



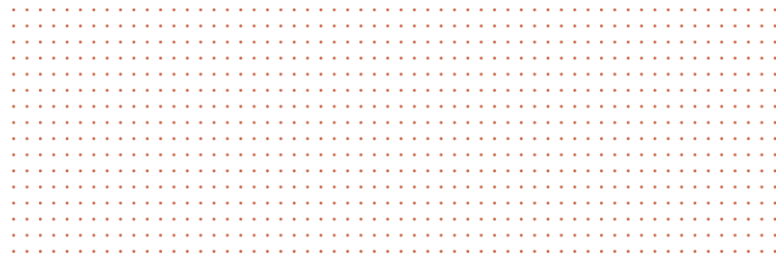
WALLBRIDGE GILBERT
AZTEC

District Council of Lower Eyre
Peninsula

Cummins Township Traffic Impact Study

CONCEPT REPORT

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1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has been engaged by the District Council of Lower Eyre Peninsula (Council) and the Department of Planning, Transport and Infrastructure (DPTI) to develop a Traffic Impact Study (TIS) for the township of Cummins. Cummins is located on the Eyre Peninsula, approximately 60km to the north west of Port Lincoln (refer to Figure 1).

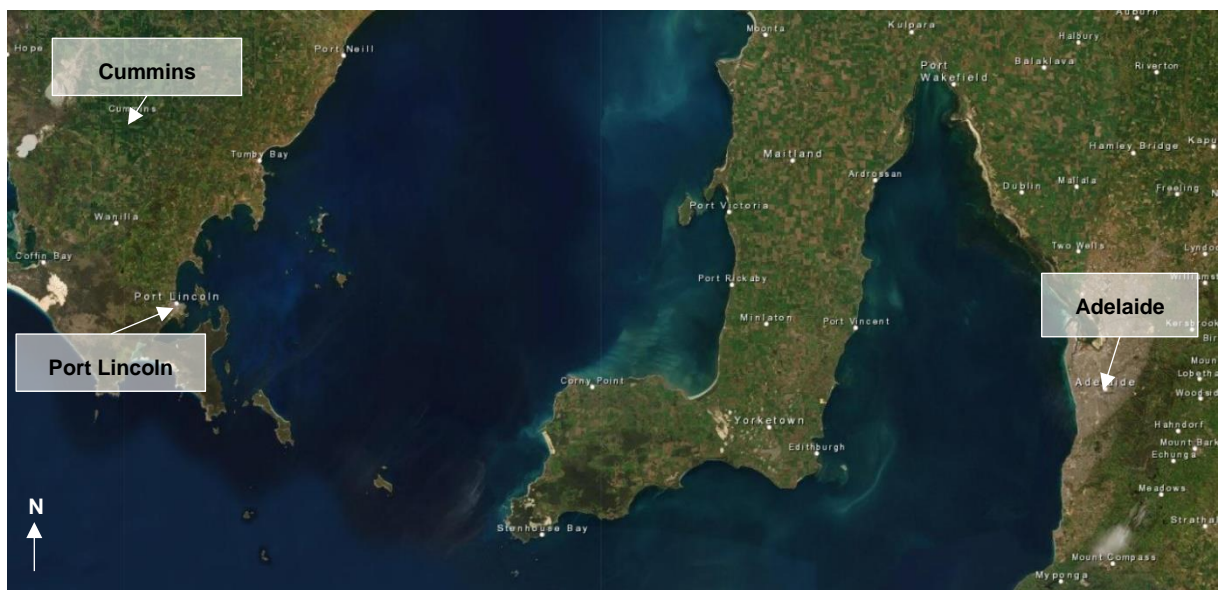


Figure 1 Locality Plan, Cummins

It is understood that from May 2020 there has been an increased amount of grain to be transported via the road network on the Eyre Peninsula due to the non-renewal of the rail network contract by Viterra.

This has resulted in an increase of heavy vehicles movements through/within the township of Cummins, which is considered likely by Council to compound existing conflicts within the township between pedestrians and vehicles. The aim of this TIS is to:

- Review existing road network and traffic flows (existing conditions);
- Determine future Viterra operations and the impact this may have on traffic volumes within the township of Cummins;
- Document conceptual design solutions developed to improve heavy vehicle accessibility, safety and amenity within Cummins, focussing on the following key areas/elements:
 - Bruce Tce Shopping Precinct;
 - Existing Viterra Site Access (and potential alternative access points);
 - Potential locations for a truck bulk fuel station; and
 - Any other improvement opportunities identified

2 EXISTING CONDITIONS

2.1 GENERAL

Cummins has a population of approximately 800 and is at the centre of an agricultural region with key industries of sheep farming and cereal grain growing. The township is shown in Figure 2, and comprises small retail areas on Railway Tce and Bruce Tce, a school, a hotel and grain storage facilities operated by Viterra. A railway line runs through the centre of the town, which is understood to have become non-operational as of May 2019.

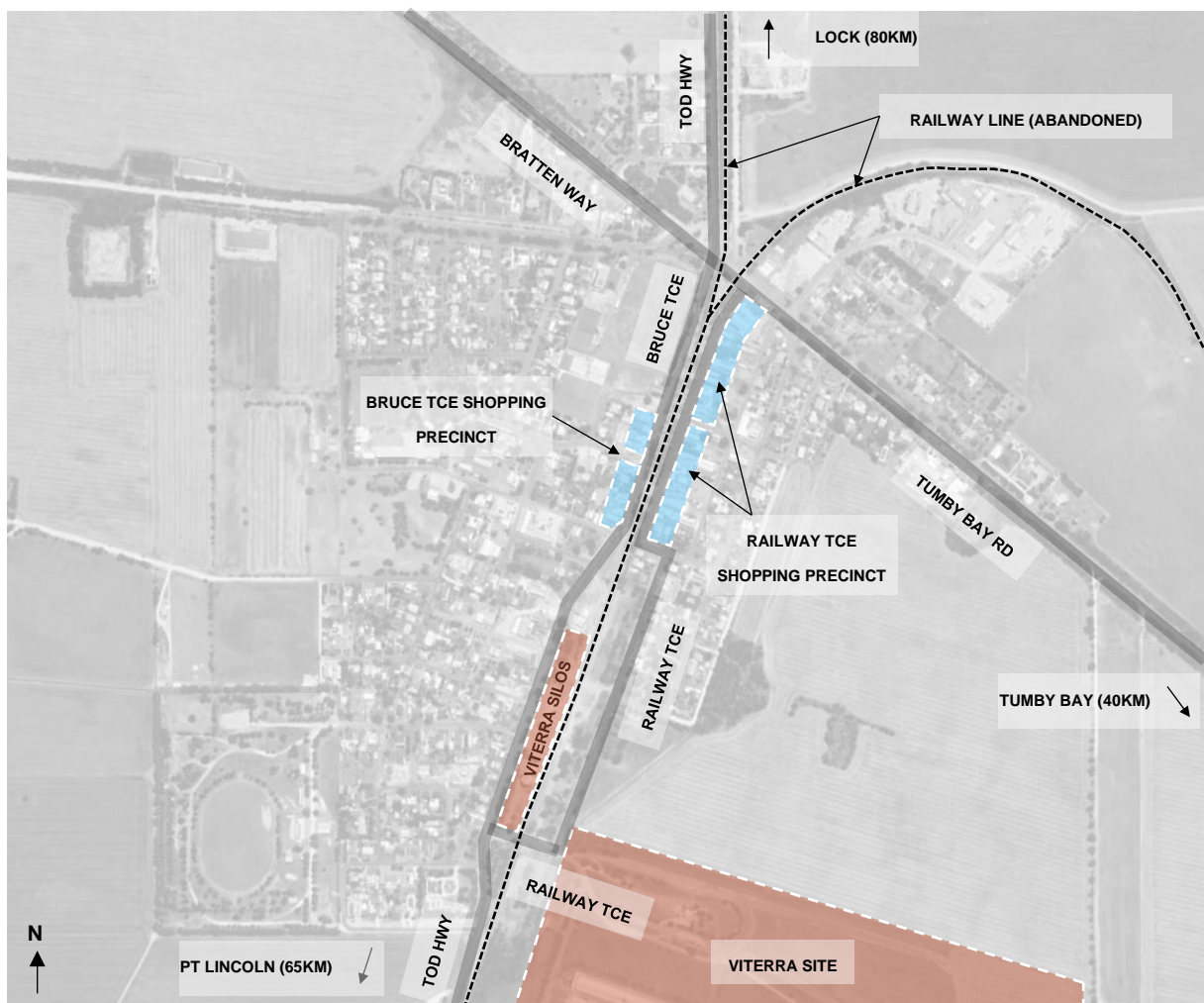


Figure 2 Township of Cummins

Council has provided current zoning plans within the township and these are shown in Figure 3. It can be seen that the land adjacent Bruce Tce and Railway Tce is typically zoned as commercial, with residential zones located within the eastern and western portions of the town.

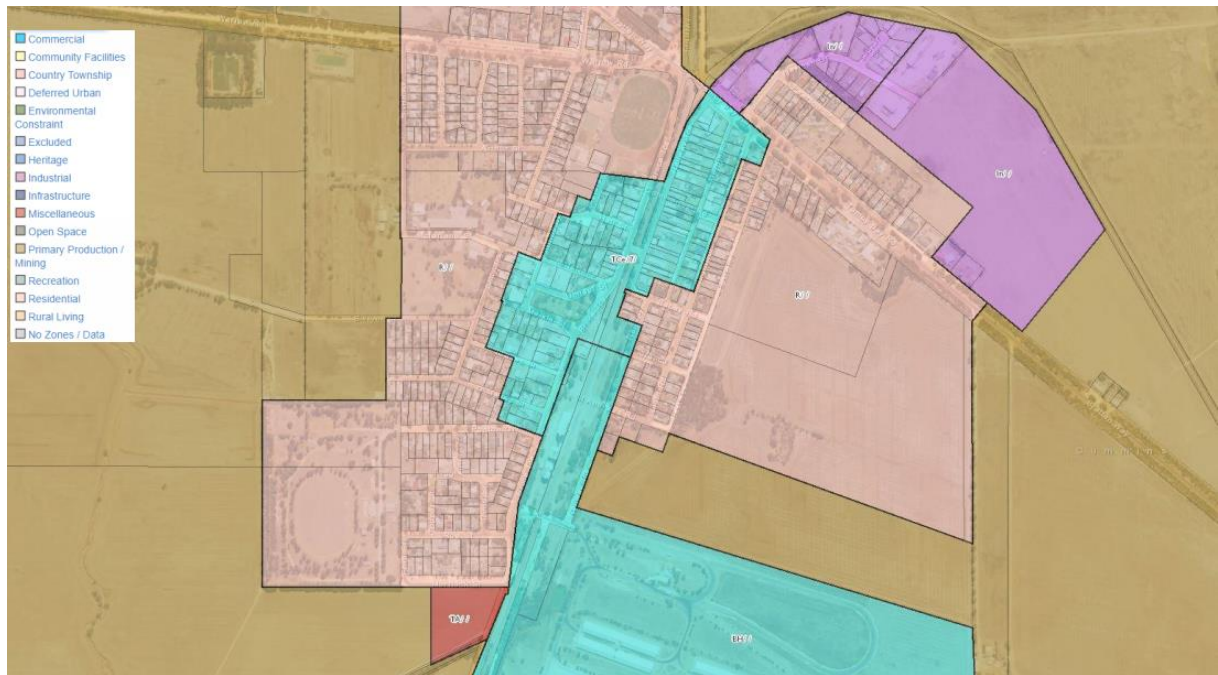


Figure 3 Current Zoning in Cummins

2.2 BRUCE TERRACE SHOPPING PRECINCT

The Bruce Tce Shopping Precinct has been defined as the section of Bruce Tce and Railway Tce between McFarlane St in the south and Tumby Bay Rd in the north, as shown in Figure 4. There are a number of small retail facilities (such as a butcher, chemist and bakery) on the western side of Bruce Tce within this precinct. On the eastern side of Railway Tce, there are a number of small businesses and facilities, including a hotel, supermarket and banking facilities.

On street parallel parking is available on both the eastern and western sides of Bruce Tce and the eastern side of Railway Tce, with angled parking provided on the western side of Railway Tce, adjacent the median containing the redundant railway line.

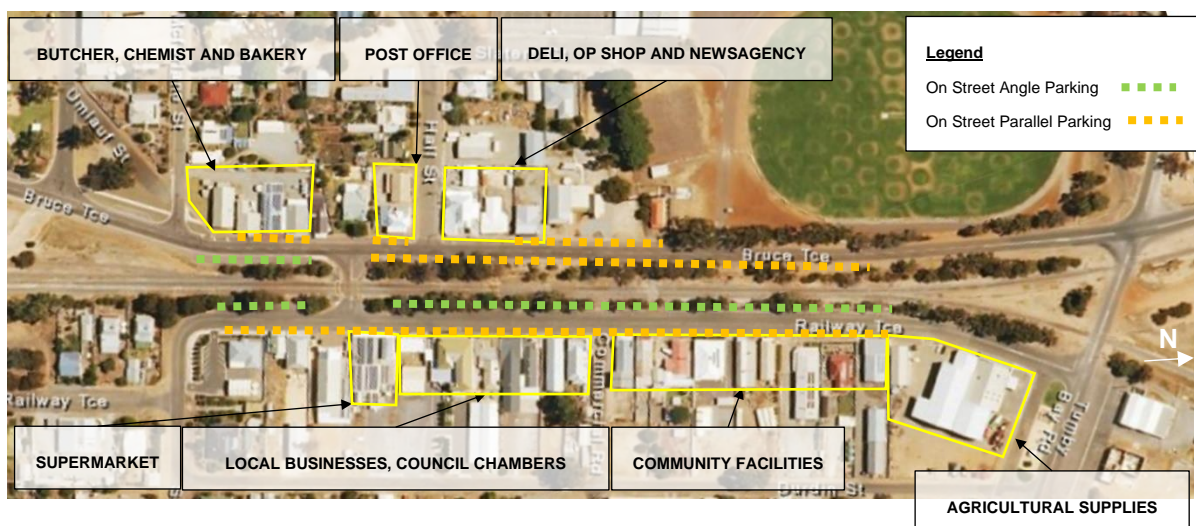


Figure 4 Existing Conditions – Bruce Tce

Whilst onsite on the 22 June 2020, WGA observed a high volume of on-street parking turnover (particularly on Bruce Tce adjacent the bakery and the post office).

2.3 EXISTING VITERRA SITE OPERATIONS

As discussed in Section 2.1, there are a number of grain storage facilities operated by Viterra within the southern portion of Cummins, as shown in Figure 5. WGA met with a representative from Viterra on the 22 June 2020 and also received additional information in an email from Viterra on the 17 July 2020 (refer to Appendix A). As a result, WGA understand that heavy vehicles associated with Viterra currently undertake the following movements:

- All vehicles enter the Viterra sites via Railway Tce from Bruce Tce (refer to Figure 6)
- All vehicles proceed straight to the Viterra Processing Site where they are weighed and processed (area contains a large area to contain queuing vehicles as required)
- The vehicles then either travel internally to the Viterra Storage Site (majority of vehicles) or via Railway Tce to the Viterra Silos Site
- Vehicles exiting the Viterra Storage Site do so via Railway Tce to Bruce Tce, whilst those exiting the Viterra Silos Site may use the Viterra Silo Egress Point, which provides direct access onto Bruce Tce or travel via Railway Tce to Bruce Tce.
- Some vehicles travel straight through Cummins (without stopping at the Cummins Viterra Sites) via Bruce Tce/Tod Hwy



Figure 5 Viterra Sites within Cummins



Figure 6 Existing Condition – Viterra Site Access from Bruce Tce/Railway Tce

WGA understand that heavy vehicle movements associated with Viterra can be broadly classified into the following three categories:

- Grower Receipts (to Cummins) – these movements consist of local producers delivering grain to the Viterra storage facility and are understood to generally originate to the north, east and west of Cummins
- Site to Site (Cummins to Port Lincoln) – these movements consist of heavy vehicles transporting grain from the Cummins Viterra storage facility to Port Lincoln (where grain is loaded to ships)
- Site to Site (Through Cummins) – these movements consist of heavy vehicles transporting grain from other storage sites to the north of Cummins (such as from Lock or Wudinna) to Port Lincoln (where grain is loaded to ships). These movements would pass through Cummins from north to south only and not stop at the Cummins Viterra storage facility.

Viterra has provided the average number of movements per year associated with each category (taken over 3 years), and these are summarised in Table 1. Also provided were the average splits of heavy vehicle types associated with each category and the average mass transported per vehicle, and these are also summarised in Table 1. For example, of the average 3,618 movements/year associated with Site to Site movements (Cummins to Port Lincoln), 47% of these (or 1,700) were by AB-Triples. The average mass of material transported per heavy vehicle was 64.4t.

Table 1 Viterra Heavy Vehicle Movements

Movement	Average number of movements / 1 year	Average split of heavy vehicles types		Mass Transported (Tonnes)	Average Mass/Truck (Tonnes)
Site to Site (Cummins to Port Lincoln)	3,618	AB-Triple	47%	235,788	64.4
		A-Double Road Train	53%		
Site to Site (Through Cummins)	3,055	AB-Triple	47%	195,591	63.8
		A-Double Road Train	53%		
Grower Receivals (to Cummins)	10,620	A Double	39.87%	395,467	37.1
		AB Triple	0.61%		
		B-Double	1.48%		
		B-Triple	1.50%		
		Rigid Truck	19.07%		
		Single	37.47%		

There are a higher number of vehicle movements associated with Viterra during harvest season, which is understood to be typically between the 1st of October and the 1st of January each year, and Viterra has provided the historical proportions in Table 2. It can be seen that the proportion has varied each year based on seasonal conditions (resulting in considerable swings in production and hence grower receipt tonnage).

Viterra have also advised typical harvest receipt hours of operations are between 7am - 7pm whilst Site to Site Movements hours of operation are typically between 7am – 3pm. During harvest, Viterra also engage operators to assist with overflow during a limited proportion of the harvest between the hours of 7pm – 3am.

Table 2 Proportion of moved volume in Harvest Season

Season	Percent of volumes moved between 1st Oct - 1st Jan (Harvest Season)
2019/2020	49%
2018/2019	55%
2017/2018	87%

WGA has undertaken an assessment of swept paths of a B Triple and an A Triple at the junction of Railway Tce and Bruce Tce junction, adjacent the Viterra site and these are included in Appendix C for reference. It can be seen that the vehicles can undertake turning movements within the provided pavement areas at the junction, however due to the current width of Railway Tce there is currently not enough width for two heavy vehicles to pass one another. Opportunities for improvement at this location are discussed further in Section 5.2.

2.4 TRAFFIC VOLUMES

2.4.1 General

Traffic volume data for midblock sections of roads within the township of Cummins has been obtained from the SAVIEWER website and Council databases. In addition, WGA undertook short period turning counts within Cummins whilst onsite at the junction of Bruce Tce/Tod Hwy/Tumby Bay Rd/Bratten Way and the junction of Hall St/Bruce Tce/Railway Tce Access.

2.4.2 Midblock Volumes

The available traffic volume data within midblock sections is summarised in Figure 7. It can be seen that the highest traffic volumes are typically observed on the Tod Hwy/Bruce Tce, with the highest traffic volumes observed within the town.

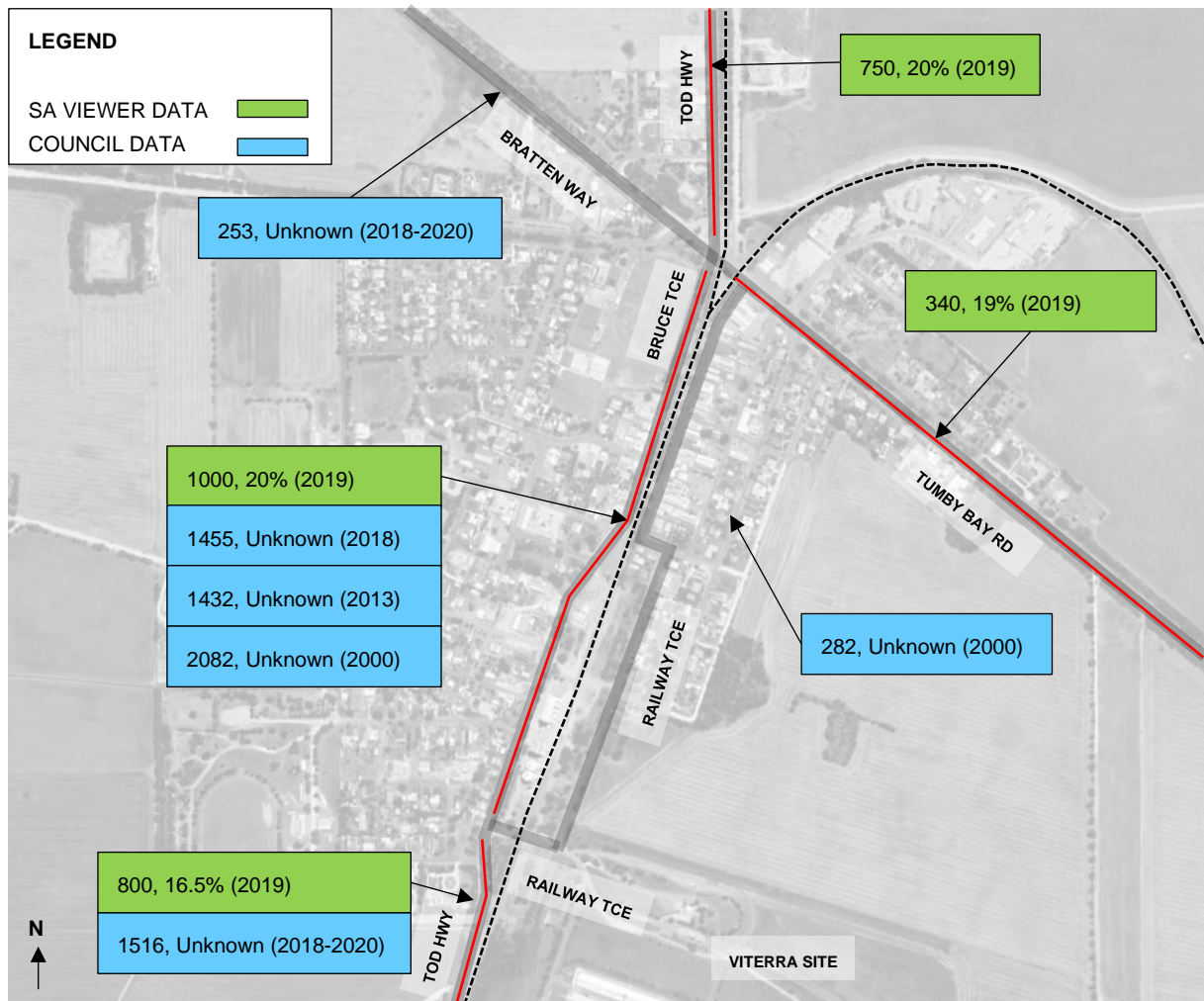


Figure 7 Historic Traffic Count Information – Average Daily Volume, Percentage of Heavy Vehicles (Year of Data)

2.4.3 Turning Counts

Whilst onsite on the 22 June 2020, WGA undertook turning movement counts over the duration of one hour at the intersection of Bruce Tce/Tod Hwy/Tumby Bay Rd/Bratten Way and at the junction of Hall Street/Bruce Tce/Railway Tce Access. Detailed turning counts are contained within Appendix B, and the results are also summarised in Figure 8 and Figure 9.

At the junction of Bruce Tce/Tod Hwy/Tumby Bay Rd/Bratten Way, a high number of movements between Bruce Tce and Tumby Bay Rd were observed. The movement with the highest volume of heavy vehicles was Tod Highway to Bruce Tce and vice versa.

At the junction of Hall Street/Bruce Tce/Railway Tce, high traffic volumes were observed to traffic between Tod Highway and Railway Tce North using the Railway Tce Access Road. No heavy vehicle movements were observed outside of Tod Highway/Bruce Tce.

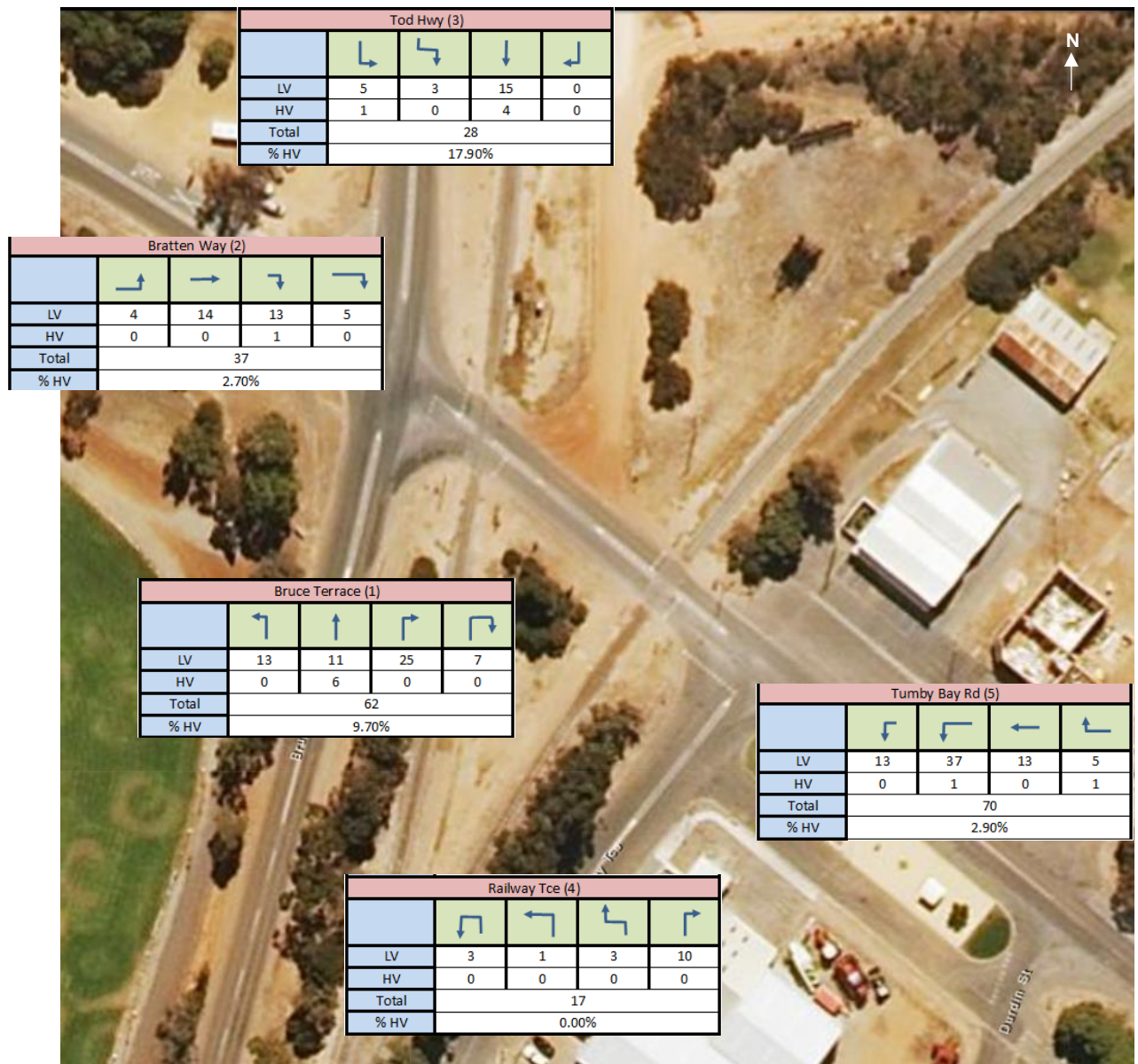


Figure 8 Turning Count Results – Bruce Tce/Tumby Bay Rd (11:15AM to 12:15PM, 22 June 2020)



Figure 9 Turning Count Results – Bruce Tce/Hall St/Railway Tce (2:25PM to 3:25PM, 22 June 2020)

2.5 HEAVY VEHICLE ROUTES

Gazetted heavy vehicle routes (36.5m road trains) within Cummins include Tod Hwy, Bruce Tce, Tumby Bay Rd, Bratten Way and the Viterra access section of Railway Tce, as shown in Figure 10. In addition, Tod Hwy, Bruce Tce, Tumby Bay Rd and the Viterra access section of Railway Tce are also gazetted up to PBS Level 3A, which equates to a A-Double Road Train (Type I), as shown in Figure 11.

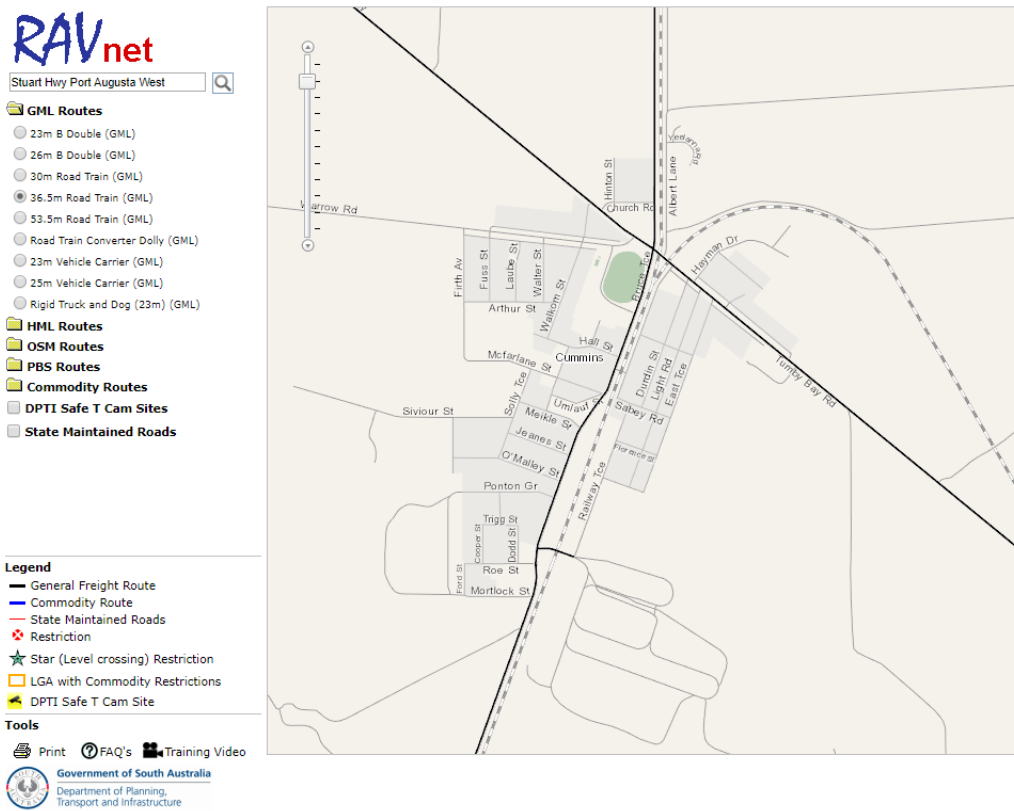


Figure 10 36.5m A Double Gazetted Routes in Cummins (Source: DPTI RavNet)

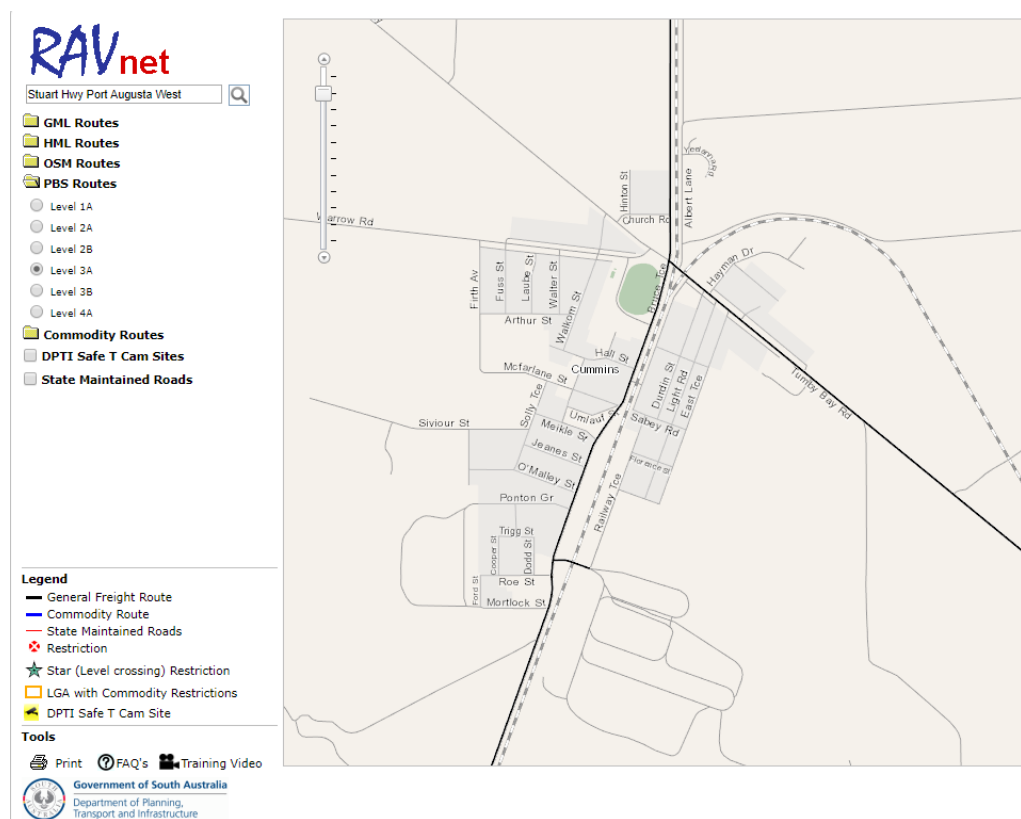


Figure 11 PBS Level 3A Gazetted Routes in Cummins (Source: DPTI RavNet)

2.6 CRASH HISTORY

Included below in Table 3 is a summary of the types of crashes within the township of Cummins between 2015 and 2019, sourced from DPTI's SAVIEWER. Included below in Figure 12 are the crash locations within the township of Cummins.

Bruce Tce recorded two crashes over this time period. One on the mid-block section between Jeans St and Meikle St where a vehicle struck a parked car and the second at the intersection of Tumby Bay Rd/Bruce Tce where there was a collision with a right turning vehicle. Although these are not considered high crash rates for a period of 5 years and there is no distinct pattern or location that indicates a high risk area, this information will still be considered in the context of developing concept design options.

Table 3 Historic Crash Types within the Township of Cummins (Source: Locations SA 2015-2019)

Intersection	Total Crashes	Casualty Crashes	Casualties	Fatalities	Serious Injury	Rear End	Hit Fixed Object	Side Swipe	Right Angle	Head On	Hit Pedestrian	Roll Over	Right Turn	Hit Parked Vehicle	Hit Animal	Hit Object on Road	Left Road Out of Control
Frith Av/Warrow Rd	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Frith Av/Arthur St	1	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Unnamed/O'Malley St	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Bruce Tce	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Walkhom St/Hall St	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Warrow Rd	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Bruce Tce/Tumby Bay Rd	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Total	7	1	0	0	1	0	3	0	1	0	0	1	1	1	0	0	0

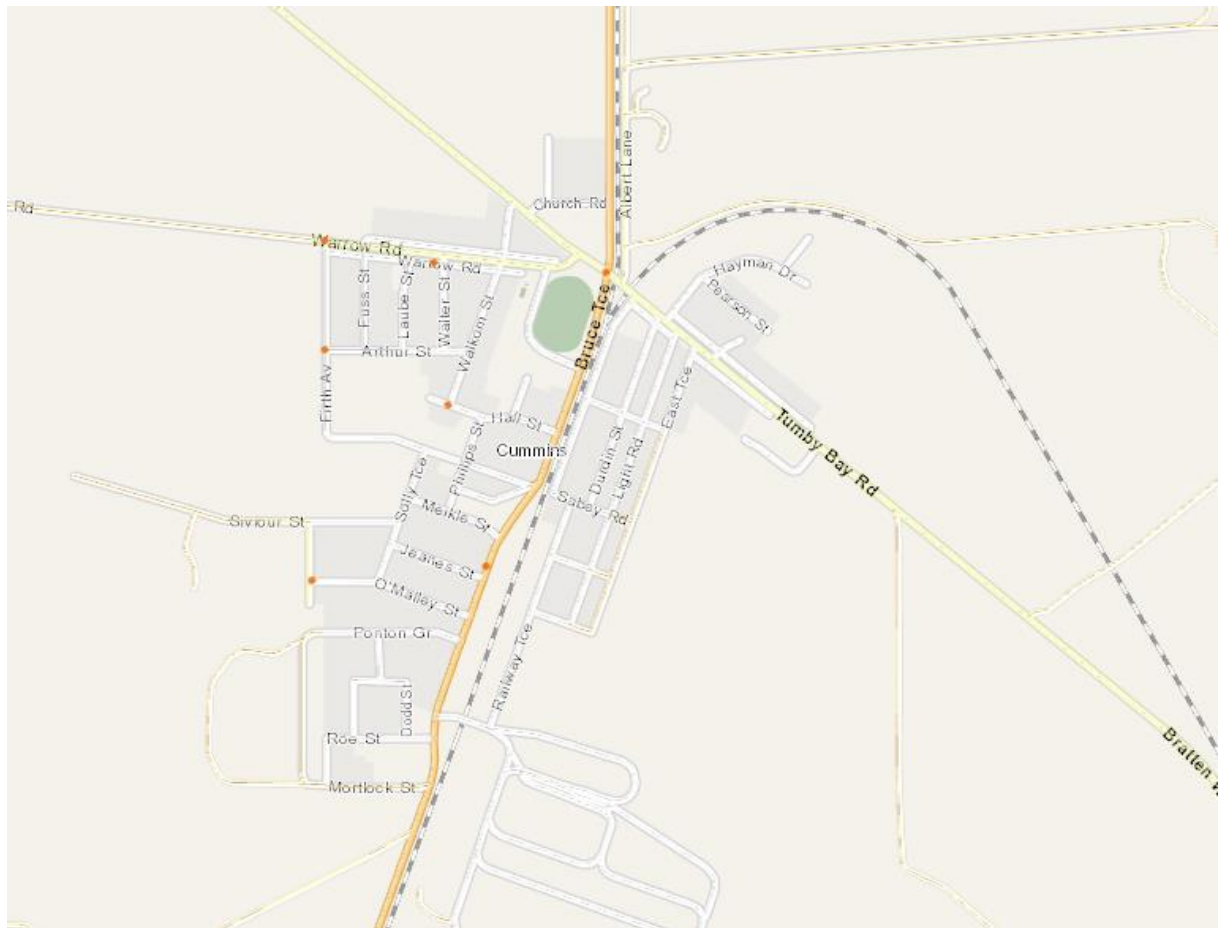


Figure 12 Crash Locations for Cummins Township (Source: Locations SA)

3 FUTURE DEVELOPMENTS

3.1 GENERAL

Through discussions with Viterra and Council, WGA has become aware of a number of proposed future developments within Cummins, including:

- Formalisation of Truck Parking Bays on Bruce Tce
- Future Growth in Viterra Operations
- Introduction of A Triple Vehicles for Viterra Operations

Each of these elements are discussed further in the sections below.

3.2 TRUCK PARKING

It is understood that works are proposed in the near future to formalise parallel parking areas on the northern end of Bruce Tce (refer to Figure 13) to develop a designated truck parking area. The works are understood to be developed in conjunction with DPTI and are to include the introduction of kerbing and potentially signage.



Figure 13 Location of Proposed Truck Parking Works

3.3 VITERRA OPERATIONS

Viterra has estimated that farming production increase is limited over the coming 10 years with a forecast growth of up to 0.5% per year. However, harvest conditions are impacted by seasonal conditions resulting in considerable swings in production and hence grower receipt tonnage.

3.4 A TRIPLES

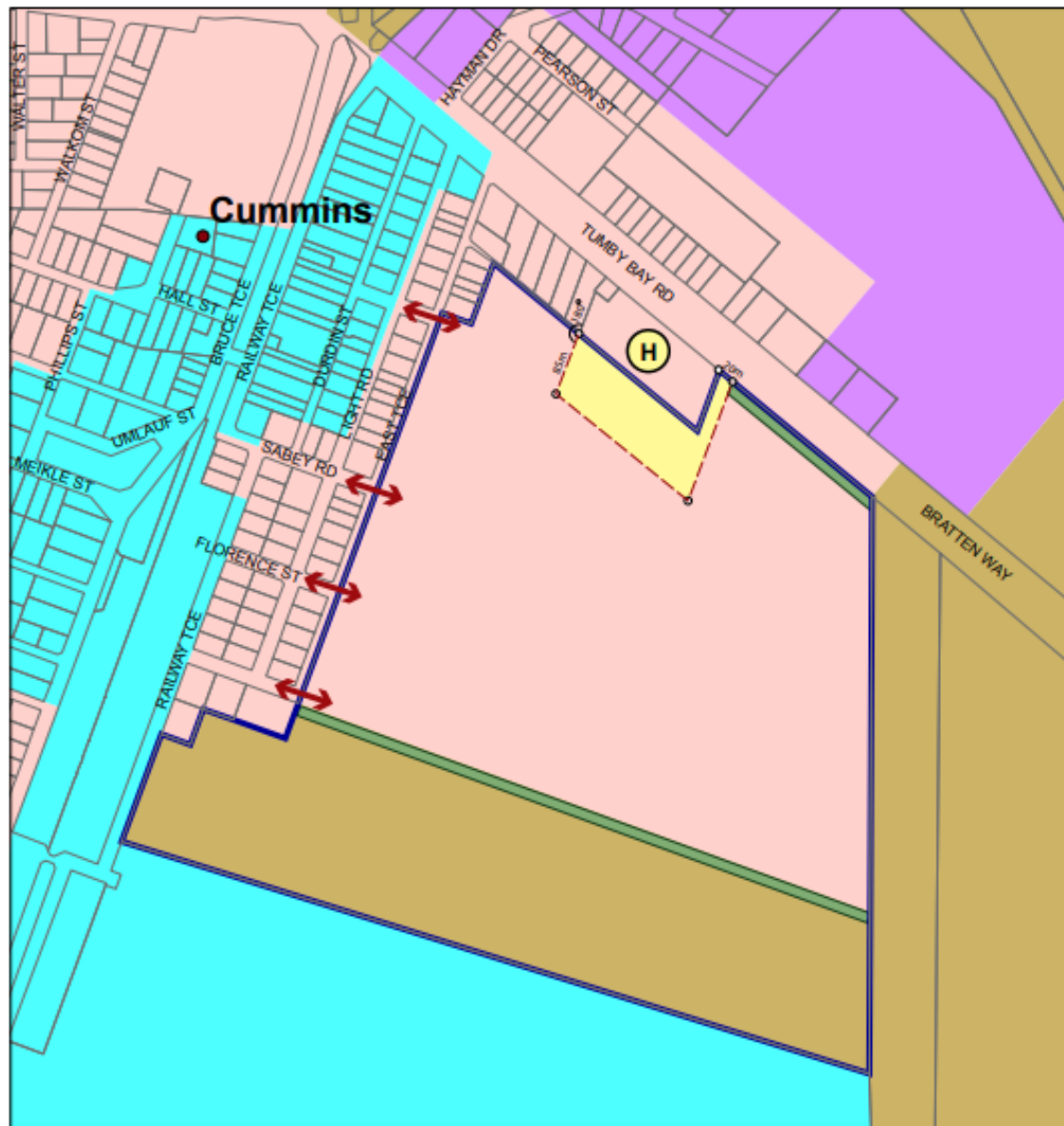
It is understood that Viterra propose to introduce A Triple heavy vehicles in future between Port Lincoln and Cummins to increase the amount of grain that can be transported per vehicle (therefore reducing the number of heavy vehicle movements required).

An assessment was undertaken by DPTI on the suitability of the network to allow for these vehicles, with the resultant report included in Appendix D. It is understood that as a result, DPTI have indicated that they are likely to endorse the proposal. However, it is understood that Council have concerns with the vehicles travelling on Railway Tce, and as such are not currently supportive of the proposal.

3.5 COUNCIL DEVELOPMENT PLAN

In a high-level review of the Council Development Plan (dated 12th July 2018), WGA has identified a number of concept plans relevant to the township of Cummins. These plans are shown in Figure 14 to Figure 16, and include:

- New residential development to the east of Railway Tce, with accessing roads to be provided from existing residential streets bordering the western side of the development;
- An industrial precinct to the north of Tumby Bay Rd; and
- Proposed tourist accommodation on Tod Highway (accessed off of Mortlock St)



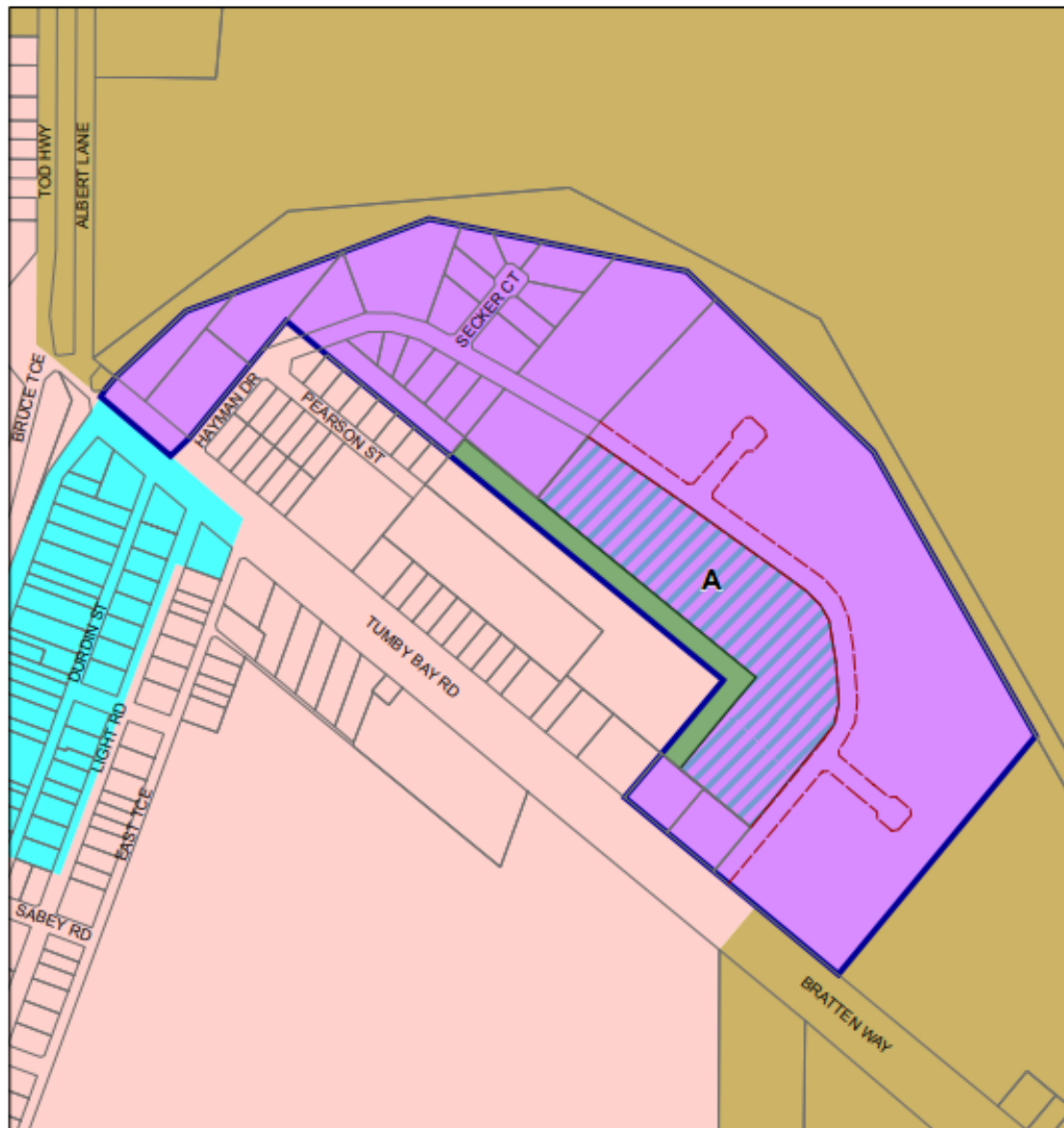
- Commercial
- Industrial
- Primary Production
- Residential
- Aged Care
- H Hospital
- Road Connection
- Native Vegetation Buffer
- Concept Plan Boundary



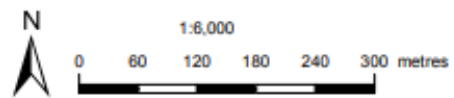
Concept Plan Map LEP/9 CUMMINS EASTERN

LOWER EYRE PENINSULA COUNCIL
Consolidated - 12 July 2018

Figure 14 Cummins East Concept Plan



- Commercial
- Industrial
- Primary Production
- Residential
- Land Uses With Limited off-site Impacts Preferred
- Proposed Road Alignment
- Native Vegetation Buffer
- Concept Plan Boundary



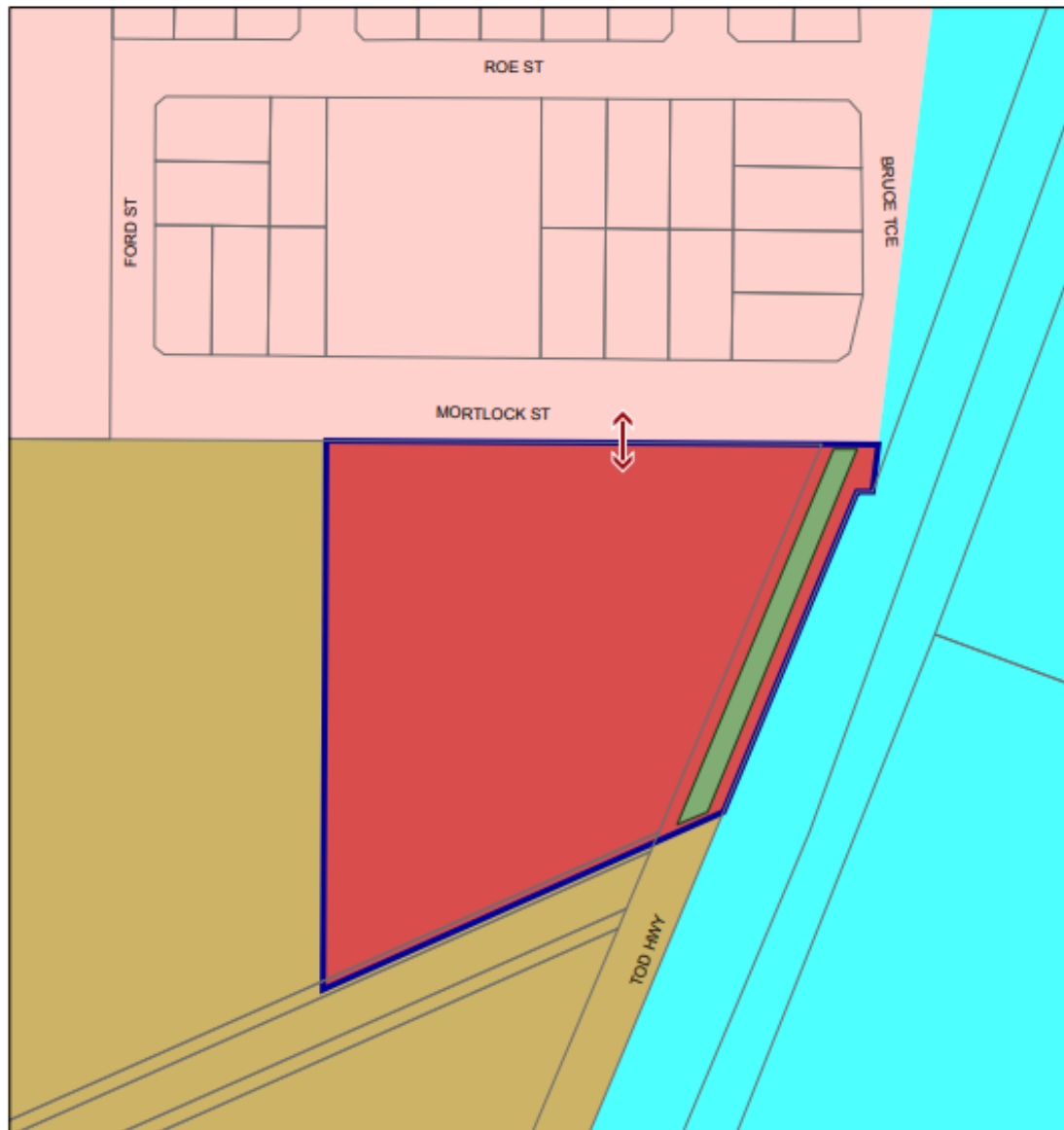
CUMMINS

Concept Plan Map LEP/11

CUMMINS INDUSTRIAL

LOWER EYRE PENINSULA COUNCIL
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Figure 15 Cummins Industrial Concept Plan



- Commercial
- Tourist Accommodation
- Primary Production
- Residential
- Road Access
- Native Vegetation Buffer
- Concept Plan Boundary



CUMMINS

Concept Plan Map LEP/12

CUMMINS TOURIST

LOWER EYRE PENINSULA COUNCIL
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Figure 16 Cummins Tourist Concept Plan

4 BRUCE TERRACE SHOPPING PRECINCT

4.1 GENERAL

The Bruce Tce Shopping Precinct comprises the section of Bruce Tce and Railway Tce between McFarlane St in the south and Tumby Bay Rd in the north. The precinct contains a number of local businesses and community facilities. To assist with improving safety and amenity within this precinct, the following concept options have been developed for consideration:

- Option 1 – One Way
- Option 2 – Off Street Parking
- Option 3 – One Way Medians
- Option 4 – Right Turn Lane
- Option 5 – Service Road
- Option 6 – Angle Parking
- Option 7 – Median Parking

A description of each of these options, as well as a discussion on the impacts to access and traffic movements, safety, heavy vehicles, amenity and rail operations is included in the sections below. The intent is to provide a high-level comparison of each option, noting that not all impacts of every option will be captured in this preliminary assessment. Conceptual sketches are contained within Appendix E.

It should be noted that each of these options illustrates a separate concept and could be considered by Council to be applied in unison or in conjunction with other options. For example, Option 2 (Off Street Parking) and Option 3 (One-way Medians) could both be applied to the precinct if Council were looking to both improve parking facilities and traffic flows.

4.2 OPTION 1 – ONE WAY

Option 1 incorporates modifying Railway Tce and Bruce Tce (both currently two-way roads), to be restricted to one-way movements, as illustrated in Figure 17. This would include transitioning southbound Bruce Tce traffic flows to one way just past the junction of Bruce Tce/Tumby Bay Rd by directing this traffic to Railway Tce. The one-way southbound flows on Railway Tce would then merge back in with Bruce Tce to the south of McFarlane Street.

The reduced width required for traffic flows would allow for on-street angled parking to be installed on the outside lane of both Railway Tce and Bruce Tce. To assist with maintaining connectivity through the township, the current access between Railway Tce and Bruce Tce would need to be relocated to the South to opposite McFarlane St.

A summary of the impacts identified by the introduction of this option is included in Table 4.



Figure 17 Concept Layout – Bruce Tce Option 1

Table 4 Concept Impacts – Bruce Tce Option 1

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	-	<ul style="list-style-type: none"> - Sabey Rd will no longer offer access to Railway Tce (to prevent u-turns occurring to the south of Sabey Rd) - Will reduce connectivity for local residents 	High
Safety	<ul style="list-style-type: none"> - Will reduce the volume of pedestrians crossing the road to access shops from parking bays 	<ul style="list-style-type: none"> - May result in motorists undertaking unsafe u-turns 	Moderate
Heavy Vehicles	<ul style="list-style-type: none"> - May allow heavy vehicles to park and access retail facilities on Railway Tce (supermarket etc) 	<ul style="list-style-type: none"> - Will slightly increase the distance required to travel through Cummins 	Moderate

Element	Positives	Negatives	Relative Impact
Amenity	<ul style="list-style-type: none"> - Will allow additional formalised on-street parking spaces - Will present opportunities to provide green space (parks etc) between Railway Tce and Bruce Tce 	<ul style="list-style-type: none"> - Will result in commercial vehicle movements on Railway Tce (local community centre) 	High
Rail Operations	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Due to skewed angle of intersect between Railway Tce and the railway line, this option would not be viable if the rail line was to become operational 	High
Construction Cost	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Will require land acquisition within rail corridor and new pavement areas 	High

4.3 OPTION 2 – OFF STREET PARKING

Option 2 incorporates introducing off-street parking areas at the rear of existing retail facilities on Bruce Tce, as shown in Figure 18. Motorists would be directed towards these areas using parking signage, with the aim of reducing the amount of on-street parking on Bruce Tce (which is heavily utilised by heavy vehicles). Signage would also be introduced to direct trucks toward the proposed truck parking bays to be constructed on the northern end of Bruce Tce (refer to Section 3).

A summary of the impacts identified by the introduction of this option is included in Table 5.



Figure 18 Concept Layout – Bruce Tce Option 2

Table 5 Concept Impacts – Bruce Tce Option 2

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	- Maintains existing conditions	-	Low
Safety	- Will reduce the volume of pedestrians crossing the road to access shops from parking bays	-	Low
Heavy Vehicles	-	- Heavy vehicles will have restricted parking out the front of community facilities (resulting in truck drivers having to park and walk 5 – 10 minutes to facilities)	Moderate
Amenity	- No impact	-	Low
Rail Operations	- No impact	-	Low
Construction Cost	-	- Will require land acquisition for off-street parking	Moderate

4.4 OPTION 3 – ONE WAY MEDIANS

Option 3 incorporates the introduction of an additional access point between Railway Tce and Bruce Tce, as shown in Figure 19. The existing access point would be restricted to one-way westbound movements and the new access point restricted to one-way eastbound movements, creating a large “roundabout” arrangement. This option will reduce the amount of movements of vehicles accessing Hall St from/to Railway Tce, which is understood to be a high-volume movement and currently requires motorists to undertake a right turn onto Bruce Tce.

A summary of the impacts identified by the introduction of this option is included in Table 6.



Figure 19 Concept Layout – Bruce Tce Option 3

Table 6 Concept Impacts – Bruce Tce Option 3

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	- Will improve access between Railway Tce and Bruce Tce	- May result in local residents needing to adopt alternative routes	Moderate
Safety	- Will reduce right turning movements from Hall St/Railway Tce access onto Bruce Tce	-	Low
Heavy Vehicles	- No impact	-	Low
Amenity	- No impact	-	Low
Rail Operations	-	- Will require additional rail crossing infrastructure (signs etc) at the location of the new access point	Moderate
Construction Cost	-	- May require additional railway crossing infrastructure	Moderate

4.5 OPTION 4 – RIGHT TURN LANE

Option 4 also includes the introduction of a new access point between Railway Tce and Bruce Tce, as shown in Figure 21. A channelised right turn lane (CHR) is also provided to allow right turning

motorists from Bruce Tce to the new access point to queue outside of the northbound through lane. This option will require parking restrictions on the western and eastern side of Bruce Tce and may result in access restrictions to the fuel bowser located outside of the Deli on Bruce Tce.

For development of the concept design, the right turn lane has been designed to cater for a 12.5m rigid vehicle. Consideration could also be given to combining this option with Option 3 to include one-way access points only. A summary of the impacts identified by the introduction of this option is included in Table 7.

It should be noted that the warrant for a right turn lane has been assessed against guidance contained within Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management (2020) (AGTM6). The turning and through volumes observed during WGA's traffic count (refer to Section 2.4.3) were utilised in the assessment and the results are shown in Figure 20. It can be seen that based on the turn movements observed, that a channelised right turn lane is not warranted on Bruce Tce. However, this option has still been presented for consideration.

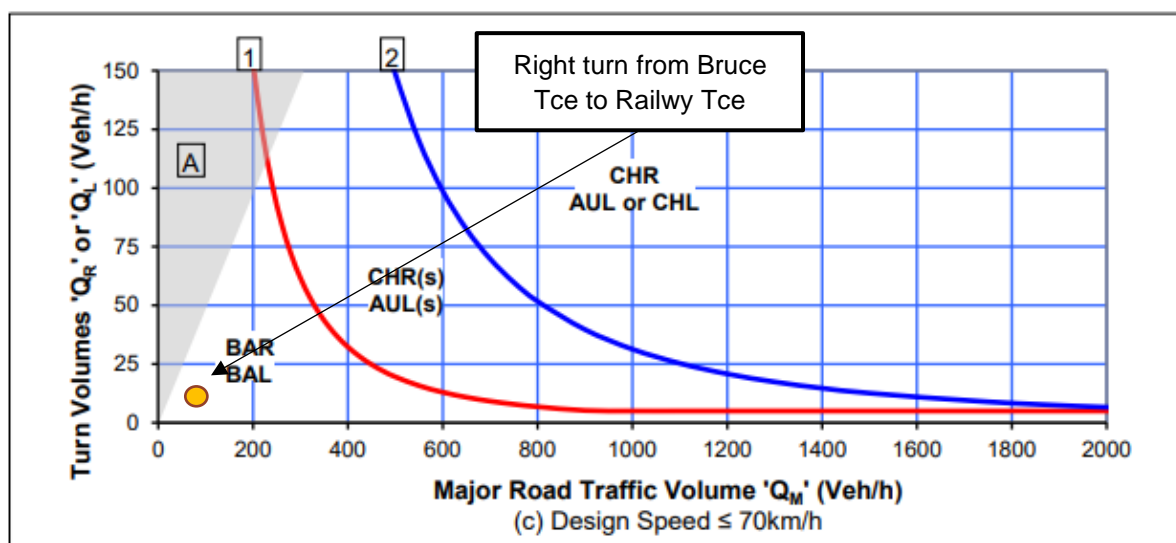


Figure 20 Warrants for Turn Treatment on Bruce Tce



Figure 21 Concept Layout – Bruce Tce Option 4

Table 7 Concept Impacts – Bruce Tce Option 4

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	- Will improve access between Railway Tce and Bruce Tce	- CHR not warranted in accordance with AGTM6	Low
Safety	<ul style="list-style-type: none"> - Will reduce interaction between northbound through travelling heavy vehicles and northbound right turning vehicles - Will reduce right turning movements from Hall St/Railway Tce access onto Bruce Tce 	- Will result in through travelling vehicles travelling closer to hazards within the clear zone (stobie poles etc)	Moderate
Heavy Vehicles	- Will reduce interaction between northbound through travelling heavy vehicles and northbound right turning vehicles	- Heavy vehicles will have restricted parking out the front of community facilities (resulting in truck drivers having to park and walk 5 – 10 minutes to facilities)	Moderate
Amenity	-	<ul style="list-style-type: none"> - Will remove parking opportunities at the front of the deli/op shop etc. on Bruce Tce - May restrict access to the fuel bowser on Bruce Tce 	High
Rail Operations	-	- Will require additional rail crossing infrastructure (signs etc) at the location of the new access point	Moderate
Construction Cost	-	- May require additional railway crossing infrastructure	Moderate

4.6 OPTION 5 – SERVICE ROAD

Option 5 incorporates a service road on the western side of Bruce Tce, providing access and on-street parking spaces for the deli and op shop, as shown in Figure 22. The service road would commence to the north of Hall St and terminate prior to the oval access road and would consist a narrow raised median separator to separate through travelling traffic and traffic looking to park on Bruce Tce.

This option would require road widening and kerb realignment on the eastern side of Bruce Tce, which may require the removal of existing trees/vegetation and cadastral boundary realignment. Consideration was given to applying a similar treatment further south on Bruce Tce (adjacent the bakery and the butcher), however due to a number of access driveways and the close proximity of Hall St this option is not considered feasible within this area.

A summary of the impacts identified by the introduction of this option is included in Table 8.

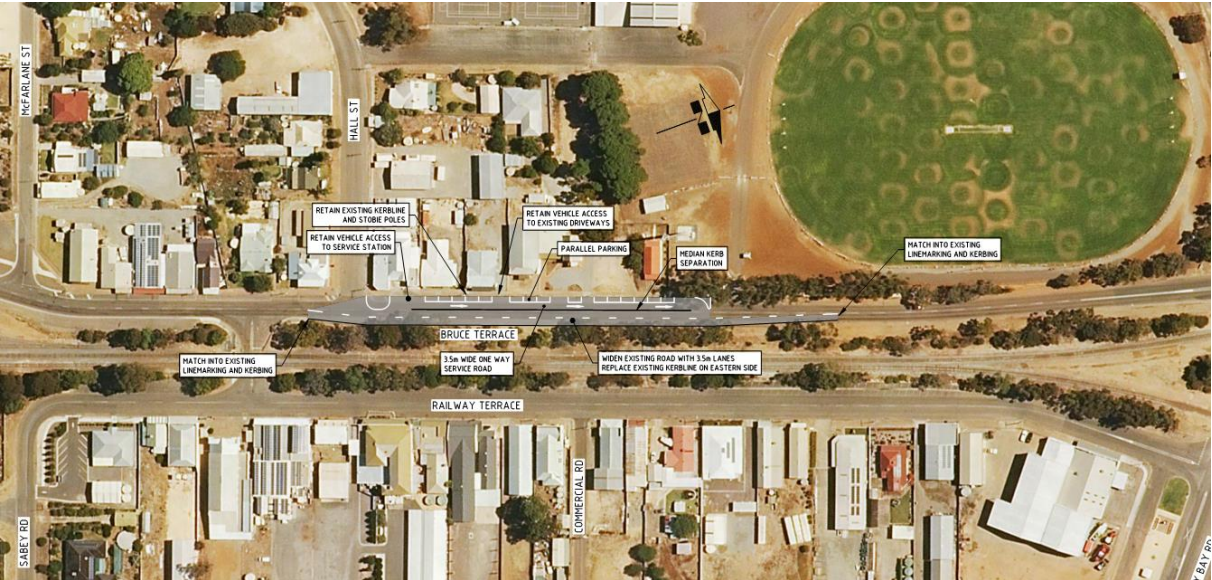


Figure 22 Concept Layout – Bruce Tce Option 5

Table 8 Concept Impacts – Bruce Tce Option 5

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	-	- Vehicles exiting the service road and looking to travel to Railway Tce will need to travel north and utilise Tumby Bay Rd to access Railway Tce	Moderate
Safety	<ul style="list-style-type: none"> - Will separate through moving traffic from traffic slowing to park - May reduce the number of pedestrians crossing Bruce Tce from parking spaces on the eastern side of Bruce Tce 	- Restricted sight distance at egress point to northbound vehicles due to restricted angle of approach	Moderate

Element	Positives	Negatives	Relative Impact
Heavy Vehicles	- Will remove slowing vehicles looking to park from the through lane on Bruce Tce	- Heavy vehicles will have restricted parking out the front of community facilities (resulting in truck drivers having to park and walk 5 – 10 minutes to facilities)	Moderate
Amenity	-	<ul style="list-style-type: none"> - May result in the removal of existing trees and vegetation on the eastern side of Bruce Tce - Will result in a reduction in on-street parking spaces - Does not address high demand of parking adjacent the bakery/chemist/butcher 	High
Rail Operations	- No Impact	-	Low
Construction Cost	-	- Will require kerb realignment and additional pavement works	Moderate

4.7 OPTION 6 – ANGLE PARKING

Option 6 includes the introduction of angle parking on the western side of Bruce Tce, as shown in Figure 23. This option will require widening and kerb realignment on the eastern side of Bruce Tce, as well as the restriction of parking.

A summary of the impacts identified by the introduction of this option is included in Table 9.



Figure 23 Concept Layout – Bruce Tce Option 6

Table 9 Concept Impacts – Bruce Tce Option 6

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	- No Impact	-	Low
Safety	- Will reduce the volume of pedestrians crossing the road to access shops from parking bays	- Will result in reversing vehicles pulling out into the northbound through lane of Bruce Tce - If existing trees on the eastern side of Bruce Tce are not removed, these will be within the clear zone of the road and may present a hazard to motorists	Moderate
Heavy Vehicles	-	- May increase interactions between vehicles slowing to park/reversing from parks and northbound heavy vehicles, resulting in delays	Moderate
Amenity	-	- May result in the removal of existing trees and vegetation on the eastern side of Bruce Tce	Moderate

Element	Positives	Negatives	Relative Impact
Rail Operations	- No Impact	-	Low
Construction Cost	-	- Will require kerb realignment and additional pavement works	Moderate

4.8 OPTION 7 – MEDIAN PARKING

Option 7 incorporates off-street parking areas within the existing rail corridor between Bruce Tce and Railway Tce, as shown in Figure 24. To prevent/discourage motorists from cutting through the parking areas to access between Railway Tce/Bruce Tce (which introduces safety concerns in the low speed parking areas), raised medians (potentially vegetation) could be constructed within the centre of the parking areas.

A summary of the impacts identified by the introduction of this option is included in Table 10.



Figure 24 Concept Layout – Bruce Tce Option 7

Table 10 Concept Impacts – Bruce Tce Option 7

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	- Will allow residents to park and access both Railway Tce and Bruce Tce without having to relocate vehicles – better connectivity	-	Low

Element	Positives	Negatives	Relative Impact
Safety	<ul style="list-style-type: none"> - Will separate slow moving parking vehicles and through travelling vehicles 	<ul style="list-style-type: none"> - Pedestrians will need to cross Bruce Tce/Railway Tce to access local shops/facilities - May result in additional right turning vehicles on Bruce Tce/Railway Tce at the car parking entrances 	Moderate
Heavy Vehicles	<ul style="list-style-type: none"> - Will remove slowing vehicles looking to park from the through lane on Bruce Tce 	<ul style="list-style-type: none"> - 	Low
Amenity	<ul style="list-style-type: none"> - Provides opportunity for town centre greening and community parks etc. 		Low
Rail Operations	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Parking areas would need to be removed if the rail line was to become operational 	High
Construction Cost	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Will require pavement works within the rail corridor (high likelihood of contamination which may result in higher construction costs) 	High

4.9 SUMMARY

A comparison table of the impacts of each of the Bruce Tce Shopping Precinct concept options is shown in Table 11.

It can be seen that Option 1 (One Way) would have the highest impact on access and traffic movements within the township, with Option 3 (One Way Medians) and Option 5 (Service Road) also impacting existing access operations.

With regard to safety, Option 2 (Off Street Parking) and Option 3 (One Way Medians) are expected to introduce the least amount of additional safety concerns when compared to the current arrangement. Option 3 (One Way Medians) would also offer the least impact to heavy vehicle operations within the township, along with Option 7 (Median Parking).

Option 1 (One Way), Option 4 (Right Turn Lane) and Option 5 (Service Road) are expected to have the highest impact on amenity within the township, with Option 4 and Option 5 reducing community parking adjacent retail facilities and Option 1 introducing heavy vehicles onto Railway Tce.

If the railway line is to be operational in the future, Option 1 (One Way) and Option 7 (Median Parking) would not be considered suitable options. These options would also be considered to have the highest construction costs when compared to the other options.

In summary, whilst all options are viable, each has different impacts and it is recommended that Council consider which elements are considered more important than others in order to determine the suitability of each option to be applied within the Bruce Tce Shopping Precinct. Viterra and DPTI should also be consulted, as well as the local community.

Table 11 Concept Impact Summary – Bruce Tce Shopping Precinct

	Bruce Tce Shopping Precinct Option						
	1	2	3	4	5	6	7
	One Way	Off Street Parking	One Way Medians	Right Turn Lane	Service Road	Angle Parking	Median Parking
Access and Traffic Movements	High	Low	Moderate	Low	Moderate	Low	Low
Safety	Moderate	Low	Low	Moderate	Moderate	Moderate	Moderate
Heavy Vehicles	Moderate	Moderate	Low	Moderate	Moderate	Moderate	Low
Amenity	High	Low	Low	High	High	Moderate	Low
Rail Operations	High	Low	Moderate	Moderate	Low	Low	High
Construction Cost	High	Moderate	Moderate	Moderate	Moderate	Moderate	High

5 VITERRA SITE ACCESS

5.1 GENERAL

As discussed in Section 2.3, the Viterra facilities are currently accessed via Railway Tce from Bruce Tce. WGA have developed concept designs for alternative access arrangements which may increase safety and improve access to the Viterra Sites, including:

- Option 1 – Widening of Railway Crossing
- Option 2 – Alternative Access from Tumby Bay Rd
- Option 3 – Alternative Access through Rail Corridor

A description of each of these options, as well as a discussion on the impacts to access and traffic movements, safety, heavy vehicles, amenity and rail operations is included in the sections below. Conceptual sketches are contained within Appendix F.

5.2 OPTION 1 – WIDENING OF RAILWAY CROSSING

Option 1 includes widening the portion of Railway Tce between Bruce Tce and the Viterra Access to cater for A Triple movements and is shown in Figure 25. To develop this concept option, the swept paths of A Triples have been modelled to ensure that incoming and outgoing vehicles can pass one another with a minimum of 1m clearance.

A summary of the impacts identified by the introduction of this option is included in Table 12.



Figure 25 Concept Layout – Viterra Access Option 1

Table 12 Concept Impacts – Viterra Access Option 1

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	<ul style="list-style-type: none"> - If A Triples are introduced, this will likely result the amount of the movements to/from the Viterra Site 	<ul style="list-style-type: none"> - 	Low
Safety	<ul style="list-style-type: none"> - Will allow for opposing heavy vehicles to safely pass one another 	<ul style="list-style-type: none"> - 	Low

Element	Positives	Negatives	Relative Impact
Heavy Vehicles	- Will allow for A Triples to access the Viterra Site	-	Low
Amenity	-	- May require removal of vegetation/trees to assist with sight distances	Moderate
Rail Operations	-	- If rail becomes operational, existing infrastructure will need to be upgraded/relocated	Low
Construction Cost	-	- Will require additional pavement works	Moderate

5.3 OPTION 2 – ALTERNATIVE ACCESS FROM TUMBY BAY RD

Option 2 incorporates development of a new access road to the Viterra Site from Tumby Bay Rd, as shown in Figure 26. It is understood that the intent of this new access road would be for vehicles to utilise this access if travelling into Cummins from the north or out of Cummins to the north, rather than utilising Bruce Tce as per current conditions. These vehicles would travel to/from Bruce Tce/Tod Hwy using Tumby Bay Rd. It is envisaged that heavy vehicles accessing Cummins from the South (or leaving Cummins to the South) will continue to utilise the existing access point on Bruce Tce/Viterra Rd.

This option will require land acquisition or a land access agreement with the landowner(s) of the land that the proposed road will exist on. For the purposes of this concept design, the road has been designed to allow opposing A-Triples to pass one another. To allow for these vehicles, the junction of the new access road and Tumby Bay will likely require extensive upgrade (to be similar in geometry to the current Bruce Tce/Railway Tce junction adjacent Viterra).

There would also need to be modifications to operations within the Viterra Site to allow heavy vehicle processing operations to be maintained.

A summary of the impacts identified by the introduction of this option is included in Table 13.



Figure 26 Concept Layout – Viterra Access Option 2

Table 13 Concept Impacts – Viterra Access Option 2

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	-	- Will increase the amount of turning movements required by heavy vehicles at the junction of Tumby Bay Rd/Bruce Tce	Low
Safety	- Will reduce the number of heavy vehicles travelling through the Bruce Tce Shopping Precinct	- Will result in additional heavy vehicles travelling through residential zones (refer to Figure 3 in Section 2.1) and in front of the Cummins hospital	Moderate
Heavy Vehicles	-	- Will increase travel time/distance for heavy vehicles travelling to/from north of Cummins	Moderate

Element	Positives	Negatives	Relative Impact
Amenity	<ul style="list-style-type: none"> - Will reduce the number of heavy vehicles travelling through the Bruce Tce Shopping Precinct 	<ul style="list-style-type: none"> - Will result in additional heavy vehicles travelling through existing residential zones (refer to Figure 3 in Section 2.1) - Will result in heavy vehicles tracking adjacent proposed residential zones 	High
Rail Operations	<ul style="list-style-type: none"> - Will reduce the number of movements crossing the railway line (in the event that the rail becomes operational) 	<ul style="list-style-type: none"> - 	Low
Construction Cost	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - Will require land acquisition/lease agreement - Will require extensive new pavement areas 	High

5.4 OPTION 3 – ALTERNATIVE ACCESS THOUGH RAIL CORRIDOR

Option 3 incorporates a new access route to the Viterria Site through the disused railway line from Bruce Tce, as shown in Figure 27. Due to the angle of the intersect with Bruce Tce, the access route would be designated as southbound only, with northbound vehicles proposed to still utilise Bruce Tce to travel north of Cummins.

A summary of the impacts identified by the introduction of this option is included in Table 14.



Figure 27 Concept Layout – Viterria Access Option 3

Table 14 Concept Impacts – Viterra Access Option 3

Element	Positives	Negatives	Relative Impact
Access and Traffic Movements	- Will reduce the number of southbound heavy vehicles travelling on the southern portion of Bruce Tce	-	Low
Safety	-	- Additional heavy vehicle turning movements will be taking place close to the Bruce Tce Shopping Precinct (which has a high level of pedestrian activity)	Moderate
Heavy Vehicles	- Will allow additional queuing storage adjacent the Viterra Site	-	Low
Amenity	- Will reduce the number of heavy vehicles travelling through the southern portion of Bruce Tce	-	Low
Rail Operations	-	- Will need to be removed if railway becomes operational	High
Construction Cost	-	- Will require new pavement areas	Moderate

5.5 SUMMARY

A comparison table of the impacts of each of the Viterra Access concept options is shown in Table 15.

It can be seen that all operations will have minimal impact on access and traffic movement within the township of Cummins. Likewise, only Option 2 (Alternative Access Tumby Bay Rd) is considered likely to have an impact on heavy vehicle operations, due to the increased distance that heavy vehicles will need to travel to access the Viterra Sites when travelling to/from the north.

Due to the introduction of heavy vehicle movements where there currently are none, Option 2 (Alternative Access Tumby Bay Rd) and Option 3 (Alternative Access Rail Corridor) are considered the most likely to introduce additional safety concerns when compared to the existing arrangement.

Option 2 (Alternative Access Rail Corridor) is also considered to have the highest impact on amenity within the township and will also likely have the highest construction cost.

In summary, whilst all options are viable, each has different impacts and it is recommended that Council consider which elements are considered more important than others in order to determine the suitability of each option to be applied to the Vittera Site Access. Vittera and DPTI should also be consulted, as well as the local community.

Table 15 Concept Impact Summary – Vittera Site Access

	Vittera Site Access Option		
	1	2	3
	Widening of Rail Crossing	Alternative Access Tumby Bay Rd	Alternative Access Rail Corridor
Access and Traffic Movements	Low	Low	Low
Safety	Low	Moderate	Moderate
Heavy Vehicles	Low	Moderate	Low
Amenity	Moderate	High	Low
Rail Operations	Low	Low	High
Construction Cost	Moderate	High	Moderate

6 TRUCK BULK FUEL STATION

WGA have identified potential locations within the township of Cummins for the location of a bulk fuel station, to provide trucks and the general public with refuelling facilities. A number of potential sites have been identified and these are shown in Figure 28.

Sites have been selected where there is no current development, access is readily available from a major road and where sites are not currently zoned as residential. Sites have also been selected at locations with a minimum area of 15,000m² and street frontage of 25m, to meet the requirements for Industrial Sites as per the Cummins Development Plan.

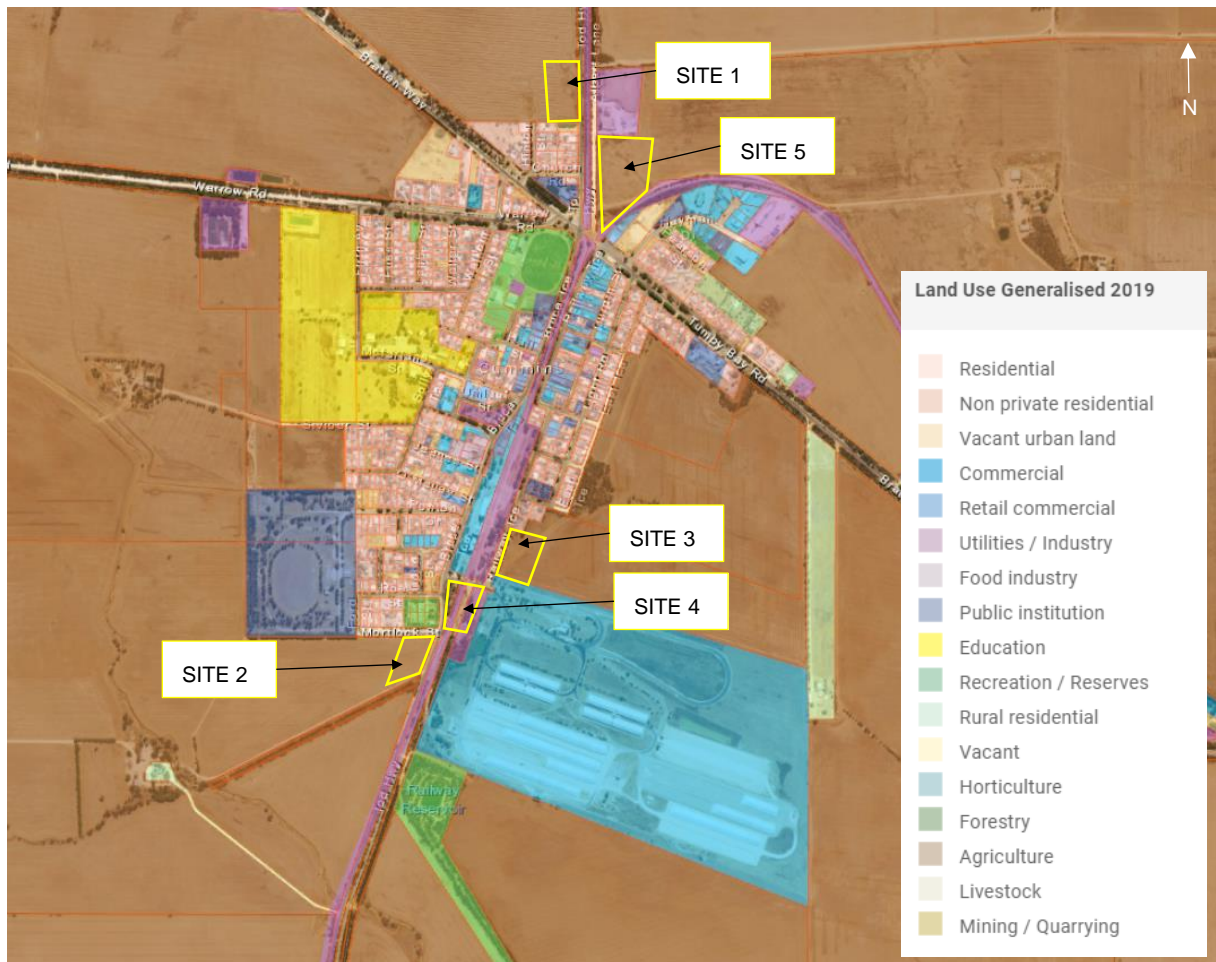


Figure 28 Potential Bulk Fuel Sites within Cummins

Site 1 is located on the western side of the Tod Hwy to the north of the township of Cummins. Currently zoned as Agricultural, there are a number of residential properties bordering the site on the southern side.

It is envisaged that this site would enable access directly to/from the Tod Hwy, albeit it will generally only cater for vehicles travelling to/from the north of Cummins. A height assessment would also need to be undertaken on the existing overhead powerlines which would cross the site accesses.

Site 2 is located on the western side of the Tod Hwy, to the south of the current Viterra Access Point at the junction of Bruce Tce/Railway Tce. Although currently zoned Agricultural, it is understood that Council plan to rezone this area for Tourism (as discussed in Section 3) and as such this may not be a suitable site. The site may be able to have a secondary access provided from the adjacent Mortlock St and a height assessment would also need to be undertaken on the existing overhead powerlines on the western side of the Tod Hwy.

Site 3 is located on the eastern side of Railway Tce, just to the north of the current access to the Viterra Site. It is envisaged that for heavy vehicles to access the site, they will need to utilise the current junction of Railway Tce/Bruce Tce before travelling eastbound along Railway Tce. There are residential properties neighbouring the site on the northern boundary and the junction of Railway Tce and the Viterra Access would likely need to be upgraded to cater for the turning movements of heavy vehicles.

Site 4 is located on the site of the existing rail line, on the south eastern corner of Railway Tce/Bruce Tce, and as such would not be a suitable site if railway operations were to resume. It is envisaged that the site would be accessible from both Railway Tce and Bruce Tce and development of the site would result in the removal of a number of large existing trees.

Site 5 is located to the east of Tod Hwy, between the two railway lines. It is envisaged that in order for this site to be viable for heavy vehicle access that new access points would be provided from the Tod Hwy, which would require crossing of the railway line. This site would therefore not be considered suitable in the event of railway operations recommencing.

In summary, if railway operations were to recommence, Sites 1, 2 and 3 would remain the only viable options. As Site 3 is located off of the Tod Hwy, it may not cater for all heavy vehicle movements and will also require upgrades to Railway Tce. As such, it is recommended that Sites 1 and 2 are further investigated by Council as potential sites, with Site 2 considered likely to result in the higher patronage due to its location to the South of Cummins. It Site 2 is still preferred by Council to be a future tourism precinct; consideration could be given to relocating the site slightly to the south.

7 OTHER IMPROVEMENT OPPORTUNITIES

7.1 GENERAL

In addition to the concept options developed within the Bruce Tce Shopping Precinct and the Viteria Site Access, WGA have identified other opportunities for safety improvements within the township of Cummins related to heavy vehicles. These options are presented within the sections below.

7.2 BRUCE TERRACE/TUMBY BAY ROAD INTERSECTION

Whilst onsite in June 2020, WGA identified that there was a high level of turning movements at the junction of Tumby Bay Rd/Bruce Tce (refer to Section 2.4.3), which is currently a four way cross intersection with no formal turning provisions. Historic crash data also shows that this site was the location of a collision with a right turning vehicle (refer to Section 2.6).

AGTM6 states that when replacing priority intersections, roundabouts can achieve strong crash reductions:

- 63–100% for fatal crashes
- 37–84% for severe (FSI) crashes
- 45–87% for casualty crashes.

To reduce the crash risks at this intersection, WGA has developed a concept design for a roundabout which would cater for all turning movements, as shown in Figure 29 (refer to Appendix G for detailed sketches).

To cater for future heavy vehicle movements (refer to Section 3.4), the roundabout concept design has been developed based on a 19m Semi-trailer undertaking all movements without mounting the annulus, and an A-Triple undertaking all movements whilst mounting the mountable annulus (refer to Appendix G for swept path sketches).



Figure 29 Concept Option - Bruce Tce/Tumby Bay Road Roundabout

If railway operations are to recommence in future, it is proposed that signalised rail crossing infrastructure be introduced to the roundabout. This would be similar to the current arrangement at the intersection of Seppeltsfield Rd/Barossa Valley Road in Nuriootpa, SA.

This arrangement is shown in Figure 30, and incorporates a signalised hold bar installed within the circulating carriageway. The hold bar is triggered by oncoming trains and allows incoming traffic potentially queuing over the rail crossing (in this example on Seppeltsfield Road eastbound approach) to clear the rail crossing before the train appears.



Figure 30 Similar Arrangement at Intersection of Seppeltsfield Rd/Barossa Valley Road, Nuriootpa SA

8 SUMMARY

8.1 GENERAL

WGA has been engaged by Council and DPTI to develop a TIS for the township of Cummins to address an increase of heavy vehicles movements through/within the township of Cummins due to the non-renewal of the rail network contract by Viterra.

A number of conceptual design solutions have been developed to improve heavy vehicle accessibility, safety and amenity within Cummins. These options have been developed as a response to reviews of existing road network and traffic flows, and developing an understanding of future Viterra operations and the impact this may have on traffic volumes within the township of Cummins

8.2 BRUCE TERRACE SHOPPING PRECINCT

The Bruce Tce Shopping Precinct has been defined as the section of Bruce Tce and Railway Tce between McFarlane St in the south and Tumby Bay Rd in the north. Currently, there are a number of small retail facilities (such as a butcher, chemist and bakery) on the western side of Bruce Tce within this precinct. Within this precinct on Railway Tce, there are a number of small businesses and facilities, including a hotel, supermarket and banking facilities.

To assist with improving safety and amenity within this precinct, the following concept options have been developed for consideration:

- Option 1 – One Way
- Option 2 – Off Street Parking
- Option 3 – One Way Medians
- Option 4 – Right Turn Lane
- Option 5 – Service Road
- Option 6 – Angle Parking
- Option 7 – Median Parking

Conceptual sketches are contained within Appendix E. A high-level comparison of each option has been undertaken, based on impacts to access and traffic movements, safety, heavy vehicles, amenity and rail operations.

Whilst all options are viable, each has different impacts and it is recommended that Council consider which elements are considered more important than others in order to determine the suitability of each option to be applied within the Bruce Tce Shopping Precinct. Consultation with DPTI, Viterra and the local community is also recommended.

8.3 EXISTING VITERRA SITE ACCESS (AND POTENTIAL ALTERNATIVE ACCESS POINTS)

The Viterra facilities are currently accessed via Railway Tce from Bruce Tce. WGA have developed concept designs for alternative access arrangements which may increase safety and improve access to the Viterra Sites, including:

- Option 1 – Widening of Railway Crossing
- Option 2 – Alternative Access from Tumby Bay Rd
- Option 3 – Alternative Access though Rail Corridor

Conceptual sketches are contained within Appendix F. Whilst all options are viable, each has different impacts and it is recommended that Council consider which elements are considered more important than others in order to determine the suitability of each option to be applied to the Viterra Site Access. Viterra and DPTI will also need to be consulted.

8.4 POTENTIAL LOCATIONS FOR A TRUCK BULK FUEL STATION

WGA have identified potential locations within the township of Cummins for the location of a bulk fuel station, to provide trucks and the general public with refuelling facilities. A number of potential sites have been identified and these are shown in Figure 31.

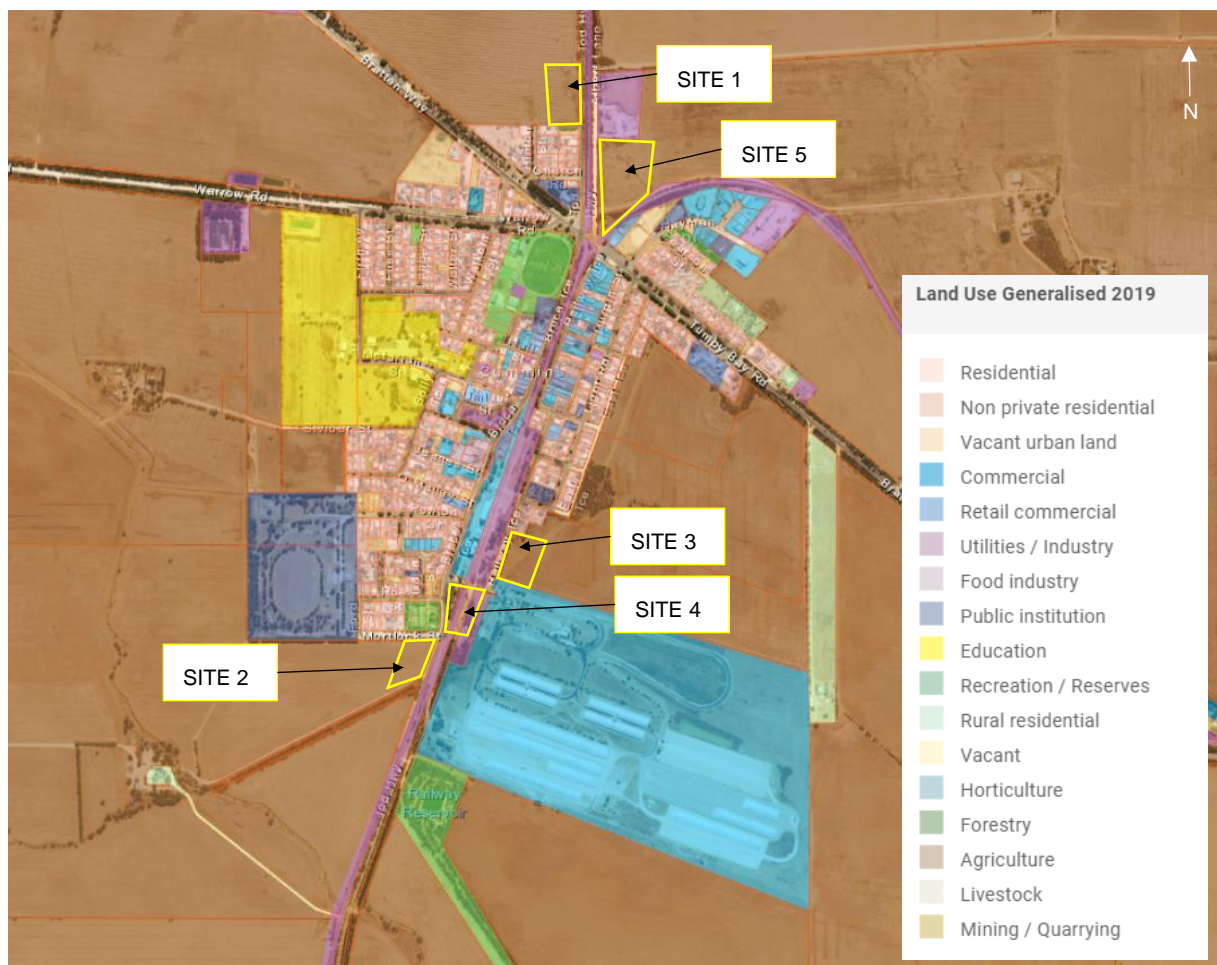


Figure 31 Potential Bulk Fuel Sites within Cummins

If railway operations were to recommence, Sites 1, 2 and 3 would remain the only viable options. As Site 3 is located off of the Tod Highway, it may not cater for all heavy vehicle movements and will also require upgrades to Railway Tce. As such, it is recommended that Sites 1 and 2 are further investigated by Council as potential sites, with Site 2 considered likely to result in the higher patronage due to its location to the South of Cummins. It Site 2 is still preferred by Council to be a future tourism precinct; consideration could be given to relocating the site slightly to the south.

8.5 OTHER IMPROVEMENT OPPORTUNITIES

Whilst onsite in June 2020, WGA identified that there was a high level of turning movements at the junction of Tumby Bay Rd/Bruce Tce (refer to Section 2.4.3), which is currently a four way cross intersection with no formal turning provisions. Historic crash data also shows that this site was the location of a collision with a right turning vehicle (refer to Section 2.6). To reduce the risk of collisions at this intersection, WGA have developed a concept design for a roundabout which would cater for all turning movements, as shown in Figure 29 (refer to Appendix G for detailed sketches).

8.6 CONCLUSION

WGA have developed a number of conceptual design solutions developed to improve heavy vehicle accessibility, safety and amenity within Cummins. Whilst all options are viable, each has different impacts and it is recommended that Council consider which elements are considered more important than others in order to determine the suitability of each option to be applied within the township of Cummins. In addition, consultation should be undertaken with DPTI, Viterra and the local community to determine appropriate options, prior to developing the options further to detailed design.

APPENDIX A

VITERRA INFORMATION



Sarah Shelton

From: Derek Robjohns <Derek.Robjohns@viterra.com>
Sent: 17 July 2020 11:00 AM
To: Sarah Shelton
Cc: Nick Pratt
Subject: RE: Cummins Traffic Study [Filed 24 Jul 2020 11:30]

Hi Sarah

Apologies once again in providing a response to your questions.

Please reference information below in relation to each question below

Regards
Derek

Derek Robjohns
Logistics & Supply Chain Manager
Viterra
Level 1, 186 Greenhill Road, Parkside SA 5063.
Tel. +61 8 8238 5211
Mob. +61 458 964 071
Derek.robjohns@viterra.com
www.viterra.com.au

A Glencore Agriculture Company

From: Sarah Shelton <SShelton@wga.com.au>
Sent: Monday, 13 July 2020 11:29 AM
To: Derek Robjohns <Derek.Robjohns@viterra.com>
Cc: Nick Pratt <Nick.Pratt@viterra.com>
Subject: RE: Cummins Traffic Study

Hi Derek

Following up on the below information – was Viterra able to provide this info this week?

Thanks

Sarah Shelton SENIOR CIVIL ENGINEER
BE (Civil & Structural) (Hons), CPEng, NER, MIEAust



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From: Sarah Shelton
Sent: 23 June 2020 2:18 PM
To: derek.robjohns@vittera.com
Cc: nick.pratt@vittera.com
Subject: Cummins Traffic Study

Hi Derek

Thanks for your time on the phone

As discussed, if you could please send through any of the following information (if available) it would be greatly appreciated:

- Truck volumes generated by Vittera within Cummins (or number of tonnes passing through Cummins and average tonnes per truck)
 - o Associated with the grain storage facility

	Cummins Grower Receivals			Site to Site Movement Cummins to Pt Lincoln		
	Txn count	Tonnes (mt)	avg mt\truck	Txn count	Tonnes (mt)	avg mt\truck
Average (3yr)	10,620	395,467	37.1	3,618	235,788	64.4

- o Associated with grain being transported through Cummins from other facilities

	Site to Site Movements to Port Lincoln (Through Cummins)		
	Txn count	Tonnes	avg mt\truck
Average (3yr)	3,055	195,591	63.8

- Truck distribution across a typical year (e.g. 70% typically in harvest season)

Season	% of volumes moved between 1st Oct - 1st Jan
2019/2020	49%
2018/2019	55%
2017/2018	87%

- Directional split of heavy vehicle movements (e.g. 50% north, 20% east, 30% west for traffic accessing the Cummins site. 100% south for traffic leaving the Cummins site. 100% north for traffic travelling through Cummins)

Viterra do not have the ability to capture the direction \ route taken by growers at harvest time.

- Information on the type of heavy vehicles used (e.g. 70% AB Triples, 20% B-doubles etc)

Site to Site Movement Breakdown
AB- Triple 47%
A-Double Road Train 53%

Grower Receivals

A Double	39.87%
AB Triple	0.61%
B-Double	1.48%
B-Triple	1.50%
Rigid Truck	19.07%
Single	37.47%

- Information on the time of day of the heavy vehicle movements (e.g. during harvest 50% during night, during other times 100% in the day)

Typically harvest receival hours of operations are between 7am-7pm

Site to Site Movements hours of operation are typically 7am – 3pm. Viterra will also engage trucks to assist with overflow during a limited proportion of the harvest between the hours of 7pm – 3am.

- A copy of any previous traffic studies produced by Viterra for the region (I understand that there may have been one developed with DPTI?)

Viterra haven't not produced a traffic studies in the past related to traffic direct and flow.

- Any information on future growth forecasts (next 20 years)

It is estimated that farming production increase is limited over the coming 10 years with a growth of upto 0.5% per year. Harvest conditions are impacted by seasonal conditions resulting in considerable swings in production and hence grower receival tonnage.

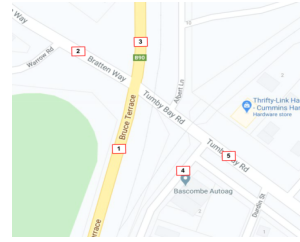
As discussed, it would be appreciated if we could get the information by the end of next week to enable us to bring it into our assessment
Please let me know if you need any clarification on the above or if you need any further information on any element of our study

Thanks

Sarah Shelton SENIOR CIVIL ENGINEER
BE (Civil & Structural) (Hons), CPEng, NER, MIEAust

APPENDIX B

TURNING COUNTS



Location	Burce Tce/Tumby Bay Rd, Cummins, SA
Date	22/06/2020
Time	1151-1251
Count Undertaken By	SSS

Traffic Volumes

Source	1			
Destination	2	3	5	4
LV	13	11	25	7
HV (Class 3 - 9)				
HV (Class 10)		3		
HV (Class 11)		3		
Pedestrians				
Total	13	17	25	7
% HV	0.0%	35.3%	0.0%	0.0%
Total	62			
% HV	9.7%			

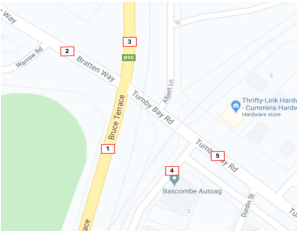
Source	2			
Destination	3	5	4	1
LV	4	14	5	13
HV (Class 3 - 9)				
HV (Class 10)				1
HV (Class 11)				
Pedestrians				
Total	4	14	5	14
% HV	0.0%	-	0.0%	7.1%
Total	37			
% HV	2.7%			

Source	3			
Destination	5	4	1	2
LV	5	3	15	
HV (Class 3 - 9)				
HV (Class 10)	1			
HV (Class 11)			4	
Total	6	3	19	0
% HV	16.7%	0.0%	21.1%	#DIV/0!
Total	28			
% HV	17.9%			

Source	4			
Destination	2	1	3	5
LV	1	3	3	10
HV (Class 3 - 9)				
HV (Class 10)				
HV (Class 11)				
Total	1	3	3	10
% HV	0.0%	0.0%	0.0%	0.0%
Total	7			
% HV	0.0%			

Source	5			
Destination	4	1	2	3
LV	13	37	13	5
HV (Class 3 - 9)				
HV (Class 10) Double		1		1
HV (Class 11) Tripple				
Total	13	38	13	6
% HV	0.0%	2.6%	0.0%	16.7%
Total	70			
% HV	2.9%			

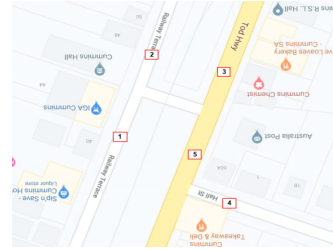
Location	Burce Tce/Tumby Bay Rd, Cummins, SA
Date	22/06/2020
Time	1151-1251
Count Undertaken By	SSS



Assumed % in Counted Hour4.0%

Summary					
Source	1	2	3	4	5
Total (veh/hr)	62	37	28	7	70
Total (AADT)	1550	930	700	180	1750
% HV	9.7%	2.7%	17.9%	0.0%	2.9%

Location	Junction of Railway Terrace/Bruce Terrace/Hall Street
Date	22/06/2020
Time	1425-1525
Count Undertaken By	SSS



Traffic Volumes

Source	1			
Destination	2	5	4	3
LV	9	4	4	21
HV (Class 3 - 9)				
HV (Class 10)				
HV (Class 11)				
Pedestrians				1
Total	9	4	4	21
% HV	0.0%	0.0%	0.0%	0.0%
Total	38			
% HV	-			

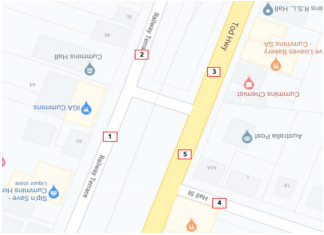
Source	2			
Destination	1	3	4	5
LV	3	7		3
HV (Class 3 - 9)				
HV (Class 10)				
HV (Class 11)				
Pedestrians			1	
Total	3	7	0	3
% HV	0.0%	0.0%	#DIV/0!	0.0%
Total	13			
% HV	0.0%			

Source	3			
Destination	2	1	5	4
LV	6	15	45	7
HV (Class 3 - 9)	1			
HV (Class 10)			1	
HV (Class 11)				
Total	7	15	46	7
% HV	14.3%	0.0%	2.2%	0.0%
Total	75			
% HV	2.7%			

Source	4			
Destination	3	2	1	5
LV	7	1	2	1
HV (Class 3 - 9)				
HV (Class 10)				
HV (Class 11)				
Total	7	1	2	1
% HV	0.0%	0.0%	0.0%	0.0%
Total	10			
% HV	0.0%			

Source	5			
Destination	1	2	3	4
LV	7	1	38	5
HV (Class 3 - 9)			2	
HV (Class 10)			2	
HV (Class 11)			2	
Total	7	1	44	5
% HV	-	0.0%	13.6%	-
Total	57			
% HV	10.5%			

Location	Junction of Railway Terrace/Bruce Terrace/Hall Street
Date	22/06/2020
Time	1425-1525
Count Undertaken By	SSS



Assumed % in Peak Hour4.0%

Summary					
Source	1	2	3	4	5
Total (veh/hr)	38	13	75	10	57
Total (AADT)	950	330	1880	250	1430
% HV	-	0.0%	2.7%	0.0%	10.5%

APPENDIX C

VITERRA ACCESS TURN PATHS

APPENDIX D

A TRIPLE ASSESSMENT



ASSESSMENT REPORT



Case Number:	305256	Vehicle Type:	A triple (42m RT)	Operator:	N/A
Prepared By:	Dominic Zwolak			Date:	11/2/2020
Route Details: Port Lincoln to Cummins					
Start: King Street, Port Lincoln (Viterra Grain Terminal)					
End: Railway Terrace, Cummins					

Action			Observations	Outcome
Preliminary Check (Attachment A)				
1) Does it have any interactions with other parties (bridge/rail)	Yes <input checked="" type="checkbox"/> Send off ASAP	No <input type="checkbox"/>	Rail, Pine Freezer Rd Rail, Flinders Hwy Rail, Railway Tce	
Previous Approval History (Attachment B)				
2) Has approval previously been issued for a heavy vehicle of similar type?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Gazetted for 36.5m road trains	Not Gazetted for 42m road trains
3) Have there been any changes to the road infrastructure?	Yes <input type="checkbox"/> Refer 5.2.1	No <input type="checkbox"/> Provide access	NA	NA
Route Characteristics (Attachment C)				
4) Published Network – Is the route on a published network for a similar class of vehicle?	Yes <input checked="" type="checkbox"/> Refer 5.3.1	No <input type="checkbox"/>	Gazetted for 36.5m road trains	Not Gazetted for 42m road trains
5) Structural assessment – Are there any structures on the route?	Yes <input type="checkbox"/> Refer 5.3.1	No <input checked="" type="checkbox"/>	There are DPTI structures on the selected route. Bridge assessment was undertaken for specific A Triple combination	Bridge assessment passed
6) Lane Widths – Is there sufficient lane width for the vehicle/load?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> Refer 5.3.4	5.2m lane, Tod Hwy, Cummins 4.0m lane, Tod Hwy, Edillilie 4.0m lane, Tod Hwy, Wanilla 3.8m lane, Western Approach, Port Lincoln	Western Approach Fail L4 Western Approach Pass L3 Elsewhere Pass L4
7) Rail Crossings – Is there sufficient stacking distance for the proposed vehicle to ensure rail crossing and	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> Refer 5.3.1	Stacking distances sufficient	No issue

ASSESSMENT REPORT



Action			Observations	Outcome
any adjacent cross roads or intersections remain clear?				
Vehicle Characteristics (Attachment D)				
8) Intersection geometry / turn paths – Is there sufficient distance for the proposed vehicle to ensure intersections can be traversed appropriately?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> Refer 5.3.7	Field trial suggests that all turn paths have adequate distance.	
9) Traffic Signals – Is signalised “green time” sufficient for the combination to clear the intersection? Is the synchronisation suitable?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> Refer 5.4.1	TS 538 - Porter St / London St Green time sufficient	
Safety Audit (as required) (Attachment E)				
10) Crash History – Is there a relevant road crash history on the route?	Yes <input checked="" type="checkbox"/> Refer 5.3.7	No <input type="checkbox"/>	No recorded fatalities in the past 5 years.	Low risk
11) Traffic Volumes What are the traffic volumes on the requested route?	Yes <input checked="" type="checkbox"/> Refer 5.3.6	No <input type="checkbox"/>	Porter St AADT 10,200 Mortlock Rd AADT 7,400 Western Approach AADT 2,200 Flinders Hwy AADT 2,000 Tod Hwy AADT 850	High AADT in Port Lincoln
Further analysis (as required) (Attachment F)				
12) Length and capacity of lanes – Include: slip lanes, filter lanes and overtaking lanes (length and capacity)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> Refer 5.4.2	No overtaking lanes. Long straight sections allow overtaking opportunities	Minor delays for motorists expected
13) Vertical Clearances – Is there sufficient clearance along the route?	Yes <input checked="" type="checkbox"/> Provide access	No <input type="checkbox"/> Refer 5.4.2	NA	NA

ASSESSMENT REPORT



Action			Observations	Outcome
14) Pavement – Is the axle group masses likely to have an impact on the pavement?	Yes <input type="checkbox"/> Refer 5.4.2	No <input checked="" type="checkbox"/>	NA	NA
15) Route Restrictions – Does the proposed route include areas with known restrictions?	Yes <input type="checkbox"/> Refer 5.3.1	No <input checked="" type="checkbox"/>	NA	NA
16) Community Considerations / Amenity – Does the proposed route include any community areas that may need to be considered?	Yes <input checked="" type="checkbox"/> Refer 5.3.5	No <input type="checkbox"/>	Various businesses are located along Porter St, Mortlock Tce	NA
17) Other Access considerations – Is this a PBS vehicle that requires additional considerations?	Yes <input type="checkbox"/> Refer 5.4.2	No <input checked="" type="checkbox"/>	NA	NA

ASSESSMENT REPORT



Other Information

Observations

Camera footage available on KNet #15108946, 15111585, 15186661, 15186669

Vehicle measurements on KNet #15114706

General observations:

- Generally turning movements were seen to be acceptable.
- Vehicle movements around the roundabout in Pt Lincoln were particularly tight.
- It is understood that there are upcoming works for this roundabout including rollover kerbing.
- Vehicle tracking around corners is good.
- There was noticeable 'snaking' when traveling on straight sections, with trailer offsets up to 400mm.
- Operator made use of shoulders where available.

Turning movements Porter St to/from London St:

- Vehicle had to make use of adjacent lane for turning movements.
- London St left turn phase runs before the through phase meaning that only vehicles wanting to turn left will use the left lane. As such this becomes a point of conflict when turning left from right lane.
- While the movement was possible it is not recommended.

Introducing larger combinations provides a productivity benefit for the freight industry and will likely reduce the number of heavy vehicle movements, less overall fuel usage etc.

Improvement Considerations

Recommendation:

<input type="checkbox"/> Consent is approved	<input type="checkbox"/> Consent is NOT approved
<input type="checkbox"/> Add to the following networks:	<input type="checkbox"/> NOT supported for permits or publishing (gazettal)
<input type="checkbox"/> Provide access under permit	<input type="checkbox"/> Other:

Conditions of Access (road, travel or vehicle conditions as per the HVNL)

Response to NHVR

Road Manager Approval

Approved:	Carlo Anzellotti	Date:	<u>1/04/2020</u>
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APPENDIX E

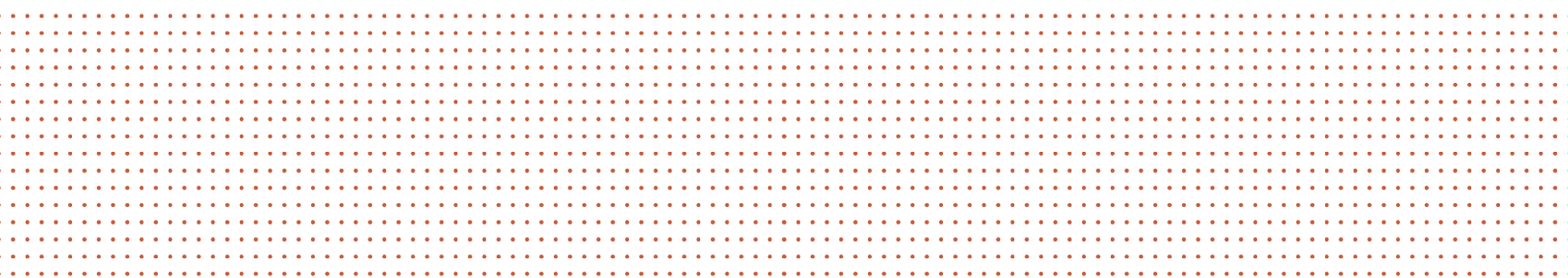
BRUCE TCE CONCEPT SKETCHES

APPENDIX F

VITERRA ACCESS SKETCHES

APPENDIX G

BRUCE TCE/TUMBY BAY RD ROUNDABOUT





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