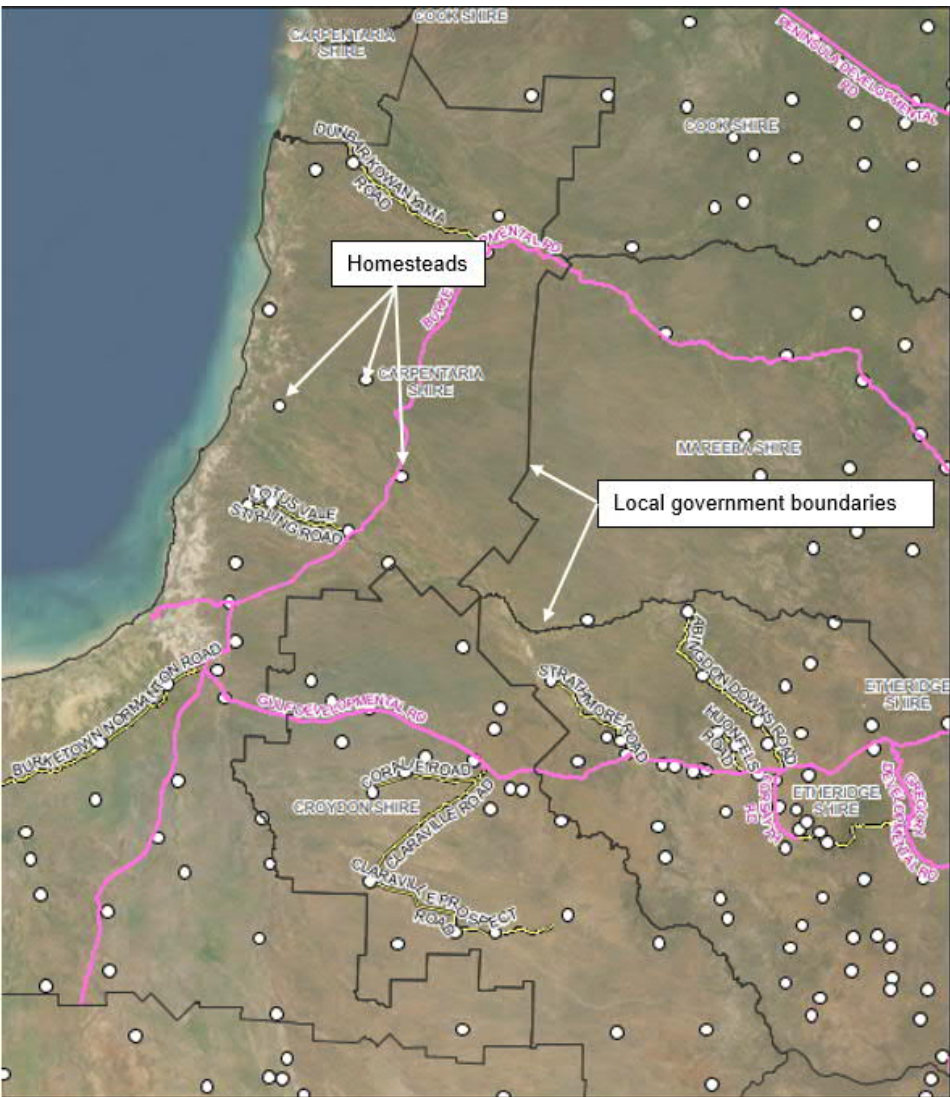
Karumba is the centre for the gulf fishing industry. The major catches are prawns and barramundi. The catch is sold predominantly within the domestic market and transported frozen by road. Port facilities and associated infrastructure are in close proximity to the existing heavy vehicle network.

2.9.2.6 Industry summary

A summary of the industry findings of this analysis are detailed in Table 2-16. All State controlled roads across the Gulf Savannah are considered freight lifelines.

Table 2-16 Key industry findings for Carpentaria, Croydon and Etheridge

Industry sub-group	Conclusions
Agriculture - broadacre cropping	There are areas of dry land broadacre cropping along the banks of the Gilbert River to the north of Croydon. Access to the Gulf Developmental Road is via Strathmore Road. This may present a HPV opportunity.
Agriculture – cattle and calves	<p>The following roads which provide access to three or more properties may provide HPV opportunities:</p> <p>Carpentaria Shire</p> <ul style="list-style-type: none"> • Lotus Vale-Stirling Road • Dunbar-Kowanyama Road (note, this road also provides access to Kowanyama) • Burketown-Normanton Road <p>Croydon Shire</p> <ul style="list-style-type: none"> • Coralie Road • Esmeralda-Prospect Road • Claraville-Prospect Road <p>Etheridge Shire</p> <ul style="list-style-type: none"> • Abingdon Downs Road • Huonfels Road / Mt Turner Road • Einasleigh Road • Strathmore Road

Industry sub-group	Conclusions
	

2.9.3 Freight lifelines

Communities across Gulf Savannah are located on the State controlled network. The long distances between communities means the local road network is under-developed, thereby road freight is reliant on State controlled roads. These are the Gulf Developmental Road, Burke Developmental Road, Karumba Developmental Road, Forsyth Road, Gregory Developmental Road and Kennedy Developmental Road.

The Carpentaria controlled Burketown-Normanton Road connects communities close to the gulf coastline. It allows for freight to be transported through the Port of Karumba to the townships of Normanton and Burketown.

The Gulf Developmental Road has annual average closure times due to flooding:

- Normanton – Croydon 14.4 days
- Croydon – Georgetown 9.2 days
- Georgetown – Mt Garnet 4.6 days

Closure times are unavailable for other roads, however similar closure times are expected.

The Tablelands Rail System is interrupted at Forsayth before reconnecting between Croydon and Normanton. Rail loading facilities are constrained in each township. Airports are located at Normanton, Karumba, Croydon, Forsayth, Einasleigh, Georgetown and Mount Surprise. While air provides the movement of small amounts of critical freight, it comes at a high cost. Karumba is accessible by sea, although journey times are long and costly.

Accordingly, each State controlled road can be considered as a freight lifeline. Each road already has Type 2 roadtrain access. Carpentaria controlled Burketown-Normanton Road can be considered as a freight lifeline and is currently gazetted as general access. This represents a HPV opportunity.

2.10 Cape York (Cook, Hope Vale and Wujal Wujal)

This assessment focuses on Cook, Hope Vale and Wujal Wujal local government areas only. The wider Cape York area also includes Weipa Township, Kowanyama, Pormpuraaw, Mapoon, Napranum, Northern Peninsula area, Lockhardt River and Torres Strait local government areas.

2.10.1 Key freight routes

The key freight routes and their access restrictions within the FNQROC sub-region are:

- Peninsula Developmental Road (Lakeland – Rio Tinto Boundary): Type 2 roadtrain route, State controlled road
- Peninsula Developmental Road (Rio Tinto Boundary to Weipa): Type 1 roadtrain route, Rio Tinto controlled road
- Mulligan Highway (Mt Molloy – Cooktown): Type 1 roadtrain route, State controlled road
- Endeavour Valley Road (Cooktown – Battlecamp Road intersection): Type 1 roadtrain route, State road

2.10.2 Freight generating industries

2.10.2.1 Mining (including quarries)

Mining is the largest employer in Cape York and is mostly concentrated around the operations of Rio Tinto Alcan Weipa (RTAW). RTAW currently exports 30 million tonnes of bauxite annually through the Port of Weipa. The Amrun mine, currently under construction will continue Rio Tinto's operations in the region as Weipa's existing mines approach depletion. Bauxite is not transported by road.

Cape Flattery Silica Mines are located at Cape Flattery approximately 40 kilometres north of Cooktown. There is no road access to the mine site which is serviced by air and sea. Silica is all transported by sea.

Cook Shire identifies¹⁵ Quarry sites at Archer River, Mt Amos, Butchers Hill and Artemis Station. These quarries are unlikely to present HPV opportunities. Details of each of these quarries are:

- Archer River, two sites with access to Peninsula Developmental Road via unnamed road
- Mt Amos, one site on Mt Amos Road, close to Mulligan Highway intersection and two potential sites close by on either side of Mulligan Highway.
- Butchers Hill, a large quarry located close to Mulligan Highway at Lakeland
- Artemis Station, a large quarry which adjoins the Peninsula Developmental Road and Strathgordon Road.

Several other quarries are located beside heavy vehicle routes within the sub-region.

¹⁵ <http://www.cook.qld.gov.au/development/planning/cook-shire-council-planning-scheme/planning-scheme-2017>

2.10.2.2 Agriculture

The combined 2018/19 value of agricultural production of Cook and Hope Vale is \$40 million. The major commodity is cattle and calves, contributing 87% of total value. Data is not available for Wujal Wujal.

Table 2-17 Value of commodities 2018/19 - Cook

Commodity	\$ (thousand)	%
All other vegetables	\$511.2	1.3%
Avocados	\$76.5	0.2%
Bananas	\$1,934.3	4.8%
Cattle & calves	\$34,791.2	87.1%
Grain sorghum	\$56.3	0.1%
Melons (rockmelon & cantaloupe)	\$1,088.1	2.7%
Milk	\$134.8	0.3%
Other cereal grains	\$312.1	0.8%
Other crops	\$36.5	0.1%
Other fruit & nuts	\$954.7	2.4%
Pumpkin	\$34.1	0.1%
Total agriculture	\$39,930.0	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

Table 2-18 Value of commodities 2018/19 – Hope Vale

Commodity	\$ (thousand)	%
All other vegetables	\$5.3	1.3%
Bananas	\$20.2	4.8%
Cattle & calves	\$362.7	87.1%
Melons (rockmelon & cantaloupe)	\$11.3	2.7%
Milk	\$1.4	0.3%
Other cereal grains	\$3.3	0.8%
Other fruit & nuts	\$10.0	2.4%
Total agriculture	\$416.3	100.0%

Note: May not total due to commodities valued at less than \$1,000 not included

Cattle and calves

Cattle grazing is the major agricultural land use in Cape York. Approximately 57 per cent of Cape York is utilised for grazing. Management of grazing stock is predominantly by a wild harvest method, that is, cattle are left wild and harvested every one to two years¹⁶. The majority of livestock is transported via the Peninsula Developmental Road to southern processing facilities and markets.

The location of homesteads has been taken as the reference point for assessing HPV opportunities. Secondary accesses, while important have not been assessed. The location of main homesteads and the existing road network (both local government and state controlled) is shown in Figure 2-21.

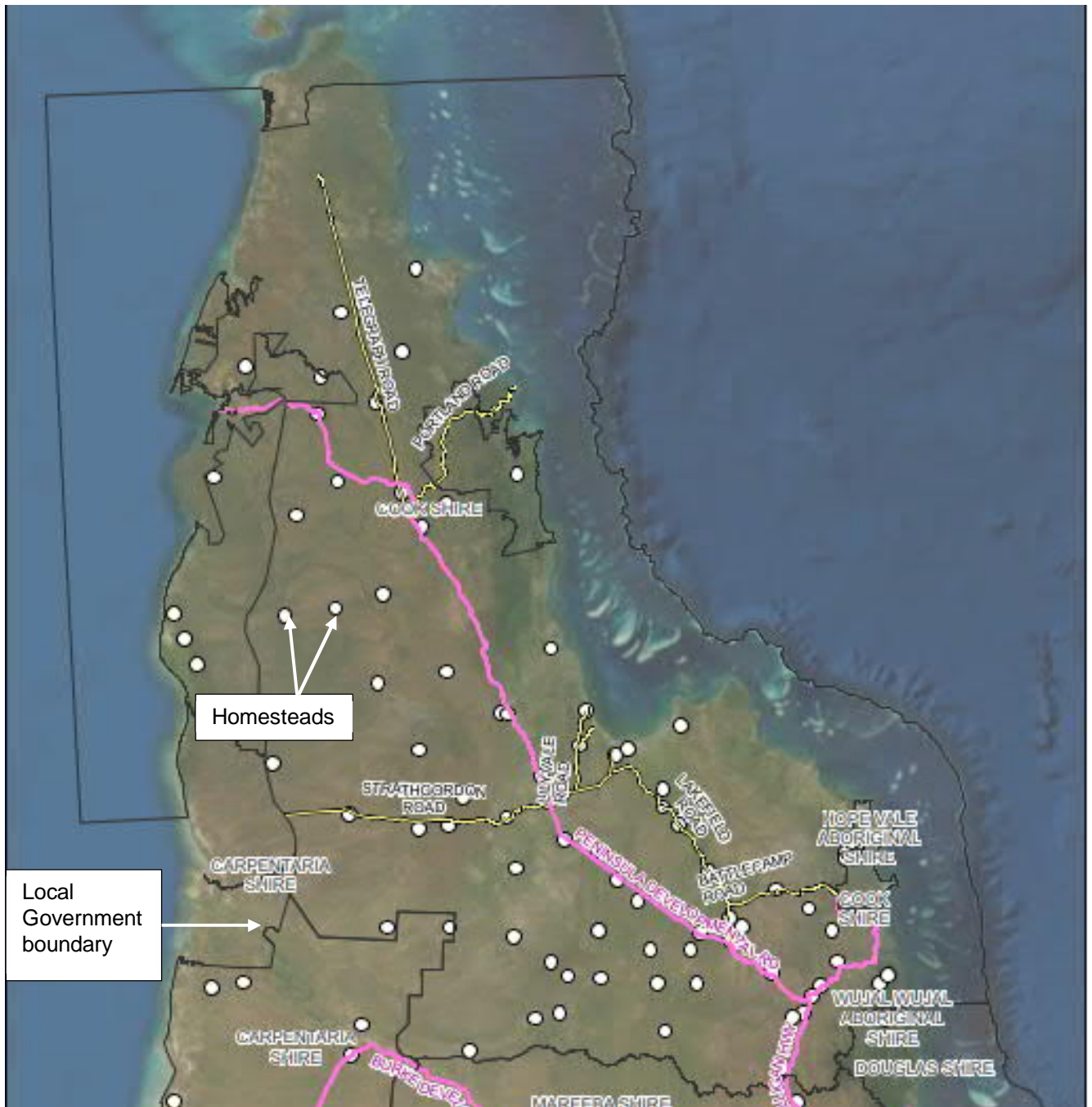
¹⁶ Department of Agriculture and Fisheries 2015 Agricultural Land Audit Chapter 4 – Cape York www.daf.qld.gov.au/__data/assets/pdf_file/0008/69722/QALA-Ch04-Cape.pdf

Heavy Vehicle Productivity

Many homesteads have direct access to the existing heavy vehicle network, i.e. Peninsula Developmental Road and Endeavour Valley Road. Other major roads which connect three or more properties to the heavy vehicle network are as follows. These roads could potentially be considered as HPV opportunities:

- Battlecamp Road
- Lakefield Road
- Endeavour-Battlecamp Road
- Marina Plains Road / Lilyvale Road
- Telegraph Road
- Portland Road (also provides access to Lockhardt River)
- Strathgordon Road

Figure 2-21 Roads which service three or more grazing homesteads - Cape York



2.10.2.3 Aquaculture

There is a land-based aquaculture farm at Lakeland with indirect access to Mulligan Highway via an unnamed road.

2.10.2.4 Forestry and logging

Cape York Timber, an Indigenous-owned business that processes timber at its Cooktown sawmill. This sawmill is located on Endeavour Valley Road on the western side of Cooktown.

Cape York Timber has been granted a 10-year sales permit to harvest 5000 cubic metres of timber annually from state leasehold land until the end of 2028¹⁷. It is unknown where Cape York Timbers will source its timber. There is however a forest entitlement area close to Hope Vale which access Endeavour Valley Road via Murdoch Road and Isabelle McIvor Road and Battlecamp Road.

There is also a large forest entitlement area around Lakeland. This area lies either side of Mulligan Highway.

2.10.2.5 Fishing

There are no commercial fishing fleets based in Cook Shire.


2.10.2.6 Industry summary

A summary of the industry findings is detailed in Table 2-19. The State controlled roads considered to be freight lifelines are the Mulligan Highway, Peninsula Developmental Road, and Endeavour Valley Road can be considered freight lifelines. Portland Road, Strathgordon Road and Aurukun Road are also considered freight lifelines.

Table 2-19 Key industry findings for Cook, Hope Vale and Wual Wujal

Industry sub-group	Conclusions
Agriculture – cattle and calves	<p>The following roads which provide access to three or more properties could potentially be considered as HPV opportunities:</p> <ul style="list-style-type: none">• Battlecamp Road, Lakefield Road, Endeavour-Battlecamp Road, Marina Plains Road, Telegraph Road, Portland Road (also provides access to Lockhardt River), Strathgordon Road

¹⁷ <http://statements.qld.gov.au/Statement/2019/7/19/new-stateowned-timber-resource-to-be-harvested-by-indigenous-company>

Industry sub-group	Conclusions
	

2.10.3 Freight lifelines

Cape York is connected primarily by the Mulligan Highway, Peninsula Developmental Road, and Endeavour Valley Road. Several communities are located directly on the Peninsula Developmental Road, while Cooktown is on the Mulligan Highway. Endeavour Valley Road leads to Hope Vale via the 10km Cooktown McIvor River Road.

The Rossville, Bloomfield and Wujal Wujal communities are connected by Shiptons Flat Road / Rossville-Bloomfield Road from the north. The primary southern access route is the Cape Tribulation Road.

Each community is accessible by air which provides the movement of small amounts of critical freight at high costs. Eastern seaboard communities are serviced by jetties and boat ramps, and can be serviced from Cairns within 48 hours.

While not within FNQROC's boundary, the Lockhart River and Porpuraaw communities are singularly connected to the Peninsula Developmental Road by Portland Road and Strathgordon Road respectively. Similarly, Aurukun is connected to the Peninsula Developmental Road by Aurukun Road. Each road is currently gazetted as general access and subsequently offer HPV opportunities. Consultation with Cook Shire as presented in Section 3.2 confirms that Portland Road and Strathgordon Road are priorities for upgrade.

3. Stakeholder engagement

Stakeholder engagement is designed to obtain information from organisations that provide services directly to road users. From a tourism perspective, this predominantly relates to self-drive routes and links to key tourist locations.

The objectives of the engagement have been to:

- Inform the study's context and objectives
- Seek inputs that assist the study's development
- Gain buy-in of the study's findings and recommendations

The engagement has been undertaken in two ways:

- Direct discussions between FNQROC and key organisations
- The questionnaire presented in Appendix B emailed to key freight operators and freight generator/advocacy and regulatory organisations on 5 July 2019 seeking their input

3.1 Key findings of stakeholder engagement

Table 3-1 presents the key organisations that have been forwarded the questionnaire, along with the status of responses.

A number of stakeholders identified the Kuranda and Gillies Range crossings as limiting access to the key markets.

Livestock and Rural Transporters Assoc of Qld (LRTAQ) also provided detailed information on a number of deficiencies in non-coastal areas. These are discussed in detail in section 3.2.

Concerns about the suitability of the Kuranda Range were also identified in a joint submission by the FNQ Growers and Mareeba Chamber of Commerce to the Queensland Minister for Transport and Main Roads¹⁸. Other road deficiencies identified in this submission were as follows:

- Mareeba Transport identified the need to upgrade Chettle Road (from Dimbulah to Springmount Road). Chettle Road is an existing 25m B-double route.
- Lindsay Transport identified that there is no decoupling site either side of the Kennedy Highway at Kuranda.

The Far North Queensland Agricultural Supply Chain Study¹⁹ also identified Kuranda Range as limiting access to Cairns sea and airports.

¹⁸ Mareeba Chamber of Commerce and FNQ Growers Joint Submission (undated), *Upgrading the Kennedy Highway, Mareeba to Cairns including Kuranda Range Road to improve safety, reliability and freight efficiency*

¹⁹ KPMG, Far North Queensland Agricultural Supply Chain Study - Working Draft Report: Phase One 20 September 2019, prepared for FNQROC

Table 3-1 Proposed stakeholders

Organisation	Organisation type	Contact details	Consultation summary
Ports North	Port Authority	Kevin Malone General Manager (Commercial) 4052 3814	<p>Kevin spoke about Cairns and Mourilyan sea-ports. He advised that the major issue was access from the Tablelands to both ports, in particular Kuranda and Gillies Range crossings. He did not identify any other HPV issues.</p> <p>Major commodities coming into and out of the Cairns sea-port are sugar and molasses and fuel. Cairns has more capacity than Mourilyan with respect to sugar. The sea-port is also a major distribution hub for fertilizer used throughout the region. Fishing is seen as only a minor port industry. The Australian Navy has announced a major expansion at Cairns sea-port.</p> <p>Sugar and molasses are the primary exports from Mourilyan. The port has previously been used for Magnetite and timber.</p> <p>Silica sand is emerging as a major export for both ports. There are sand deposits at various locations including Mount Carbine, Herberton and Cowley Beach.</p> <p>Planning is being undertaken to establish fuel importation, storage and distribution facility at the Port. B-double access is already to the Port, and connects to the Bruce Highway.</p>
Blenners Transport	Freight carrier	Dale Summerville (NQ operations Manager) 0408 182 185 topend@blenner.com.au	Company was contacted by telephone. They advised that the initial email was not received, new email has been sent. The company did not respond.
Qube	Freight carrier	General enquires +61 7 40353360 Ports@qube.com.au	<p>Darren Fuller (Queensland Manager). He advised that they primarily carry cane from farms to the following sugar mills:</p> <ul style="list-style-type: none"> • Victoria and Macknade (Ingham area), • Tully • South Johnstone • Tableland (Arriga west of Mareeba) • Mulgrave (south of Cairns) • Mossman Central Mill <p>He advised that there are access issues associated with cane transport from farms to Mosman Central Mill and to a lesser degree Tableland Mill.</p> <p>He detailed issues such as narrow and/or load limited bridges which restrict B-double access and result in cane having to be carried by single unit trucks. For more specific information, he recommended contacting:</p>

Organisation	Organisation type	Contact details	Consultation summary
			<ul style="list-style-type: none"> Don Fuller (Cane Supply Manager, Mossman Central Mill, 4030 4126) Greg Murphy (Cane Officer, Tablelands Mill, 4048 4207) Several attempts have been made to contact both Don and Greg, these were unsuccessful.
Mainfreight Australia	Freight carrier	Joel Nikeller (Branch Manager) +61 7 4760 6000 or 0437 775 279 Joel.nikeller@mainfreight.com.au	Terri from Mainfreight advised that they carried general freight to larger towns and communities. Terri could not identify any specific HPV issues.
Tong Sing	Freight carrier	General enquires enquiries@tongsing.com.au +61 7 40353636	Carol advised that they only operate single articulated heavy vehicles (i.e. not B-doubles and roadtrains). They carry goods to the Cairns rail head and also distribute fuel from the Cairns sea-port (fuel farm). Carol advised that the major issue was access from the Tablelands to both ports, in particular Kuranda and Gillies Range crossings. She did not identify any other HPV issues.
Livestock and Rural Transporters Assoc of Qld (LRTAQ)	Freight carrier	State Secretariat 1800 079 513 admin@lrtaq.com.au forwarded by LRTAQ to: D&B Smith Brothers Transport PO Box 70 Mt Garnet Qld 4872. Ph. 07 4097 9485 Mob 0428 935455 smithtran@bigpond.com	Bob Smith from D&B Smith provided extensive input on behalf of LRTAQ. This is detailed separately in section 3.3.
NHVR	Freight generator/ advocacy/regulatory	General enquires 1300 MYNHVR (1300 696 487) info@nhvr.gov.au	Dan Casey from NHVR (Daniel.Casey@nhvr.gov.au) advised that it will not be easy to extract location information about routes that were rejected by local governments i.e. unsuitable routes. He will, however, discuss with other staff about locations/routes that they may be aware of and then provide feedback if relevant. No further information has been provided.

Organisation	Organisation type	Contact details	Consultation summary
AgForce Queensland	Freight generator/ advocacy/regulatory	Zachary Whale (Grains Policy Director) WhaleZ@agforceqld.org.au	<p>Zachary Whale is on leave, Maximiliane (Maxie) Hanft covering in his role (HanftM@agforceqld.org.au)</p> <p>Jacobs met with Maxie and Elisa Westmore (WestmoreE@agforceqld.org.au) where they advised:</p> <ul style="list-style-type: none"> • AgForce is hopeful that Gilbert River area (south-west of Georgetown in Etheridge Shire) will be developed as a sorghum growing area. Primary market will be feedlots (i.e. not export). • AgForce members have recently been surveyed and asked to identify roads that need to be upgraded. Results have been received but are yet to be analysed however they did not think there were many issues identified in FNQ. • Most of primary producer exports are through Townsville port. <p>A follow up email has been sent to Maxie and Elisa asking for an update on survey results</p>
Hawkins Transport	Freight carrier	General enquiries +61 7 4033 7452 (Ext 1) cairns@hawkinsqld.com.au	Company was contacted by telephone. Initial email was not received, new email has been sent. Further followup calls have been attempted however no response has been received.
Mareeba Transport	Freight carrier	General enquiries +61 7 4092 1174 enquiries@mareebatransport.com.au	Company was contacted by telephone. They advised that it is yet to be actioned. Note, they are unlikely to provide input.

3.2 FNQROC consultation

Comments provided by FNQROC members are presented in Table 3-2.

Table 3-2 FNQROC member feedback

Local Government	Who	Feedback
Douglas	Michael Kriedemann, Executive Manager Infrastructure	The issue identified for Lower Daintree (Sugar Cane) is not a big issue. The Captain Cook Highway in this section is good quality and provides the access required during the harvesting season.
Tablelands	Darren Quilliam, Design and Technical Officer	Darren Quilliam and Val Shannon provided extensive feedback on HPV opportunities in the Tablelands region. This is detailed separately in Section 3.2.1.
Cook	Amir Akrami Manager, Engineering Infrastructure	Lakefield Road and Telegraph Road are not HPV opportunities because the cattle stations are no longer operational. HPV opportunities provided by council are Battlecamp Road (Cattle station), Endeavour-Battlecamp Road (Cattle Stations), Marina Plains Road / Lilyvale Road (Cattle Stations), Portland Road (Lockhart River, Tourist, Freight, Community access) and Strathgordon Road (Freight /Access to Community / Cattle stations). Additional road council nominated for potential upgrade; Fairview-Palmerville (Cattle station), Dixie Road (Freight /Cattle / Tourist), Kimba Road (Cattle Stations), Kimba-Gamboola Road (Cattle Stations), Bamaga Road (Tourist / Freight / Cattle) and Isabella-Mclvor Road: (Farming / Tourist / Cattle Stations)
Carpentaria	Darlene Irvine, FNQROC Executive Officer	Burketown-Normanton Road is insufficient for road use. It limits industry development and tourism and incurs damage from heavy vehicles during annual wet season.

3.2.1 Detailed feedback from Tablelands Regional Council

Extensive feedback has been provided from the Tablelands Regional Council. The feedback included the identification of several HPV opportunities for agricultural produce due to local knowledge e.g. the location/identification of packing sheds (Table 3-7).

Additionally, they suggested the following HPV opportunities to be removed:

- Sims Road, Dawson Road, Rifle Range Road and Moomin area because of the lack of forestry activities in these defined forestry areas
- Wongabel road through Deep Creek and Hemmings lane as this link would not be suitable for heavy vehicles and would provide no strategic benefit.
- The aquaculture HPV opportunities need further investigation to confirm the sites are still active.

Table 3-7 Additional HPV opportunities in the Tablelands

Road	Area	Industry	Road Type	Comments
Chewko Road First Priority	Walkamin	Bananas Avocadoes Sugar Cane Fruit trees	Sealed double lane	Multiple packing sheds

Road	Area	Industry	Road Type	Comments
O'Connel Road Second Priority	Walkamin	Blueberries Bananas Fruit Trees	Unsealed	Processing plant
Channel Road Second Priority	Walkamin	Sugar Cane Avocado's Bananas Fruit Trees	Sealed double lane	
Mapee Road First Priority	Tolga	Bananas Livestock Fruit Trees	Sealed and Unsealed	Two lane bitumen to unsealed road, bridge over channel Abattoir at end of sealed section Packing shed
Northery Road Second Priority	Tolga	Bananas Avocado's General Agriculture Fruit Trees	Sealed double lane	From Kennedy Hwy to Zappala Rd intersection Multiple packing sheds
Marnane Road Second Priority	Tolga	Blueberries Livestock	Sealed and Unsealed	
Willows Road First Priority	Tolga	Bananas Avocado's General Agriculture Livestock Fruit Trees Sugar Cane	Sealed double lane	To Hall Rd intersection
Beantree Road First Priority	Tolga	Avocado's General Agriculture Sugar Cane Livestock Fruit Trees Blueberries	Sealed double lane	Linkage from Tinaroo Falls Dam Road and Kennedy Highway Access to Industrial Estate from B- double network
Gunnawarra Road First Priority	Gunnawarra	Livestock Sugar Cane Quarry	Sealed and Unsealed	
State Farm Road Second Priority	Kairi	Bananas Avocado's Sugar Cane General Agriculture Livestock	Sealed single lane	From Tinaroo Falls Dam Road to old Walkamin research station Packing shed
Ball Road Second Priority	Peeramon	Quarry Livestock	Sealed double lane	
Glen Allyn Road Second Priority	Malanda	Livestock Tea Milk	Sealed double lane	
Brooks Road Second Priority	Mungalli	Livestock Milk	Sealed single lane	To Mungalli Dairy Factory

Road	Area	Industry	Road Type	Comments
East Barron Road First Priority	East Barron	Sugar Cane Livestock General Agriculture Milk	Sealed double lane	Linkage from Malanda-Atherton Rd and Kennedy Hwy B-double permits already
Kenny Road Second Priority	Minbun	Quarry Milk Livestock	Sealed and Unsealed	
Nymbool Road Second Priority	Mt Garnet	Quarry	Sealed and Unsealed	Load limited timber bridge
Yorka Road Second Priority	Innot Hot Springs	Livestock	Sealed and Unsealed	Provides link between to Kennedy Highway for major rural
Glen Gordon Road Second Priority	Innot Hot Springs	Quarry General Agriculture		Catchment areas

3.3 Feedback from Livestock and Rural Transporters Association of Queensland (LTRAQ)

Extensive feedback was provided from the LTRAQ. This feedback is summarised in the following tables.

3.3.1 Mulligan Highway / Peninsula Developmental Road (Mareeba – Weipa)

The following feedback was received with respect to the Mulligan Highway and Peninsula Developmental Road between Mareeba and Weipa.

Table 3-3 Deficiencies Mulligan Highway / Peninsula Developmental Road

Questions	Route 1	Route 2	Route 3
Origin and destination	Cairns/ Tablelands/ Mareeba to Cape communities and cattle properties along PDR	Cairns/ Tablelands/ Mareeba to Cape communities and cattle properties along PDR as well as Cooktown and farms along Mulligan Highway	Cairns/ Tablelands/ Mareeba to Cape communities and cattle properties along PDR
Known route /infrastructure deficiencies and restrictions	Mulligan Highway (Mt Carbine – Lakeland)	Mulligan Highway (near Mt Molloy)	Peninsula Developmental Road (Little Laura River)
Deficiencies	McLeod River as well as Spring Creek and Kelly St-George Creek bridges which all flood.	Rifle Creek bridge - 3.3m wide single lane bridge which has poor approach visibility (resulting in insufficient time to stop)	Little Laura River single lane bridge
Current HPV access	Type 1 roadtrain	Type 1 roadtrain	Type 2 roadtrain
Current no. of heavy vehicles a week on this route	unknown	unknown	Unknown
Preferred HPV access	Type 2 roadtrain	Type 1 roadtrain	Type 2 roadtrain

Type of freight/commodity type being carried	Cattle and feed, general freight and also cane during cane season	Cattle and feed, general freight and also cane during cane season	Cattle and feed, general freight and minerals and mining supplies
What are the immediate benefits for your operations if the route is upgraded	Trailers could be broken down at Mt Molloy, thus reducing additional travel time associated with carrying each trailer separately.	If upgraded this would improve safety	If upgraded this would improve safety and improve access during the wet season.
What are the longer term benefits for your operations if the route is upgraded	No information provided	No information provided	No information provided
Additional comments	Nil	Nil	Nil

Figure 3-1 Deficiencies Mulligan Highway / Peninsula Developmental Road



3.3.2 Burke Developmental Road and Palmerville Road

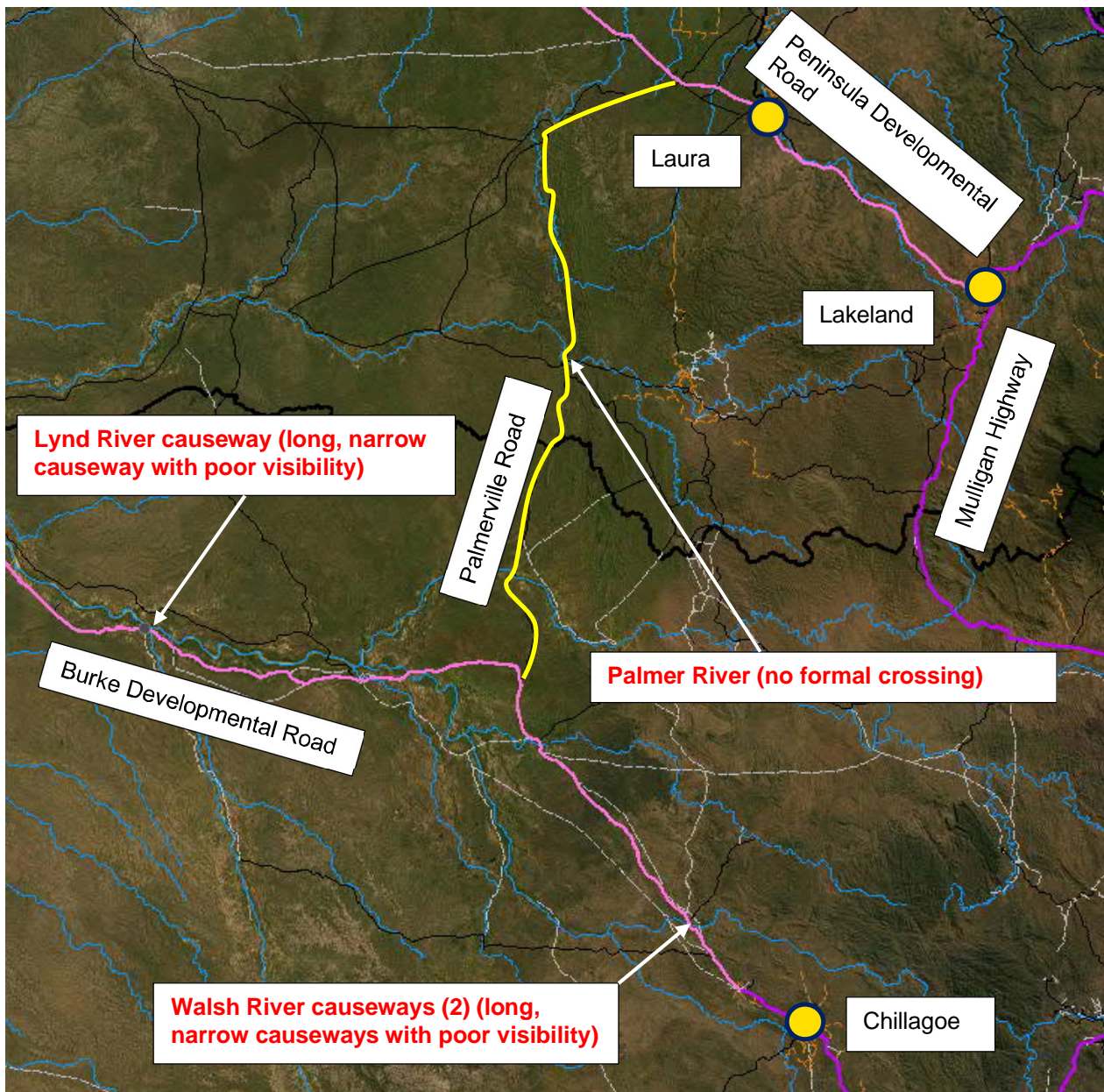
The following feedback was received with respect to the Burke Developmental Road and Palmerville Road.

Table 3-4 Deficiencies Burke Developmental Road / Palmerville Road

Questions	Route 4	Route 5
Origin and destination	Southern origins to Chillagoe, Kowanyama and cattle properties	Southern origins to Cape communities and cattle properties along PDR
Known route /infrastructure deficiencies and restrictions	Burke Developmental Road (Chillagoe – Dunbar section)	Palmerville Road (Laura – Mount Mulgrave)

Questions	Route 4	Route 5
Deficiencies	Walsh River causeways (2) and Lynd River causeway. Long, narrow causeways with poor visibility on some approaches	Palmer River, no formal crossing – vehicles have to use riverbed. Other sections of road in poor condition
Current HPV access	Type 2 roadtrain	Unknown
Current no. of heavy vehicles a week on this route	unknown	Unknown
Preferred HPV access	Type 2 roadtrain	Type 2 roadtrain
Type of freight/commodity type being carried	General freight and cattle and feed	General freight
What are the immediate benefits for your operations if the route is upgraded	If upgraded this would improve safety	Improved access to Cape communities from the south
What are the longer term benefits for your operations if the route is upgraded	No information provided	No information provided
Additional comments	This section along with the Dunbar-Kowanyama Road provides access to Kowanyama from the south	Nil

Figure 3-2 Deficiencies Burke Developmental Road / Palmerville Road



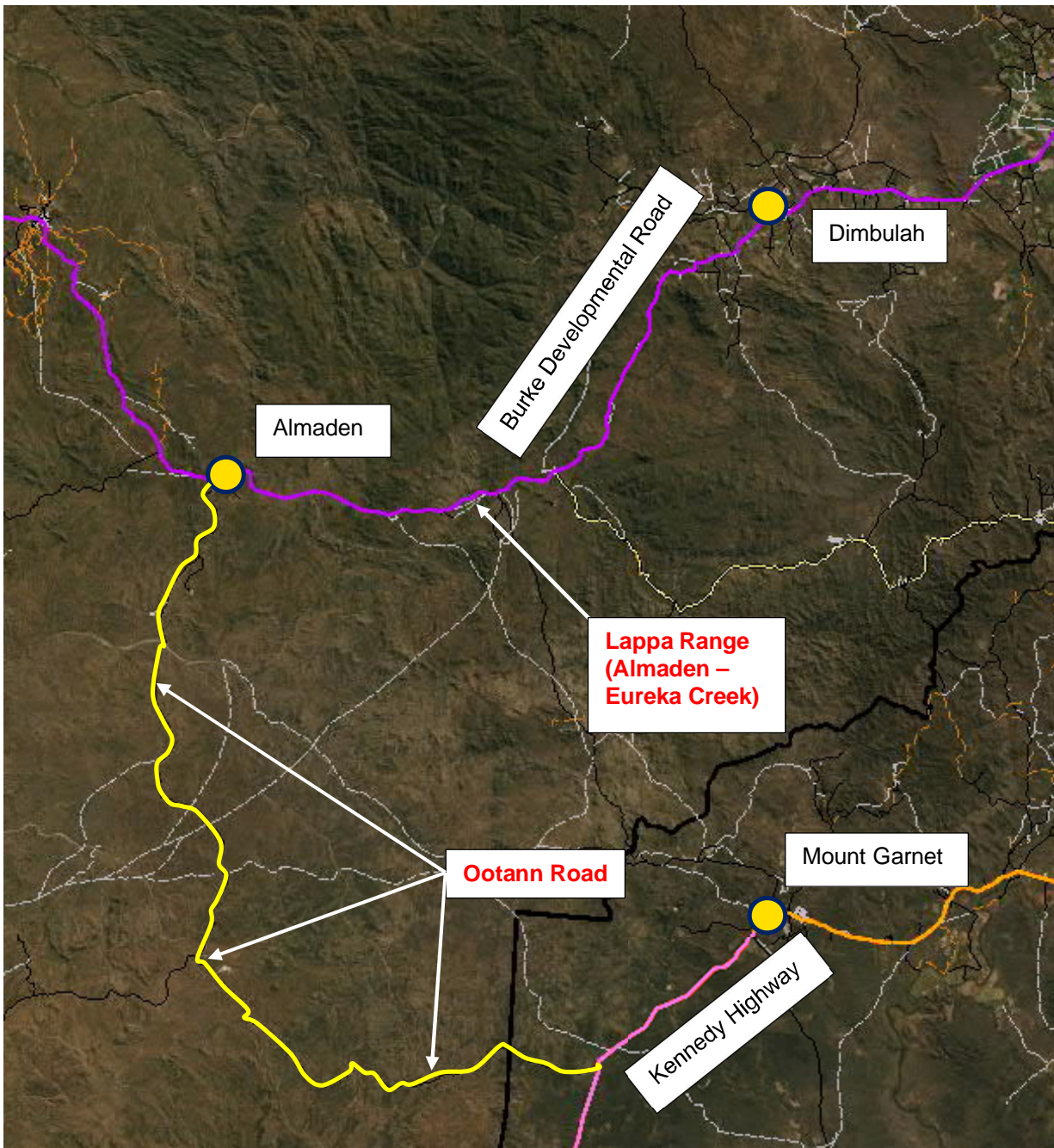
3.3.3 Ootann Road / Burke Developmental Road

As Type 2 roadtrain access on the Kennedy Highway ends at Mount Garnet, upgrading Ootann Road will see roadtrains continue to Almaden. Type 1 roadtrains can then run between Almaden and Mareeba via the Burke Developmental Road.

Table 3-5 Deficiencies Ootann Road / Burke Developmental Road

Questions	Route 6	Route 7
Origin and destination	Central Highlands to Atherton Tablelands grain suppliers as well as improved access to Chillagoe, Kowanyama etc	Central Highlands to Atherton Tablelands grain suppliers
Known route /infrastructure deficiencies and restrictions	Ootann Road (Kennedy Highway – Burke Developmental Road)	Burke Developmental Road (Lappa Range located between Almaden – Eureka Ck)
Deficiencies	Type 2 roadtrain access on the Kennedy Highway ends at Mount Garnet. Upgrading and sealing Ootann Road Needs will see Type 2 roadtrain access continue to Almaden. Type 1 roadtrains can run between Almaden and Mareeba via the Burke Developmental Road.	Lappa Range section needs to be widened. This would allow Type 2 roadtrains to travel closer to Mareeba before being broken down
Current HPV access	Currently gazetted as general access	Type 1 roadtrain
Current no. of heavy vehicles a week on this route	unknown	Unknown
Preferred HPV access	Type 2 roadtrain	Type 2 roadtrain
Type of freight/commodity type being carried	Cattle, general freight and grain	Cattle, general freight and grain
What are the immediate benefits for your operations if the route is upgraded	Reduce costs, trailers must currently be broken down north of Chillagoe	Reduce costs, trailers must currently be broken down north of Chillagoe (Burke Developmental Road) and Mt Garnet (Kennedy Highway). Estimated savings of 2 hours per trip.
What are the longer term benefits for your operations if the route is upgraded	Improved access to Atherton Tablelands and to Chillagoe and Kowanyama	Estimated 50-80% drop in heavy vehicles on Kennedy Highway.
Additional comments	Atherton / Tolga is a major grain supply hub for feedlots, dairies and poultry farms.	

Figure 3-3 Deficiencies Ootann Road / Burke Developmental Road



3.3.4 Gulf Developmental Road (Kennedy Highway – Normanton)

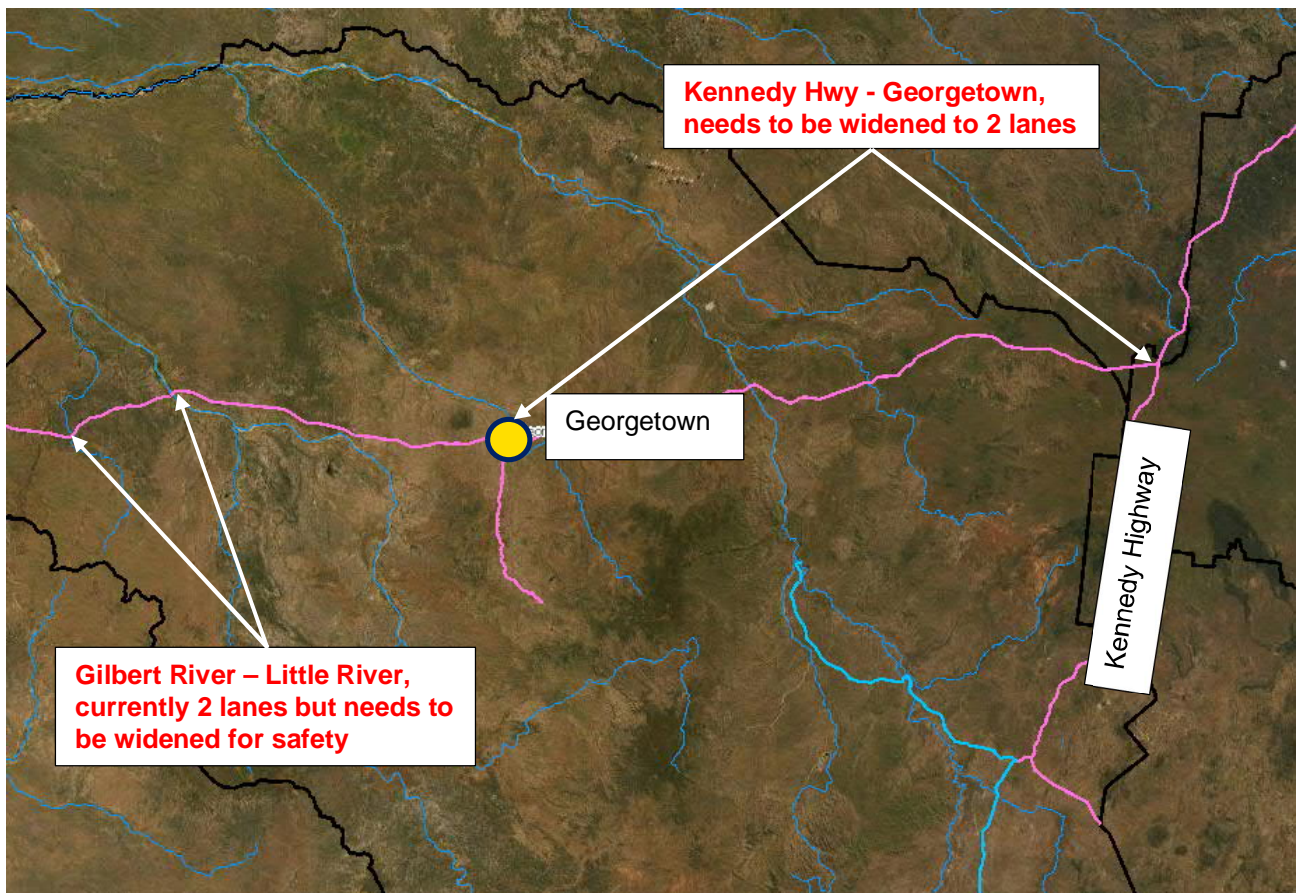
The following feedback was received with respect to the Gulf Developmental Road between the Kennedy Highway and Normanton.

Table 3-6 Deficiencies Gulf Developmental Road

Questions	Route 8	Route 9
Origin and destination	Cairns/ Tablelands/ Mareeba to Normanton and other gulf communities, mines and cattle properties	Cairns/ Tablelands/ Mareeba to Normanton and other gulf communities, mines and cattle properties

Questions	Route 8	Route 9
Known route /infrastructure deficiencies and restrictions	Gulf Developmental Road (40 mile scrub (Kennedy Highway intersection) – Georgetown)	Gulf Developmental Road (Gilbert River bridge – Little River)
Deficiencies	Needs to be 2 lane bitumen over full length (lanes also need to be sufficiently wide enough for heavy vehicle traffic)	Road is two lane bitumen but narrow, needs to be widened for safety)
Current HPV access	Type 2 roadtrain	Type 2 roadtrain
Current no. of heavy vehicles a week on this route	unknown	Unknown
Preferred HPV access	Type 2 roadtrain	Type 2 roadtrain
Type of freight/commodity type being carried	Cattle and feed, general freight and minerals and mining supplies	Cattle and feed, general freight and minerals and mining supplies
What are the immediate benefits for your operations if the route is upgraded	If upgraded this would improve safety	If upgraded this would improve safety
What are the longer term benefits for your operations if the route is upgraded	No information provided	No information provided
Additional comments	Nil	Nil

Figure 3-4 Deficiencies on Gulf Developmental Road



3.3.5 Gregory Developmental Road (Harvey Range Road – Greenvale)

The following feedback was received with respect to the Gregory Developmental Road between Harvey Range Road and Greenvale.

Table 3-7 Deficiencies Gregory Developmental Road

Questions	Route 10
Origin and destination	Cairns/ Tablelands/ Mareeba to Communities in Etheridge and other western shires, mines and cattle properties
Known route /infrastructure deficiencies and restrictions	Gregory Developmental Road (Harvey Range Road – Greenvale)
Deficiencies	Single lane bridges at 8 Mile Creek and 20 Mile Creek.
Current HPV access	Type 2 roadtrain
Current no. of heavy vehicles a week on this route	Unknown
Preferred HPV access	Type 2 roadtrain
Type of freight/commodity type being carried	Cattle and feed, general freight and minerals and mining supplies

Questions	Route 10
What are the immediate benefits for your operations if the route is upgraded	If upgraded this would improve safety
What are the longer term benefits for your operations if the route is upgraded	No information provided
Additional comments	ICON (quad) vehicles also run on this road

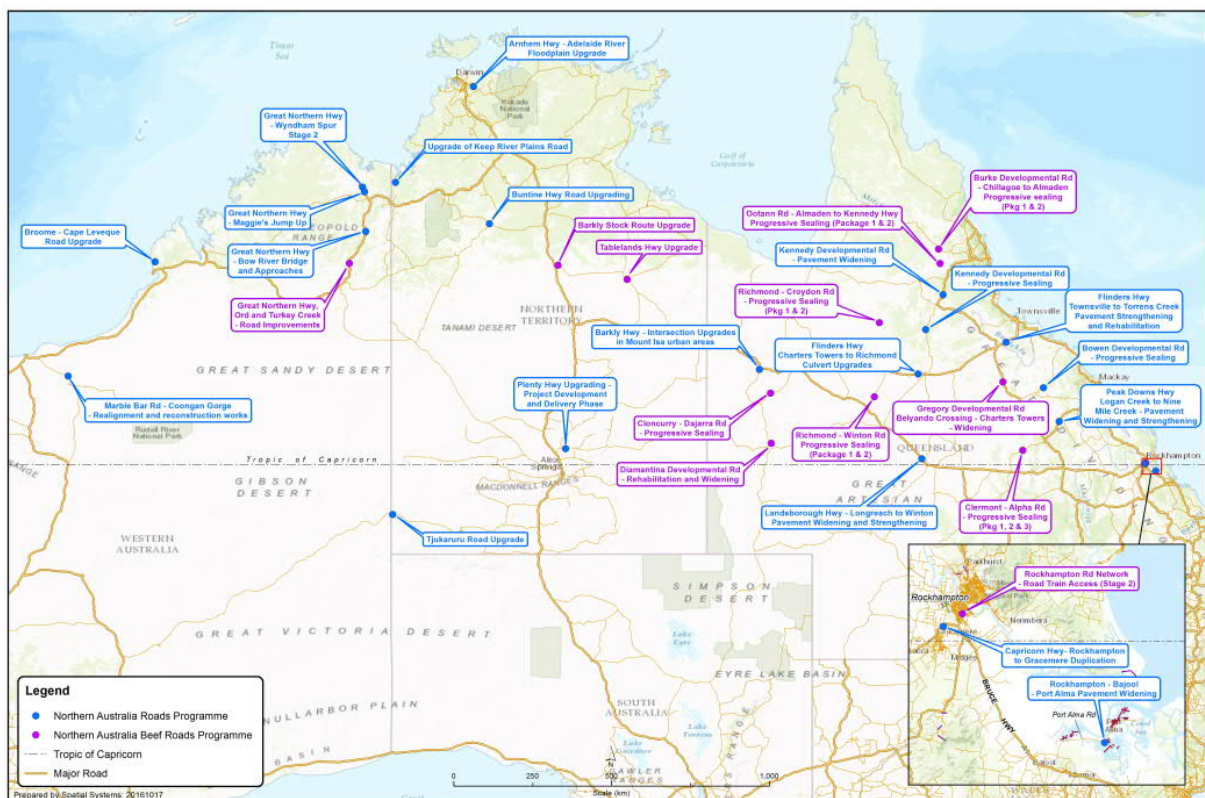
4. Beef roads

The Australian Government announced projects to be funded under the Northern Australia Beef Roads Program in October 2016. The \$100 million program is making targeted upgrades to key roads necessary for transporting cattle to improve the reliability, productivity and resilience of cattle supply chains in northern Australia, thereby reducing freight costs and strengthening links to markets. The region's heavy vehicle road network supports the mining and agricultural industries and can be a significant component of the cost to deliver goods and services to customers - the cost of transport for livestock from Northern Australia can be up to 35% of the market price.

To help identify priority projects, the Australian Government actively engaged with key stakeholders, including members of the northern Australian beef and transport industries, through a series of stakeholder roundtables held in Rockhampton, Kununurra and Darwin throughout late in 2015 and early in 2016.

The Australian Government will fund up to a maximum of 80 per cent of the total project cost in partnership with the state, territory and local governments. Funding is available over three years from the 2016 to 2017 financial year to the 2019 to 2020 financial year. The projects are illustrated in Figure 4-1.

Figure 4-1 Northern Australia Roads and Beef Roads programmes²⁰



The CSIRO analysed and modelled the different scenarios put forward by state, territory and local governments using the Transport Network Strategic Investment Tool (TraNSIT) to determine the extent of benefits to the movement of cattle and assist in the prioritisation of projects²¹.

Table 4-1 presents a summary of the CSIRO's findings and the recommended action.

²⁰ https://investment.infrastructure.gov.au/files/northern_australia_roads_programme/NARB.pdf

²¹ <https://publications.csiro.au/rpr/download?pid=csiro:EP161298&dsid=DS3>

Table 4-1 FNQROC routes assessed by CSIRO

Route	Proposed works	Savings per annum	Recommended action
Almaden-Gingerella Road/ Ootann Road	Continuation of sealing	\$88,343	Included in HPV assessment as sealed, Type 2 roadtrain
Richmond-Croydon Road	Sealing unsealed sections	\$305,964	Included in HPV assessment as sealed, Type 2 roadtrain
Burke Developmental Road	Sealing unsealed sections between Mareeba and Normanton	\$2,350	Narrow seals incorporated within the Heavy Vehicle Route Assessment (unsealed sections not treated as a deficiency)
Burke Developmental Road	Widening sections between Cloncurry and Normanton	\$32,244	Incorporated within the Heavy Vehicle Route Assessment
Partial Mareeba Bypass	Linking the Mulligan Highway to the Burke Developmental Road	\$4,388	Recommended for Preliminary Area Study
Gulf Developmental Road	Widening sections between Mt Garnet and Normanton Road	\$1,444	Incorporated within the Heavy Vehicle Route Assessment
Kennedy Highway	Sealing unsealed sections of the Mt Garnet to Winton Road, and upgrading to Type 2 roadtrain	\$79,070	Planning currently being undertaken by TMR

5. Gaps in heavy vehicle connectivity

This section continues the analysis of routes that present a barrier to HPV connectivity across the wider road network. These routes are often long distances, and require consideration of the following points:

- High levels of deficiencies are possible (particularly in areas of difficult terrain conditions), requiring very large investments that are difficult to quantify without detailed assessments
- Low heavy vehicle volumes make it harder to justify large investments solely targeting heavy vehicle access
- High passenger vehicle volumes require large safety related investment because of mixing with heavy vehicles e.g. overtaking lanes, extra widening

Table 5-1 presents a summary of the identified connectivity gaps and the recommended action.

Table 5-1 Connectivity summary

Route	Restriction	Traffic demand	Expected reason for restriction	Recommendation
Gregory Developmental Road- Gulf Developmental Road to Forsyth (Forsyth-Einasleigh Road)	No roadtrains or B-doubles	10 – 40 vehicles/day 10 heavy vehicles/day	Structures	Requires uplift in heavy vehicle traffic to be viable. Regular monitoring of traffic counts and structures condition recommended.
Herberton-Petford Road	No roadtrains or B-doubles	30 vehicles/day 3 heavy vehicles/day	Geometry	Not viable because of low heavy vehicle traffic compared to high horizontal/vertical geometry costs.
Kennedy Highway (Mt Garnet – Ravenshoe)	No roadtrains	900 vehicles/day 200 heavy vehicles/day	Geometry	Very high safety-related and geometry costs. Recommended for detailed study to determine viability of increasing access to Type 1 or 2 roadtrain (including impact of upgrading Ootann Road as a roadtrain route) .
Mossman-Mt Molloy Road	23m B- doubles only	1000 vehicles/day 180 heavy vehicles/day	Geometry	Very high costs due to extreme terrain and safety-related treatments. Recommended for detailed study to determine viability of increasing access to 30 metre A-double.
Captain Cook Highway (Mossman – Cairns)	23m B- doubles only	5500 vehicles/day 440 heavy vehicles/day	Geometry	High horizontal geometry and safety-related costs due to high traffic volume that includes tourist vehicles. Recommended for detailed study to determine safety implications of increasing vehicle length beyond 23 metre B-double access.

Route	Restriction	Traffic demand	Expected reason for restriction	Recommendation
Burke Developmental Road (Mungana – Mareeba)	No Type 2 roadtrains	200 – 1600 vehicles/day 50 – 250 heavy vehicles/day	Geometry, structure widths	Recommended for detailed study to determine viability of increasing access to Type 2 roadtrain (including impact of upgrading Ootann Road as a Type 2 roadtrain route).
Kennedy Highway (Speewah to Smithfield)	No roadtrains or B-doubles	6000 – 9000 vehicles/day 400 – 1200 heavy vehicles/day	Geometry	Very high costs due to extreme terrain and safety-related treatments. Recommended for detailed study to determine safety implications of allowing B-double access.
Gillies Range Road/ Gillies Highway	No roadtrains or B-doubles	4300 – 4500 vehicles/day 300 – 450 heavy vehicles/day	Geometry	Very high costs due to extreme terrain and safety-related treatments. Recommended for detailed study to determine safety implications of allowing B-double access.
Kennedy Highway (Atherton to Evelyn)	No roadtrains or B-doubles	1600 vehicles/day 250 heavy vehicles/day	Geometry	High vertical geometry costs. Alternative B-double route via Malanda is approx. 10 mins longer. Regular monitoring of traffic counts on alternative route recommended.
Endeavour-Battlecamp Road (Endeavour Valley Road to Isabella-Mclvor Road)	No roadtrains or B-doubles	80 vehicles/day 10 heavy vehicles/day	Unknown	Included in HPV assessment.
Almaden-Gingerella/Ootann Road	No roadtrains or B-doubles	590 vehicles/day 380 heavy vehicles/day	Unknown	Included in HPV assessment.
Richmond-Croydon Road	No roadtrains or B-doubles	50 vehicles/day 12 heavy vehicles/day	Unknown	Included in HPV assessment.

6. HPV opportunity assessment

The previous sections of this report have identified a long list of roads that show elements of being a HPV opportunity. These are consolidated within Appendix B.

The principle of efficient infrastructure investment dictates that the economic and social benefits of upgrading a road should at least match the expenditure. While each of the roads within the longlist show characteristics of being HPV investment opportunity, a filtering process has been applied to highlight those roads with greater potential. The process is illustrated Figure 6-1 and explained in Table 6-1.

Figure 6-1 Selection process for shortlisting opportunities

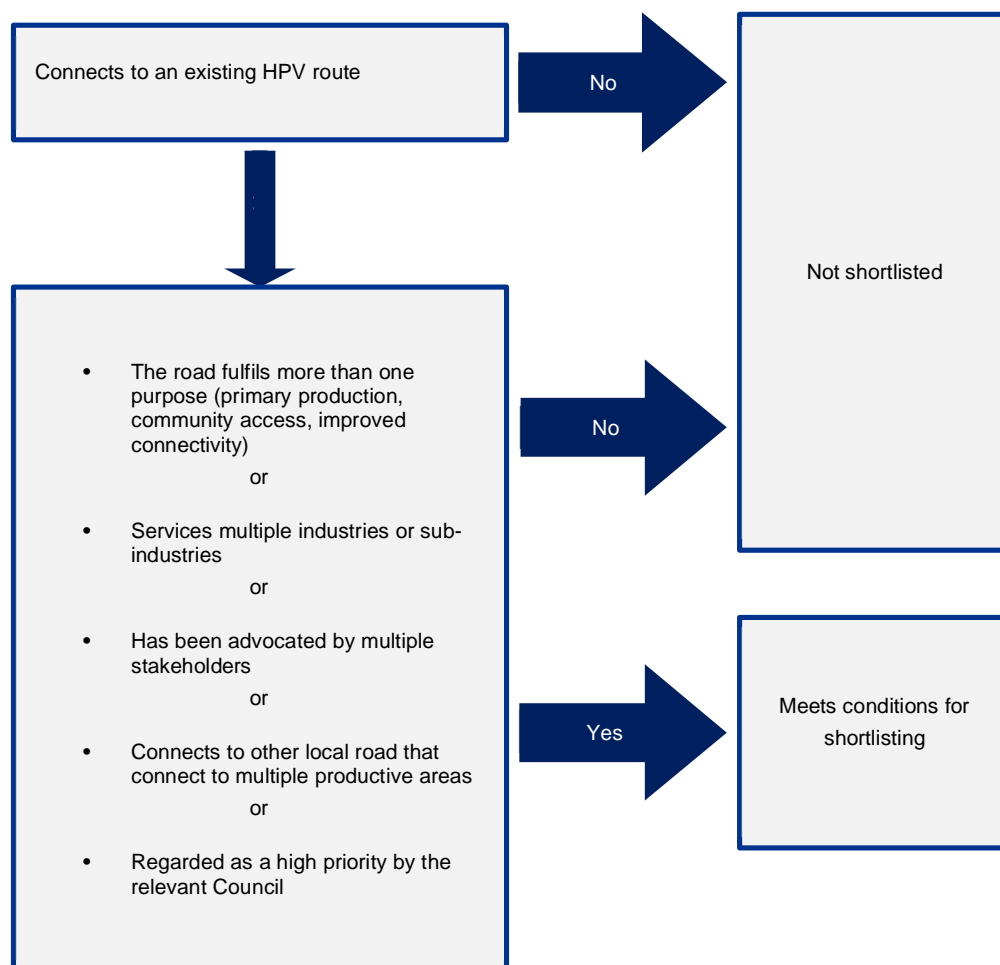


Table 6-1 Shortlisting conditions and reasoning

Conditions	Reasoning
The road connects to an existing HPV route	Upgrading an isolated section of road (which does not connect to the rest of the HPV network) will not improve overall connectivity
The road fulfils more than one purpose	Provides a wider range of benefits e.g. facilitates key primary production industries, improves access to remote communities, improves connectivity that increase the efficiency of the overall freight network
The road services multiple industries or sub-industries	Upgrading will support multiple local industries and sub-industries e.g. both livestock and sugarcane
The road has been advocated by multiple stakeholders	Upgrading will deliver benefits for a wider range of stakeholders
The road connects to other local roads that lead to multiple productive areas	The HPV opportunity is a key connection to multiple productive areas and would promote the future extending of the HPV network into these areas
The road is deemed a high priority by the relevant Council	Advocated as a high priority strategic link to primary production areas

6.1 Shortlisted HPV opportunities

The HPV opportunities are presented as Performance Based Standards (PBS) access levels. Administered by the National Heavy Vehicle Regulator²², PBS defines a minimum standard of infrastructure required in order to match the desired level of access for each type of HPV. The levels of PBS classification for roads and vehicles generally able to use each type is summarised in Table 6-2.

Table 6-2 Vehicle Types and PBS Road Classification

PBS level	Description
PBS1	Similar to General access
PBS2	Similar to B-double routes
PBS3	Similar to Type 1 road train routes
PBS4	Similar to Type 2 road train routes

The following tables present the shortlisted opportunities as a result of the filtering process. No HPV opportunities have been identified within Douglas, with Council being confident that the Captain Cook Highway is providing an adequate level of service for sugar cane producers.

²² <https://www.nhvr.gov.au/road-access/performance-based-standards>

Table 6-3 Shortlisted HPV road in Cairns

Route	Category	Reasoning	Action
Kennedy Highway (Speewah to Smithfield)	Improved Connectivity	<ul style="list-style-type: none"> Connects to HPV network at Speewah (Kennedy Highway, PBS2) and at Smithfield (Captain Cook Highway, PBS2) Ports North and Tong Sing identified this section of road as a freight deficiency HPVs are restricted because of the extreme terrain of Kuranda Range/ Macalister Range crossing Improves connectivity of the HPV network from freight generation points in Mareeba and Tableland to destinations in Cairns including Cairns sea-port and Mourilyan sea-port Likely to improve safety as numerous accidents have occurred on this road 	<ul style="list-style-type: none"> Recommended for detailed study to determine safety implications of allowing PBS2 access
Maitland Road	Primary Production	<ul style="list-style-type: none"> Connects to the Bruce Highway (PBS2) Provides access to two quarries (freight generation points) Broadacre cropping in surrounding area Opportunity to expand the HPV network into a region of primary production 	<ul style="list-style-type: none"> Included in HPV assessment

Table 6-4 Cassowary Coast

Route	Category	Reasoning	Action
Martyville Road	Primary Production	<ul style="list-style-type: none"> Connects to Bruce Highway (PBS2) a connection used by 4 aquaculture farms to reach Bruce highway needs further investigation to determine whether aquaculture farms require heavy vehicle access 	<ul style="list-style-type: none"> Included in HPV assessment
Davidson Road and North Davidson Road	Primary Production	<ul style="list-style-type: none"> Davidson Road intersects with Bruce Highway (PBS2) Davidson and North Davidson road provide access to forestry areas, grazing areas and other agricultural products. 	<ul style="list-style-type: none"> Included in HPV assessment

Table 6-5 Hinchinbrook

Route	Category	Reasoning	Action
Abergowrie Road	Primary Production	<ul style="list-style-type: none"> Connects to Bruce Highway (PBS2) intersect with many local roads that lead to forestry and grazing areas provides a direct connection to a quarry. 	<ul style="list-style-type: none"> Included in HPV assessment

Table 6-6 Mareeba

Route	Category	Reasoning	Action
Kennedy Highway (Speewah to Smithfield)	Improved Connectivity	<ul style="list-style-type: none"> Connects to HPV network at Speewah (Kennedy Highway, PBS2) and at Smithfield (Captain Cook Highway, PBS2) Ports North and Tong Sing identified this section of road as a freight deficiency HPVs are restricted because of the extreme terrain of Kuranda Range/ Macalister Range crossing Improves connectivity of the HPV network from freight generation points in Mareeba and Tableland to destinations in Cairns including Cairns sea-port and Mourilyan sea-port Likely to improve safety as numerous accidents have occurred on this road 	<ul style="list-style-type: none"> Recommended for detailed study to determine safety implications of allowing PBS2 access
Chewko Road	Primary Production	<ul style="list-style-type: none"> Allows for connections with Mareeba Dimbulah Road, Mulligan Highway and Kennedy Highway Terminates at Hansen Road (PBS2) Intersects with Narcotic Creek Road and Paglietta Creek road which provides access to cane growing areas Collaboration between Tablelands and Mareeba necessary as the road spans both Councils 	<ul style="list-style-type: none"> Included in HPV assessment
Euluma Creek Road	Primary Production	<ul style="list-style-type: none"> Connects to Mossman- Mt Molloy Road (PBS2) Provides a link to cane growing areas with multiple intersection (Black Mountain Road, Morrish Road, Rasmussen Road) that lead to more sugar cane growing areas 	<ul style="list-style-type: none"> Included in HPV assessment
North Walsh Road	Primary Production	<ul style="list-style-type: none"> Connects to Mareeba-Dimbulah Road (PBS3) Provides direct access to a quarry Intersects with Bowen Road and Kimalo Road which lead to multiple sugar cane growing areas 	<ul style="list-style-type: none"> Included in HPV assessment
Almaden-Gingeralla-Ootann Road (Kennedy Highway intersection to Burke Developmental Road)	Primary Production Improved Connectivity	<ul style="list-style-type: none"> Provides a link between the Kennedy Highway (HPV type 2 roadtrain) and Burke Developmental Road (PBS3) Identified as a priority by LRTAQ Improves access to Tablelands 	<ul style="list-style-type: none"> Included in HPV assessment

Table 6-7 Tablelands

Route	Category	Reasoning	
Gillies Range Road	Improved Connectivity	<ul style="list-style-type: none"> Port Authority and Tony Sing (a freight carrier) reported major access issues from the Tableland because of the lack of a crossing across the Gillies Range Intersects with Marks Lane in Tablelands (PBS2) and Bruce Highway in Cairns (PBS2) 	<ul style="list-style-type: none"> Recommended for detailed study to determine safety implications of allowing PBS2 access
Kennedy Highway (Atherton to Evelyn)	Improve Connectivity Primary Production	<ul style="list-style-type: none"> Forestry areas and general agriculture local road intersecting with this section of highway which could be freight generation points Further investigation to identify whether there is the demand for an upgrade and the feasibility/ impact of an upgrade within the Herberton Range National park 	<ul style="list-style-type: none"> Alternative B-double route via Malanda is approx. 10 mins longer Recommended for regular monitoring of traffic counts on alternative route
Chewko Road	Primary Production	<ul style="list-style-type: none"> Allows for connections with Mareeba Dimbulah Road, Mulligan Highway and Kennedy Highway Terminates at Hansen Road (PBS2) Intersects with Narcotic Creek Road and Paglietta Creek road which provides access to cane growing areas Collaboration between Tablelands and Mareeba necessary as the road spans both Councils 	<ul style="list-style-type: none"> Included in HPV assessment
Mapee Road	Primary Production	<ul style="list-style-type: none"> Connects to Kennedy Highway (PBS2) if upgrade would extend the HPV network Identified by the Tablelands Council as a priority road Provides direct access freight generation points including an abattoir and packing sheds for bananas and various other fruits 	<ul style="list-style-type: none"> Included in HPV assessment
Willows Road	Primary Production	<ul style="list-style-type: none"> Intersects with Kennedy Highway (PBS2) Identified by Tablelands shire council as a priority road because of multiple freight generating points including bananas, avocado farms, orchids, fruits (fruit trees), sugar cane fields and livestock grazing 	<ul style="list-style-type: none"> Included in HPV assessment
Beantree Road	Primary Production	<ul style="list-style-type: none"> Connects to Barsons Road & Tinaroo Falls Dam Road (PBS2) Identified by Tablelands shire council as a priority road because of a hub of farms producing avocados, sugar cane, livestock, fruit tree, blueberries and other agricultural produce 	<ul style="list-style-type: none"> Included in HPV assessment
Malanda-Atherton Road	Primary Production Improve Connectivity	<ul style="list-style-type: none"> Identified by Tablelands as a priority road Improve the link from Malanda to Atherton that then will join other HVP routes e.g. Kennedy Highway 	<ul style="list-style-type: none"> Currently PBS2 access which is consistent with the connecting network (including Kennedy Highway)

Table 6-8 Gulf Regions (Carpentaria, Croydon and Etheridge)

Route	Category	Reasoning	
Gulf Developmental Road (Gilbert River bridge)	Primary Production Improve Connectivity	<ul style="list-style-type: none"> Currently PBS4 transporting cattle, feed, minerals, mining supplies and general good LRTAQ identified this bridge as a safety issue AgForce expressed interest in the surrounding area for sorghum growing 	<ul style="list-style-type: none"> Currently PBS4 Deficiencies identified within HV Freight Routes Report
Gulf Developmental Road (Kennedy Highway intersection to Georgetown)	Primary Production Improve Connectivity	<ul style="list-style-type: none"> Currently PBS4 transporting of cattle, feed, minerals, mining supplies and general goods LRTAQ identified this bridge as a safety issue because the width of the road is inadequate for heavy vehicles and not all of the sections of the road are sealed AgForce expecting growth of activity in the area 	<ul style="list-style-type: none"> Currently PBS4 Deficiencies identified within HV Freight Routes Report
Strathmore Road	Primary Production	<ul style="list-style-type: none"> Connects to Gulf Developmental road (PBS4) Follows the banks of the Gilbert River which are used for broadacre cropping and grazing AgForce is expects this area to expand and increase production of sorghum 	<ul style="list-style-type: none"> Included in HPV assessment

Table 6-9 Cape York

Route	Category	Reasoning	
Dixie Road	Primary Production	<ul style="list-style-type: none"> Connects to Peninsula Developmental road (PBS4) Council nominated Dixie Road for potential upgrade with benefits for livestock 	<ul style="list-style-type: none"> Traffic demand not available, but expected to be less than 20 vehicles/day Requires uplift in heavy vehicle traffic to be viable for its length Regular monitoring of traffic counts recommended
Endeavour Battlecamp Road (Endeavour Valley Road to Isabella-Mclvor Road)	Primary Production Improved Connectivity	<ul style="list-style-type: none"> Connects to Endeavour Valley Road (PBS3) Provides a connection to multiple stations, grazing areas and Cape communities 	<ul style="list-style-type: none"> Included in HPV assessment
Musgrave-Strathgordon Road	Primary Production Community Access	<ul style="list-style-type: none"> Connects to Peninsula Developmental Road (PBS4) Provides access to grazing areas and stations Provides community access to Pormpuraaw Nominated by Council for potential heavy vehicle upgrade 	<ul style="list-style-type: none"> Included in HPV assessment

Portland Road	Primary Production Community Access	<ul style="list-style-type: none"> • Connects to Peninsula Developmental Road (PBS4) • Provides access to grazing areas and stations • Provides community access to Lockhart River • Nominated by Council for potential heavy vehicle upgrade 	<ul style="list-style-type: none"> • Included in HPV assessment
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7. Consolidated analysis and infrastructure investment

Consolidating the analysis of Beef Roads, gaps in heavy vehicle connectivity and HPV shortlisted opportunities enables the development of routes progressed for the infrastructure investment assessment.

Table 7-1 Assessed routes

Road	Improvements	Improves primary production, community access and connectivity	Services multiple industries or sub-industries	Advocated by multiple stakeholders	Connects to other local roads with multiple production areas	Council high priority
Almaden-Gingerella/ Ootann Road, Mareeba / Tablelands	PBS level 4 Full sealing	✓				✓
Beantree Road	PBS level 2	✓			✓	
Burketown-Normanton Road, Carpentaria	PBS level 4 Full sealing	✓				✓
Chewko Road, Mareeba	PBS level 2	✓	✓		✓	
Davidson Road, Cassowary Coast	PBS level 2	✓	✓		✓	
Endeavour-Battlecamp Road, Cook (Endeavour Valley Road to Isabella-Mclvor Road)	PBS level 3	✓				✓
Euluma Creek Road, Mareeba	PBS level 2	✓			✓	
Gunnawarra Road, Tablelands	PBS level 4 Sealing of unsealed sections	✓				✓
Ingham-Abergowrie Road, Hinchinbrook	PBS level 2	✓			✓	
Maitland Road, Cairns	PBS level 2		✓		✓	
Mapee Road	PBS level 2		✓	✓	✓	
Martyville Road, Cassowary Coast	PBS level 2		✓		✓	
North Walsh Road, Mareeba	PBS level 2	✓	✓			
Portland Road, Cook (First 20.2 kms)	PBS level 4	✓				✓
Richmond-Croydon Road, Croydon / Etheridge	PBS level 4 Full sealing	✓				✓

Road	Improvements	Improves primary production, community access and connectivity	Services multiple industries or sub-industries	Advocated by multiple stakeholders	Connects to other local roads with multiple production areas	Council high priority
Musgrave-Strathgordon Road, Cook (to Pormpuraaw Aboriginal Shire boundary)	PBS level 4	✓				✓
Strathmore Road, Etheridge (First 6.5 kms)	PBS level 4 Sealing of unsealed sections		✓			✓
Willows Road	PBS level 2		✓	✓	✓	

The infrastructure investment costs to facilitate the HPV opportunities deficiency analysis follows the same process presented within the Heavy Vehicle Route Assessment Report. The primary deficiency impacted by increasing PBS access is width. There is also the potential for structures to require strengthening, which requires detailed analysis of each affected structure. Subsequently the investment costs are based on widening and sealing where indicated.

Table 7-2 presents the results of the investment analysis, totalling \$472m. It is recommended that Councils consider each road's expected transition to more productive heavy vehicles to better understand the benefits generated by each investment. Section 8 compares the productivity improvements associated with various HPVs.

Table 7-2 Investment costs

Road	Council	Improvements	Cost
Almaden-Gingerella Road / Ootann Road	Mareeba / Tablelands	PBS level 4 Full sealing	\$ 85.46 m
Battlecamp Road (Endeavour Valley Road to Isabella-Mclvor Road)	Cook	PBS level 3	\$ 2.35 m
Beantree Road	Tablelands	PBS level 2	\$ 0.15 m
Burketown-Normanton Road	Carpentaria	PBS level 4 Sealing of unsealed sections	\$ 171.50 m
Chewko Road	Mareeba	PBS level 2	\$ 7.14 m
Davidson Road	Cassowary Coast	PBS level 2	\$ 1.41 m
Euluma Creek Road	Mareeba	PBS level 2	\$ 4.94 m
Gunnawarra Road	Tablelands	PBS level 4 Sealing of unsealed sections	\$ 36.32 m
Ingham-Abergowrie Road	Hinchinbrook	PBS level 2	\$ 14.43 m
Maitland Road	Cairns	PBS level 2	\$ 1.30 m
Mapee Road	Tablelands	PBS level 2	\$ 0.51 m
Martyville Road	Cassowary Coast	PBS level 2	\$ 0.72 m
Musgrave-Strathgordon Road (to Pormpuraaw Boundary)	Cook	PBS level 4	\$ 17.65 m
North Walsh Road	Mareeba	PBS level 2	\$ 0.45 m

Portland Road (first 20.2 Kms)	Cook	PBS level 4	\$ 3.59 m
Richmond-Croydon Road	Croydon / Etheridge	PBS level 4 Full sealing	\$ 115.44 m
Strathmore Road (first 6.5 Kms)	Etheridge	PBS level 4 Sealing of unsealed sections	\$ 7.33 m
Willows Road	Tablelands	PBS level 2	\$ 1.21 m

8. Benefits of HPVs

The initial benefits of HPVs are realised by the heavy vehicle industry and road agencies, which subsequently flow on to the wider economy and communities. The reduced costs of moving freight directly flow through other industries and ultimately consumers, whilst social and environmental benefits are generated through fewer vehicle movements.

The benefits are generated through fewer trips required to move a given volume of freight, and include:

- Reduced travel time
- Lower vehicle operating costs
- Crash probability reduction
- Fewer emissions
- Reduced road damage measured by equivalent standard axles (ESAs)

Each of these elements have an impact on freight costs, with high productivity vehicles being substantially cheaper per freight tonne carried.

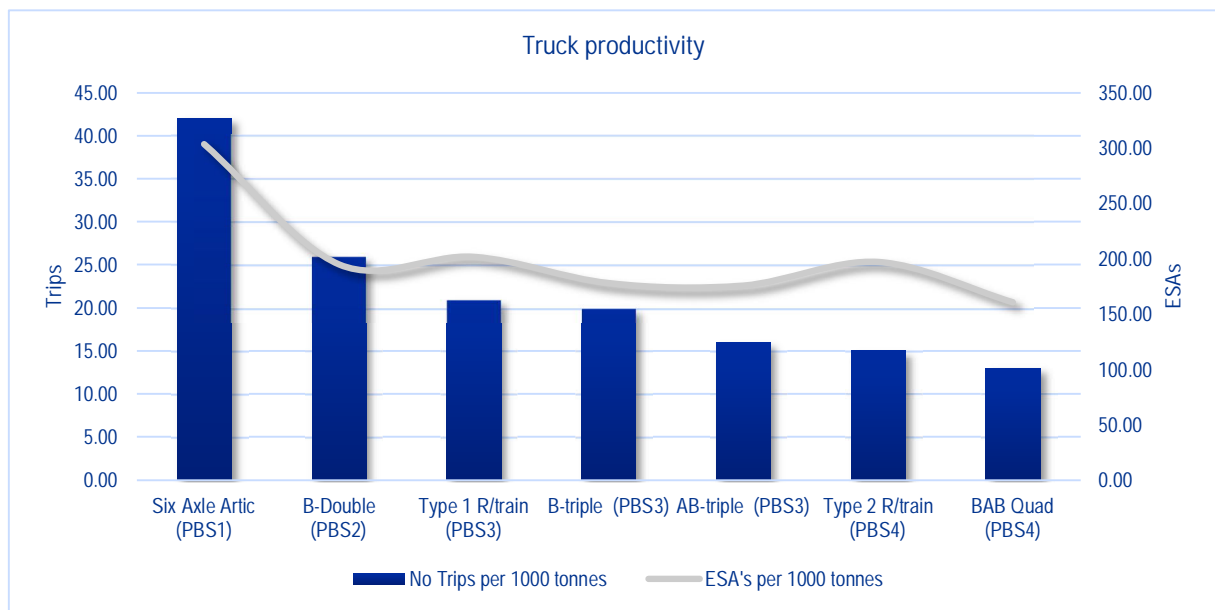
Table 8-1 presents a comparison of HPVs using the common six axle articulated vehicle as the benchmark, and Figure 8-1 illustrates how there are less trips and road damage with more productive vehicles.

Table 8-1 Comparison of typical operational parameters²³

Type	Overall Length (metres)	Gross vehicle mass	Tare (typical)	Full payload	No Trips per 1000 tonnes	Fuel required per 1000k	ESA's per 1000 tonnes	Emissions / 1000 tonnes	Driver Requirement
Six axle articulated (PBS1)	19.0	43.0	19.0	24.0	42	39,480	304	100%	100%
B-double (PBS2)	26.0	63.0	24.2	38.8	26	32,240	195	75%	34%
B-triple (PBS3)	35.0	83.0	24.2	52.4	20	27,200	178	63%	26%
AB-triple (PBS3)	42.5	99.5	35.5	64.0	16	24,000	176	56%	21%
Type 1 roadtrain (PBS3)	36.5	79.5	30.8	48.7	21	28,560	202	66%	27%
Type 2 roadtrain (PBS4)	53.5	116.0	42.6	73.4	15	24,000	197	56%	19%
BAB Quad (PBS4)	51.5	119.5	41.1	78.4	13	21,060	161	49%	17%

²³ <https://www.truck.net.au/system/files/industry-resources/TAPs%20-%20Truck%20Impact%20Chart%20March%202018.pdf>

Figure 8-1 Truck productivity comparison



Appendix A. Survey questionnaire

Freight carrier questions

Questions	Route 1	Route 2	Route 3	Route 4	Route 5	Route6
Trip origin e.g. township, farm (Specific)						
Trip destination e.g. port (Specific)						
Route/roads used						
Type of freight/commodity type being carried						
Infrastructure deficiency (if known) or restrictions						
Current HPV access						
Type of heavy vehicle currently used						
Current no. of heavy vehicles a week						
Preferred HPV access						
How would operations change with the improved infrastructure (If a take-up of more productive vehicles, what type?)						
Additional comments - safety						
Additional comments - productivity						

Freight generator/advocacy/regulatory questions

Questions	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
Origin and destination (Specific if known, otherwise generally)						
Known route /infrastructure deficiencies and restrictions						
Current HPV access						
Current no. of heavy vehicles a week on this route						

Questions	Route 1	Route 2	Route 3	Route 4	Route 5	Route 6
Preferred HPV access						
Type of freight/commodity type being carried						
What are the immediate benefits for your operations if the route is upgraded						
What are the longer term benefits for your operations if the route is upgraded						
Additional comments						

Appendix B. Potential HPV opportunities (full list of assessed roads)²⁴

B.1.1 Cairns and Yarrabah

Cat.	Industry Subgroup	Freight Route	Current HPV access	Preferred HPV	Connecting Road 1 / Section	Connecting Road 2 / "to"	Connecting Road 3 / Section	Freight Generation Point (origin)
PP	Quarries	Bruce Highway	25-metre B-double	Not specified	Maitland Road	Mount Peter Road	Hussey Road	Hussey Road, Mount Peter
PP	Quarries	Bruce Highway	25-metre B-double	Not specified	Maitland Road			Maitland Road, Mount Peter
PP	Quarries	Kamerunga Road	25-metre B-double	Not specified	Lake Placid Road			Lake Placid Road, Caravonica
PP	Quarries	Captain Cook Highway	25-metre B-double	Not specified	Yorkeys Knob Road			Yorkeys Knob Road, Yorkeys Knob
PP	Bananas	Bruce Highway	25-metre B-double	Not specified	Bartel Frere Road			Bartel Frere Road, Babinda
PP	Bananas	Bruce Highway	25-metre B-double	Not specified	Bucklands Road			Bucklands Road, Mirriwinni
PP	Bananas	Bruce Highway	25-metre B-doubles	Not specified	Jubilee Rd	Garradunga Road		Garradunga Road, Garradunga
PP	Bananas	Bruce Highway	25-metre B-double	Not specified	Waugh Pocket Road			Waugh Pocket Road, Waught Pocket
IC	All freight	Kennedy Highway	No HPV access	25-metre B-double	Speewah to Kuranda			Tablelands, Mareeba Shires

²⁴ PP = Primary production, IC = Improved connectivity, CA = Community access

B.1.2 Cassowary Coast

Cat.	Industry Subgroup	Freight Route	Current HPV access	Preferred HPV	Connecting Road 1 / Section	Connecting Road 2/ "to")	Connecting Road 3/ Section	Connecting Road 4	Freight Generation Point (origin)
PP	Quarries	Palmerston Highway	25-metre B-double	Not specified	Coorumba Road				Coorumba Road, Coorumba
PP	Quarries	Palmerston Highway	25-metre B-double	Not specified	Quarry Road				Quarry Road, Stoters Hill
PP	Aquaculture	Bruce Highway	25-metre B-double	Not specified	Martyville Road	New Harbourline Road	Bob Road	Jay Road	Jay Road, Mourilyan Harbour
PP	Aquaculture	Bruce Highway	25-metre B-double	Not specified	Martyville Road	New Harbourline Road	Marano Road	Coco Road	Coco Road, New Harbourline
PP	Aquaculture	Bruce Highway	25-metre B-double	Not specified	Martyville Road				Martyville Road, Martyville
PP	Aquaculture	Bingil Bay Road	25-metre B-double	Not specified	Midgeree Bar Road	Fig Tree Beach Road			Fig Tree Beach Road, Midgeree Bar
PP	Aquaculture	Bruce Highway	25-metre B-double	Not specified	Martyville Road	New Harbourline Road	Marano Road		Marano Road, Martyville
PP	Cattle and Calves	Bruce Highway	25-metre B-double	Not specified	Davidson Road	North Davidson Road			North Davidson Road, Warrami
PP	Cattle and Calves	Innisfail-Japoon Road	25-metre B-double	Not specified	Innisfail-Japoon Road, South Johnstone	Innisfail-Japoon Road			Multiple properties, Mena Creek
PP	Cattle and Calves	Bruce Highway	25-metre B-double	Not specified	Nash Road				Nash Road, Bilyana
PP	Cattle and Calves	Bruce Highway	25-metre B-double	Not specified	Bluff Road				Bluff Road, Bilyana
PP	Produce Multiple	Bruce Highway	25-metre B-double	Not specified	Davidson Road	North Davidson Road			North Davidson Road, Warrami

PP	Produce Multiple	Innisfail-Japoon Road	25-metre B-double	Not specified	Innisfail-Japoon Road, South Johnstone	Innisfail-Japoon Road				Multiple properties, Mena Creek
PP	Produce Multiple	Bruce Highway	25-metre B-double	Not specified	Nash Road					Nash Road, Bilyana
PP	Produce Multiple	Bruce Highway	25-metre B-double	Not specified	Bluff Road					Bluff Road, Bilyana
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Bilyana Road	Launder Road				Launder Road, Murray Upper
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Brasenose Street					Brasenose Street, Cardwell
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Davidson Road	North Davidson Road				North Davidson Road, Cardstone
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Kennedy Creek Road					Kennedy Creek Road, Kennedy
PP	Sugar Cane	Bruce Highway	25-metre B-double	Not specified	Kennedy Creek Road					Kennedy Creek Road, Kennedy

B.1.3 Douglas

Douglas Shire council has advised the lower Daintree is not a concern.

B.1.4 Hinchinbrook

Cat	Industry Subgroup	Freight Route	Current HPV access	Preferred HPV	Connecting Road 1 / Section	Connecting Road 2/ "to"	Connecting Road 3/ Section	Connecting Road 4	Connecting road 5	Connecting Road 6	Freight Generation Point (origin)
PP	Cattle and Calves	Bruce Highway	25-metre B-double	Not specified	Pappins Road						Pappins Road, Helens Hill

PP	Cattle and Calves	Bruce Highway	25-metre B-double	Not specified	Fairford Road	Abergowrie Road	Stone River Road				Stone River Road, Upperstone
PP	Cattle and Calves	Bruce Highway	25-metre B-double	Not specified	Fairford Road	Abergowrie Road	Stone River Road	Mount Fox Road (Blue Range Road)			Mount Fox Road, Mount Fox
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Pappins Road	Milton Road	Allendale Road				Allendale Road, Upper Stone
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Abergowrie Road	Elphinstone Pocket Road	Broadwater Park Road				Broadwater Park Road, Abergowrie State Forest
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Abergowrie Road	Kokoda Road					Kokoda Road, Abergowrie
PP	Forestry and Logging	Challands Street	25-metre B-double	Not specified	Plywood Street	Industrial Avenue	Market Street				Market Street, Ingham
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Fairford Road	Abergowrie Road	Venables Crossing Road	Stones River Road	Liborios Road		Liborios Road, Lannercost
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Fairford Road	Abergowrie Road	Venables Crossing Road	Stones River Road	Lannercost Extension Road	Wallaman Falls Road	Wallaman Falls Road, Lannercost
PP	Forestry and Logging	Bruce Highway	25-metre B-double	Not specified	Fairford Road	Abergowrie Road	Stone River Road	Mount Fox Road (Blue Range Road)			Mount Fox Road, Mount Fox
PP	Quarries	Four Mile Road	25-metre B-double	Not specified	Cooks Lane	Catherina Creek Road					Catherina Creek Road, Mount Cordelia
PP	Quarries	Halifax Road	25-metre B-double	Not specified	Catherina Creek Road	NA					Catherina Creek Road, Mount Cordelia
PP	Quarries	Bruce Highway	25-metre B-double	Not specified	Abergowrie Road	NA					Abergowrie Road, Abergowrie

B.1.5 Mareeba

Cat.	Industry Subgroup	Freight Route	Current HPV access	Preferred HPV	Connecting Road 1 / Section	Connecting Road 2/ "to"	Connecting Road 3/ Section	Connecting Road 4	Freight Generation Point (origin)
PP	Quarries	Burke Developmental Road	Type 1 roadtrain	Not specified	Bolwara Road				Bolwara Road, Chillagoe
PP	Quarries	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	Borzii Road				Borzi Road, Mutchilba
PP	Quarries	Burke Developmental Road	Type 1 roadtrain	Not specified	Georgetown Road				Georgetown Road, Chillagoe
PP	Quarries	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	North Walsh Road				North Walsh Road, Arriga
PP	Quarries	Burke Developmental Road	Type 1 roadtrain	Not specified	Smelter Road				Smelter Road, Chillagoe
PP	Cattle and Calves	Kennedy Highway	Type 2 roadtrain	Not specified	Almaden-Gingerella-Ootann Road				Almaden-Gingerella-Ootann Road, Munderra
PP	Cattle and Calves	Kennedy Highway	Type 2 roadtrain	Not specified	Springfield Road	Savannah Way			Savannah Way, Fossilbrook
PP	Forestry and Logging	Mulligan Highway	Type 1 roadtrain	Not specified	Bilwon Road	Vallely Road			Vallely Road, Bilwon
PP	Forestry and Logging	Kennedy Highway	No HPV access	Not specified	Black Mountain Road				Black Mountain Road, Mona Mona
PP	Forestry and Logging	Kennedy Highway	25-metre B-double	Not specified	Gilmore Road				Gilmore Road, Mareeba
PP	Forestry and Logging	Mulligan Highway	Type 1 roadtrain	Not specified	Hodzic Road, Biboohra	Hodzic Road, Mona Mona			Hodzic Road, Mona Mona
PP	Forestry and Logging	Mulligan Highway	Type 1 roadtrain	Not specified	Hodzic Road, Biboohra				Hodzic Road, Biboohra

PP	Forestry and Logging	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	North Walsh Road	Kimalo Road			Kimalo Road, Arriga
PP	Forestry and Logging	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	Mutchilba Road				Mutchilba Road, Mutchilba
PP	Forestry and Logging	Kennedy Highway	25-metre B-double	Not specified	Gilmore Road	Trimble Road			Trimble Road, Mareeba
PP	Sugar Cane	Mulligan Highway	Type 1 roadtrain	Not specified	Adil Road	Peters Road			Peters Road, Mareeba
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	Arriga Road				Arriga Road, Arriga
PP	Sugar Cane	Mossman-Mt Molloy Road	23-metre B-doubles only	Not specified	Euluma Creek Road	Black Mountain Road			Black Mountain Road, Julattan
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	North Walsh Road	Bower Road			Bower Road, Arriga
PP	Sugar Cane	Hansen Road	25-metre B-double	Not specified	Chewko Road				Chewko Road, Chewko
PP	Sugar Cane	Kennedy Highway	25-metre B-double	Not specified	Tinarro Creek Road	Cobra Road	Coralie Road	Emerald Falls Road	Emerald Falls Road, Mareeba
PP	Sugar Cane	Mossman-Mt Molloy Road	23-metre B-double	Not specified	Euluma Creek Road	Black Mountain Road	Pachen Road		Pashen Road, Julatten
PP	Sugar Cane	Mossman-Mt Molloy Road	23-metre B-double	Not specified	Euluma Creek Road	Morrish Road			Morrish Road, Julatten
PP	Sugar Cane	Mossman-Mt Molloy Road	23-metre B-double	Not specified	Euluma Creek Road	Rasmussen Road			Rasmussen Road, Julatten
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	Springs Road	Fassio Road	Hawkins Road		Hawkins Road, Paddys Green
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	Springs Road	Fassio Road	Rains Road		Rains Road, Paddys Green
PP	Sugar Cane	Mareeba – Dimbulah Road	Type 1 roadtrain	Not specified	Fumar Road	Robinson Road			Robinson Road, Dimbulah

PP	Sugar Cane	Kennedy Highway	25-metre B-double	Not specified	Gilmore Road	Trimble Road			Trimble Road, Mareeba
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	North Walsh Road	Bower Road	Kerlin		Kerlin Road, Arriga
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	North Walsh Road	Kimalo Road			Kimalo Road, Arriga
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	Stephens Street	Wolfram Road	Leadingham Creek Road		Leadingham Creek Road, Dimbulah
PP	Sugar Cane	Kennedy Highway	25-metre B-doubles	Not specified	Malone Road				Malone Road, Mareeba
PP	Sugar Cane	Springmount Road	25-metre B-double	Not specified	Channel Road				Springmount Road, Mutchilba
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	North Walsh Road	Bowen Road	McBean Road		Mcbean Road, Arriga
PP	Sugar Cane	Hansen Road	25-metre B-double	Not specified	Chewko Road	Narcotic Creek Road			Narcotic Creek Road, Chewko
PP	Sugar Cane	Hansen Road	25-metre B-double	Not specified	Chewko Road	Paglietta Road			Paglietta Road, Chewko
PP	Sugar Cane	Mulligan Highway	Type 1 roadtrain	Not specified	Pickford Road				Pickford Road, Bibohra
PP	Sugar Cane	Mareeba-Dimbulah Road	Type 1 roadtrain	Not specified	Springs Road				Springs Road, Paddys Green
PP	Sugar Cane	Mulligan Highway	Type 1 roadtrain	Not specified	Wetherby Road				Wetherby Road, Julattan
IC	Cattle and Calves	Mulligan Highway	Type 1 roadtrain	Type 2 roadtrain	Mt Carbine to Lakeland				Cape communities and properties along Peninsula Development Road
IC	Cattle and Calves	Mulligan Highway	Type 1 roadtrain	Type 1 roadtrain	Near Mount Molloy				Cape communities and properties along Peninsula Development Road

IC	Cattle and Calves	Burke Developmental Road	Type 2 roadtrain	Type 2 roadtrain	Chillagoe to Dunbar				Chillagoe, Kowanyama and cattle properties
IC	Cattle and Calves	Palmerville Road	unknown	Type 2 roadtrain					Cape communities and cattle properties along Peninsula Development Road
IC	Cattle and Calves	Ootann Road	unknown	Type 2 roadtrain	Kennedy Highway to Burke Developmental Road				Atherton Tablelands grain suppliers as well as improved access to Chillagoe, Kowanyama etc
IC	Cattle and Calves	Burke Developmental Road (Over Lappa Range)	Type 1 roadtrain	Type 2 roadtrain	Almaden to Eureka Creek				Atherton Tablelands grain suppliers
IC	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Type 2 roadtrain	Kennedy Highway intersection to Georgetown				Normanton and other gulf communities, mines and cattle properties.
IC	All freight	Kennedy Highway	No HPV access	25-metre B-doubles	Speewah to Smithfield				The Kennedy highway over the Kuranda Range/ MacAlister Range

B.1.6 Tablelands

Cat.	Industry Subgroup	Freight Route	Current HPV access	Preferred HPV	Connecting Road 1 / Section	Connecting Road 2/ "to"	Connecting Road 3/ Section	Connecting Road 4	Connecting road 5	Freight Generation Point (origin)
IC	Produce Multiple	East Barron Road	General access	25-metre B-doubles	Malanda-Atherton Road to Kennedy Highway					East Barron Road, East Barron
PP	Cattle and Calves	Palmerston Highway	25-metre B-double	Not specified	Brooks Road					Brooks Road, Mungalli
PP	Produce Multiple	Barsons Road & Tinaroo Falls Dam Road	25-metre B-double	25-metre B-doubles	Beantree Road					Beantree road, Tolga
PP	Produce Multiple	Kennedy Highway	25-metre B-double	Not specified	Willows Road					Marnane Road, Tolga
PP	Produce Multiple	Kennedy Highway	25-metre B-double	Not specified	Frazer Road	Marane road				Marnane Road, Tolga
PP	Produce Multiple	Kennedy Highway	25-metre B-double	Not specified	Mapee Road	Barney Road	Northey Road			Northey Road, Tolga
PP	Cattle and Calves	Kennedy Highway	25-metre B-double	Not specified	Mapee Road					Mapee Road, Tolga
PP	Produce Multiple	Kennedy Highway	25-metre B-double	Not specified	Mapee Road	Channel Road E	Mapee Road			Mapee Road, Tolga
PP	Produce Multiple	Kennedy Highway	25-metre B-double	Not specified	Channel Road					Channel Road, Walkamin
PP	Produce Multiple	Hansen Road	25-metre B-double	Not specified	Chewko Road					Chewko Road, Chewko
PP	Produce Multiple	Hansen Road	25-metre B-double	Not specified	O'Connel Road					O'Connel Road, Walkamin

PP	Cattle and Calves	Malanda-Atherton Road	25-metre B-double	Not specified	Curtain Fig Tree Rd	Ball Road				Ball Road, Peeramon
PP	Quarries	Malanda-Atherton Road	25-metre B-double	Not specified	Curtain Fig Tree Rd	Ball Road				Ball Road, Peeramon
PP	Cattle and Calves	Kennedy Highway	25-metre B-double	Not specified	Gunnawarra Road					Gunnawarra Road, Minnamoolka
PP	Cattle and Calves	Malanda-Atherton Road	25-metre B-double	Not specified	Lake Barrine Road					Lake Barrine Road, Lake Eacham
PP	Cattle and Calves	Malanda-Atherton Road	25-metre B-double	Not specified	Lake Barrine Road	Topaz Road				Topaz Road, Butchers Creek
PP	Cattle and Calves	Kennedy Highway	25-metre B-double	Not specified	Tully Falls Road	Wooroora Road				Wooroora Road, Millstream
PP	Forestry and Logging	Tolga-Kairi Road	25-metre B-double	Not specified	Irvine Street	Johnson Road	Poggioli Street	State Farm Road		State Farm Road, Kairi
PP	Forestry and Logging	Tolga-Kairi Road	25-metre B-double	Not specified	Irvine Street	Johnson Road	Poggioli Street	Tinaroo Falls Dam Road	Danbulla Road	Danbulla Road, Lake Tinaroo
PP	Forestry and Logging	Tolga-Kairi Road	25-metre B-double	Not specified	Tinaroo Falls Dam Road	Danbulla Road				Danbulla Road, Danbulla
PP	Forestry and Logging	Tolga-Kairi Road	25-metre B-double	Not specified	Kennedy Highway	Atherton – Herberton Road				Atherton – Herberton Road, Atherton
PP	Forestry and Logging	Tolga-Kairi Road	25-metre B-double	Not specified	Kennedy Highway	Atherton – Herberton Road	Deep Creek Road			Deep Creek Road, Wongabei
PP	Forestry and Logging	Malanda-Atherton Road	25-metre B-double	Not specified	Kennedy Highway	Pavey Road				Pavey Road, Wongabel
PP	Forestry and Logging	Kennedy Highway South of Evelyn	25-metre B-double	Not specified	Kennedy Highway	Tumoulin Road				Tumoulin, Evelyn
PP	Forestry and Logging	Kennedy Highway South of Evelyn	25-metre B-double	Not specified	Kennedy Highway	Tumoulin Road	Jonsson Road			Jonsson Road, Evelyn
PP	Forestry and Logging	Kennedy Highway	25-metre B-double	Not specified	Tully Falls Road					Tully Falls Road, Ravenshoe

PP	Forestry and Logging	Kennedy Highway	25-metre B-double	Not specified	Moore Street	Grigg Street	Wakooka Street			Wakooka Street, Ravenshoe
PP	Forestry and Logging	Malanda-Atherton Road	25-metre B-double	Not specified	Lake Barrine Road	Moore Road	Russell Road	Fuller Road		Fuller Road, Lake Eacham
PP	Produce Multiple	Malanda-Millaa Millaa Road	25-metre B-double	Not specified	Glen Allyn Road					Glen Allyn Road, Malanda
PP	Forestry and Logging	Malanda-Millaa Millaa Road	25-metre B-double	Not specified	Landry					Landry Road, Jaggan
PP	Forestry and Logging	Kennedy Highway (North of Mount Garnet)	25-metre B-double	Not specified	Kennedy Highway	Kennedy Developmental Road	Gunnawarra Road			Kennedy Highway, Mount Garnet
PP	Mining	Kennedy Highway	25-metre B-double	Not specified	Mica Street	Opal Street	Coolgarra Road			Coolgarra Road, Mt Garnet
PP	Mining	Kennedy Highway	25-metre B-double	Not specified	Rutile Street					Rutile Street, Mt Garnet
PP	Quarries	Malanda-Atherton Road	25-metre B-double	Not specified	Hastie Road	Atherton Herberton Road	Wongabel Road	Cattle Camp Road		Cattle Camp Road, Wongabel
PP	Quarries	Kennedy Highway	25-metre B-double	Not specified	Moore Street	Grigg Street	Monument Street			Monument Street, Ravenshoe
IC	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Type 2 roadtrain	Kennedy Highway intersection to Georgetown					Normanton and other gulf communities, mines and cattle properties
PP	Quarries	Malanda-Millaa Millaa Road	25-metre B-double	Not specified	Kenny Road					Kenny Road, Minbun
PP	Cattle and Calves	Malanda-Millaa Millaa Road	25-metre B-double	Not specified	Kenny Road					Kenny Road, Minbun
PP	Quarries	Kennedy Highway	25-metre B-double	Not specified	Nymbool Road					Nymbool Road, Mt Garnet
IC	All freight	Marks Lane	25-metre B-double	Not specified	Gillies Range Road					Provides a link from Tablelands to Cairns

B.1.7 Gulf Savannah

Cat.	Industry Subgroup	Freight Route	Current HPV access	Preferred HPV	Connecting Road 1 / Section	Connecting Road 2 / "to"	Connecting Road 3/ Section	Freight Generation Point (origin)
PP, CA	Cattle and Calves	Burke Developmental Road	Type 2 roadtrain	Not specified	Burketown-Normanton Road			Burketown – Normanton Road, Normanton
PP	Cattle and Calves	Burke Developmental Road	Type 2 roadtrain	Not specified	Dunbar-Kowanyama Road			Dunbar – Kowanyama Road, Maramie
PP	Cattle and Calves	Burke Developmental Road	Type 2 roadtrain	Not specified	Lotus Vale-Stirling Road			Lotus Vale – Stirling Road, Howitt
PP	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Not specified	Alldridge Steet	Claraville Rood	Claraville-Prospect Road	Claraville – Prospect Road, Claraville
PP	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Not specified	Alldridge Steet	Claraville Rood	Coralie Road	Coralie Road, Croydon
PP	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Not specified	Richmond-Croydon Road	Esmeralda – Prospect Road		Esmeralda – Prospect Road, Claraville
PP	Broadacre cropping	Gulf Developmental Road	Type 2 roadtrain	Not specified	Strathmore Road			Strathmore Road, Gilbert River
PP	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Not specified	Abingdon Downs Road			Abingdon Downs Road, Abingdon Downs
PP	Cattle and Calves	Forsayth Road	Type 2 roadtrain	Not specified	Einasleigh-Forsayth Road (Forsayth Road)			Einasleigh-Forsayth Road, Forsayth
PP	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Not specified	Mount Turner Road	Huonfels Road		Huonfels Road, Georgetown
PP	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Not specified	Strathmore Road			Strathmore Road, Gilbert River
IC	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Type 2 roadtrain	Kennedy Highway intersection to Georgetown			Normanton and other gulf communities, mines and cattle properties.

IC	Cattle and Calves	Gulf Developmental Road	Type 2 roadtrain	Type 2 roadtrain	Gilbert River bridge	to	Little River	Normanton and other gulf communities, mines and cattle properties
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B.1.8 Cape York

Cat.	Industry Subgroup	Freight Route	Current HPV access	Preferred HPV	Connecting Road 1 / Section	Connecting Road 2/ "to"	Connecting Road 3/ Section	Freight Generation Point (origin)
PP	Cattle and Calves	Endeavour Valley Road	Type 1 roadtrain	Not specified	Endeavour – Battlecamp Road (Battlecamp Road)			Endeavour – Battlecamp Road (Battlecamp Road), Cooktown
PP	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Endeavour – Battlecamp Road (Battlecamp Road)			Endeavour – Battlecamp Road, Laura
PP	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Endeavour – Battlecamp Road (Battlecamp Road)	Lakefield Road		Lakefield Road, Lakefield
CA	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Portland Road			Portland Road Archer River
PP, CA	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Musgrave Strathgordon Road	Strathgordon Road		Strathgordon Road, Yarraden
CA	Community Access/ Tourism	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Portland Road			Portland Road, Archer River
IC	Cattle and Calves	Mulligan Highway	Type 1 roadtrain	Type 2 roadtrain	Mt Carbine to Lakeland			Cape communities and properties on Peninsula development Road
IC	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Type 2 roadtrain	Little Laura River area			Cape communities and properties on Peninsula development Road
IC	Cattle and Calves	Mulligan Highway	Type 1 roadtrain	Type 2 roadtrain and lower	Mt Carbine to Lakeland			Cape communities and properties on Peninsula development Road
IC	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Type 2 roadtrain	Little Laura River area			Cape communities and properties on Peninsula development Road
PP	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Palmerville Road			Palmerville Road, Palmerville

PP	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Dixie Road			Dixie Road, Dixie
CA	Tourism	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Dixie Road			Dixie Road, Dixie
PP	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Dixie Road	Kimba Road		Kimba Road, Dixie
PP	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Dixie Road	Kimba Road	Kimba Gamboola Road	Kimba Gamboola Road, Dixie
PP	Cattle and Calves	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Telegraph Road	Old Telegraph Trak	Bamaga Road	Bamaga Road, Cape York
CA	Tourism	Peninsula Developmental Road	Type 2 roadtrain	Not specified	Telegraph Road	Old Telegraph Trak	Bamaga Road	Bamaga Road, Cape York
PP	Cattle and Calves	Endeavour Valley Road	Type 2 roadtrain	Not specified	Endeavour – Battlecamp Road (Battle Camp Road)	Isabella Mclvor Rd		Isabella Mclvor Rd, Hope Vale
CA	Tourism	Endeavour Valley Road	Type 2 roadtrain	Not specified	Endeavour – Battlecamp Road (Battle Camp Road)	Isabella Mclvor Rd		Isabella Mclvor Rd, Hope Vale