PEMBROKE

Olive Downs Coking Coal Project

Draft Environmental Impact Statement

Appendix J

Road Transport Assessment

Olive Downs Coking Coal Project
Road Transport Assessment

Client // Pembroke Olive Downs Pty Ltd
Office // QLD
Reference // Q125680
Date // 09/07/18

Olive Downs Coking Coal Project

Road Transport Assessment

Issue: C 09/07/18

Client: Pembroke Olive Downs Pty Ltd
Reference: Q125680
GTA Consultants Office: QLD

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A-Dr	14/03/18	Draft	Akansha Shetty	Matthew George & Steve Manton	Steve Manton	
A	23/04/18	Final	Akansha Shetty	Steve Manton	Steve Manton (RPEQ 08352)	
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C	09/07/18	2nd Revised Final	Akansha Shetty	Steve Manton	Steve Manton (RPEQ 08352)	

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1. Introduction

1.1 Background

Pembroke Olive Downs Pty Ltd (Pembroke) proposes to develop the Olive Downs Coking Coal Project (the Project), a metallurgical coal mine and associated infrastructure within the Bowen Basin, located approximately 40 kilometres south-east of Moranbah, Queensland (Figure 1.1). The Project provides an opportunity to develop an open cut metallurgical coal resource within the Bowen Basin mining precinct that can deliver up to 20 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal.

The Project comprises the Olive Downs South and Willunga mining domains and associated linear infrastructure corridors, including a rail spur connecting to the Norwich Park Branch Railway, a water pipeline connecting to the Eungella pipeline network, an electricity transmission line (ETL) and access roads (Figure 2.1). The coal resource would be mined by conventional open cut mining methods, with product coal to be transported by rail to the Dalrymple Bay Coal Terminal. Up to 20 Mtpa of ROM coal would be extracted over the anticipated Project operational life of approximately 79 years.

1.2 Purpose of this Report

This report sets out the assessment of the expected transport implications resulting from the construction and operation phases of the Project. Specifically, this report responds to Sections 11.97 to 11.100 of the Project's Final Terms of Reference (TOR), and includes consideration of the following:

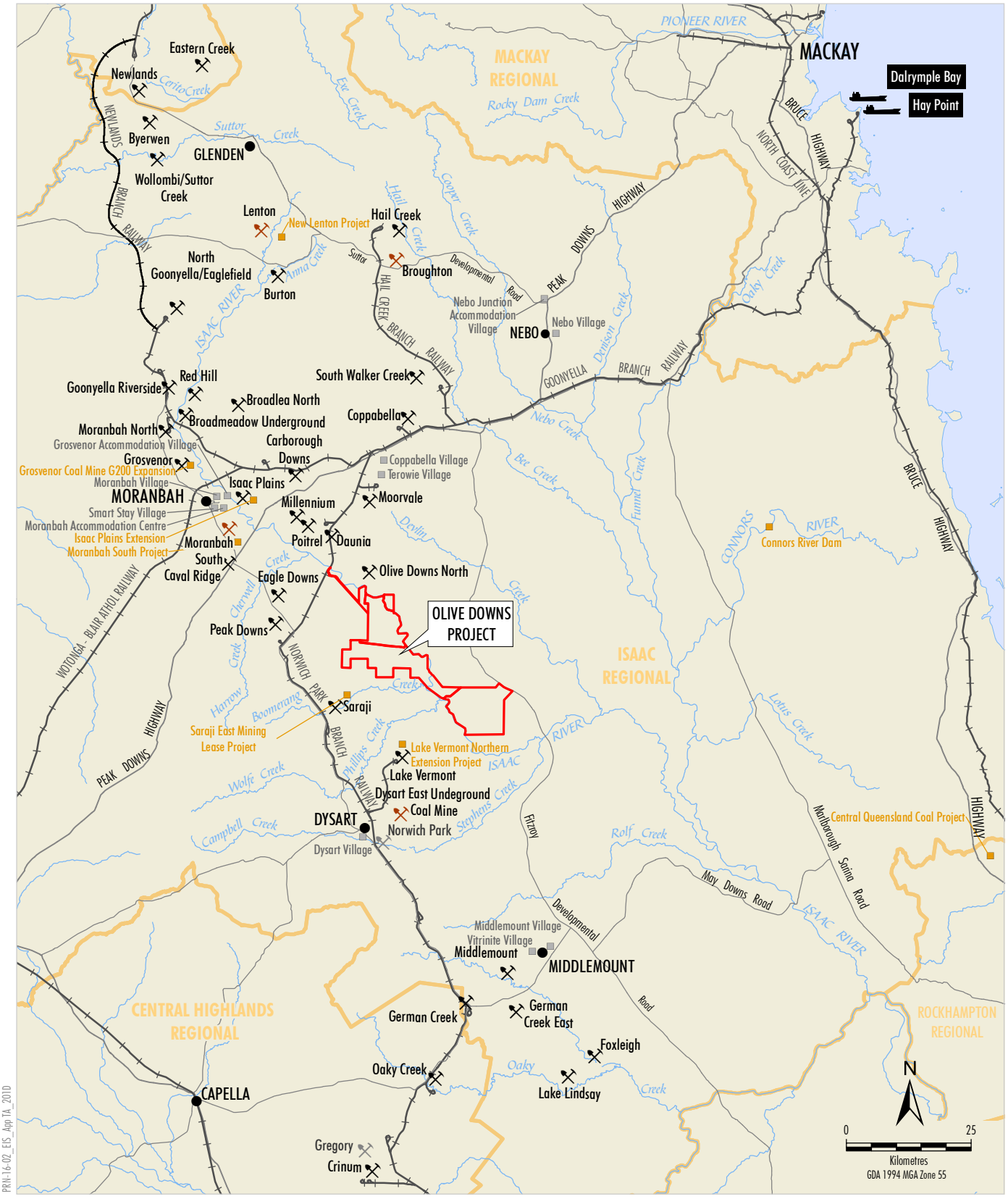
i The existing traffic conditions (base case) proximate to the Project, including an assessment of the access roads anticipated to service the Project.
ii The traffic generating characteristics of the Project.
iii The anticipated transport impact of the Project on the surrounding Local and State Controlled Road (SCR) network.
iv Expected volumes for heavy vehicle movements associated with transport of raw materials, wastes and hazardous goods for construction and operational phases of the Project.
v Workforce journey-to-work (JTW) traffic generated by all Project activities, including anticipated traffic modes, volumes, composition, timing and routes.
vi Identification of methods and strategies to reduce any identified traffic impacts.

1.3 Study Methodology

This report has been prepared in response to Sections 11.97 to 11.100 of the Final TOR for the Project. As per the requirements of the Final TOR, this Road Transport Assessment (RTA) sets out the anticipated road impacts of the Project during the construction and operational phases. Road impacts have been assessed in accordance with the Department of Transport and Mains Roads' (TMR) 'Guide to Traffic Impact Assessment (GTIA)'.

Consistent with the requirements set out in GTIA, the methodology adopted for the RTA is as follows:

- Review the existing road conditions and operations and establish base case (i.e. road operation without the Project).
- Characterise Project traffic requirements by preparing estimates of Project generated traffic volumes on the intended access roads of heavy vehicles and workforce requirements.



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LEGEND

- Mining Lease Application Boundary
- Local Government Area
- Major Road
- Railway
- Port
- Approved/Operating Coal Mine
- Proposed Coal Mine
- Under Care and Maintenance
- Workforce Accommodation Facility
- Coordinated, Major and Other Relevant Project

Source: Geoscience Australia - Topographical Data 250K (2006); Department of Natural Resources and Mines (2016)

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OLIVE DOWNS COKING COAL PROJECT

Regional Location

Figure 1-1

- Determine anticipated road impacts of the Project in accordance with threshold levels and rationale provided within GTIA. Specifically, the following impacts have been considered:
  - Impact of the proposed vehicular access intersections provided as part of the Project on the existing road network.
  - Impact of Project related traffic on existing road link capacity for key Project access routes.
  - Impact of Project related traffic on key intersections proximate to the site.
  - Impact of Project related heavy vehicle movements on existing pavement condition.
- Where impacts are identified as exceeding GTIA defined threshold levels, recommendations to mitigate or offset these impacts have been provided.

The adopted methodology is further detailed in Table 1.1.

Table 1.1: RTA Methodology

Assessment Type	RTA Methodology
Road Link Assessment	In accordance with TMR's GTIA defined threshold levels, identify road sections where Project generated traffic is expected to exceed 5% of baseline traffic volumes. The scope of the link impact assessment has included Peak Downs Highway from Moranbah to Mackay and Fitzroy Developmental Road from Dingo to Mt. Flora. Where Project impacts of greater than 5% were identified an analysis of theoretical link capacity was undertaken in accordance with the methodology outlined within Austroads (2009) 'Guide to Traffic Management Part 3: Traffic Studies and Analysis'. Comparison of anticipated link performance against a minimum operational Level of Service (LOS) threshold 'D'[1] was undertaken. The analysis is provided in Section 6.
Intersection Assessment	In accordance with TMR's GTIA defined threshold levels, identify intersections where Project generated traffic exceeds 5% of the base traffic for any movement in the design peak periods. Based on this assessment the following intersections have been identified. • Peak Downs Highway and Moranbah Access. • Peak Downs Highway and Daunia Road. • Peak Downs Highway and Maloney Street. • Peak Downs Highway and Fitzroy Developmental Road. Undertake a Turn Warrant Assessment using the methodology provided within TMR's 'Road Planning & Design Manual' (RPDM) to determine the required turn treatments and associated intersection geometry at the above intersections and compare to existing provision to identify any upgrade requirements. The analysis is provided in Section 7.
Access Intersection Assessment	Undertake a Turn Warrant Assessment using the methodology provided within TMR's RPDM to determine appropriate turn treatments and associated intersection geometry at the proposed access intersections. The analysis is provided in Section 8.
Pavement Impact Assessment (PIA)	Undertake a PIA in accordance with TMR's GTIA to determine which road segments on SCRs have Project generated impacts of greater than 5%. The analysis is provided in Section 9.
Road Safety Assessment	Identify existing and Project generated road safety issues and propose high level mitigation strategies. Proposed strategies are to be reviewed and discussed in more detail in the Road Use Management Plan. Further detail regarding this assessment is provided in Section 10.

[1] Defined in section 6.2.

1.4 Reference Documents and Supporting Data

This report has been prepared with consideration of the following reference resources and documents:

- Pembroke document 'Olive Downs Project – Initial Advice Statement', dated 20 January 2017 (IAS).
- Final 'Terms of Reference' for The Environmental Impact Statement for the Olive Downs Coking Coal Project, dated June 2017 (Final TOR).
- TMR (2017) GTIA.
- TMR (2016) RPDM.
- TMR (2014) 'Road Planning and Design Manual (Edition 2) – Volume 3: Supplement to Austroads Guide to Road Design Part 4A' (RPDM Volume 3: Part 4A).
- TMR (2017) 'Cost Benefit Analysis Manual' (CBA Manual).
- Austroads (2017) 'Guide to Pavement Technology Part 2: Pavement Structural Design' (Austroads GPT: Part 2).
- Austroads (2017) 'Guide to Traffic Management Part 3: Traffic Studies and Analysis' (Austroads GTM: Part 3).
- Austroads (2017) 'Guide to Road Design Part 4A: Unsignalised and Signalised Intersections' (Austroads GRD: Part 4A).
- 2016 Annual Average Daily Traffic (AADT) Segment reports, provided by TMR on 23 May 2017.
- Pavement roughness counts and seal widths, provided by TMR on 23 May 2017.
- Other background data and Project input assumptions as agreed with Pembroke.

2. Project Description

2.1 Project Location

The Project, comprising the Olive Downs South and Willunga Domains is located within the Bowen Basin, approximately 40 km south-east of Moranbah, Queensland (as shown on Figure 1.1). The nearest towns to the Project, which is located within the Isaac Regional Council area, are:

- Moranbah: located approximately 40 km to the north-west.
- Coppabella: located approximately 65 km to the north.
- Dysart: located approximately 70 km to the south.
- Nebo: located approximately 130 km to the north-east.
- Middlemount: located approximately 130 km to the south-east.

The indicative general arrangements are shown at Figure 2.1. Road access to Olive Downs South Domain is proposed via a section of private road from Annandale Road, whilst road access to the Willunga Domain is proposed via Fitzroy Developmental Road (Figure 2.2).

2.2 Project Schedule

Key considerations of the Project schedule applicable to the RTA are as follows:

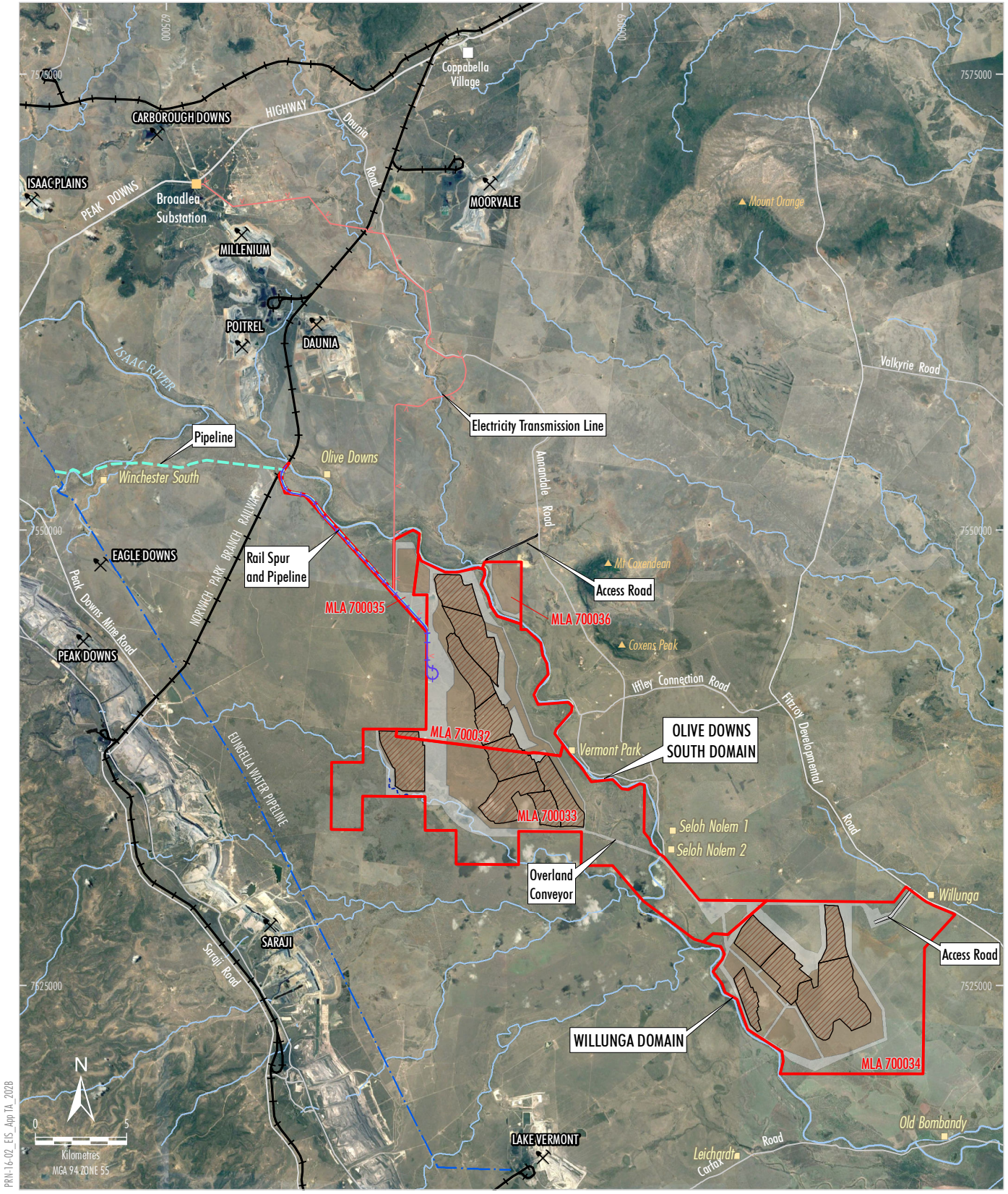
- Construction of the Olive Downs South Domain would commence in 2019 and end in 2021, with peak construction to occur in 2020.
- Construction of the Willunga Domain would commence and end in 2027.
- The combined peak operations of Olive Downs South Domain and Willunga Domain would occur from 2028 – 2043.

2.2.1 Design Horizons for Assessment

With due consideration of the Project Schedule and workforce projections, the design horizons as outlined in Table 2.1 have been chosen for the RTA. These design years have been determined with respect to the requirements set out in GTIA and represent the critical design years when considering likely Project traffic generation associated with the forecast of workforce requirements (further details are provided in Section 2.3).

Table 2.1: Design Horizons for Assessment

Year	Project Activities
2020	Peak construction period at Olive Downs South Domain.
2027	Construction commences at Willunga Domain with Olive Downs South Domain being operational.
2028	Peak combined operational workforce for the Project.
2048	20-year design horizon post combined opening of both mines for the pavement impact assessment.



LEGEND

- Mining Lease Application Boundary
- Approved/Operating Coal Mine
- Dwelling
- Eungella Pipeline Network
- Railway
- Proposed Electricity Transmission Line
- Proposed Rail
- Proposed Water Pipeline
- Proposed Creek Diversion
- Open Cut Pit Extent
- Out-of-Pit and In-Pit Waste Rock Emplacement
- Infrastructure Area

Source: Geoscience Australia - Topographical Data 250K (2006)
Department of Natural Resources and Mines (2016)
Orthophotography: Google Image (2016)

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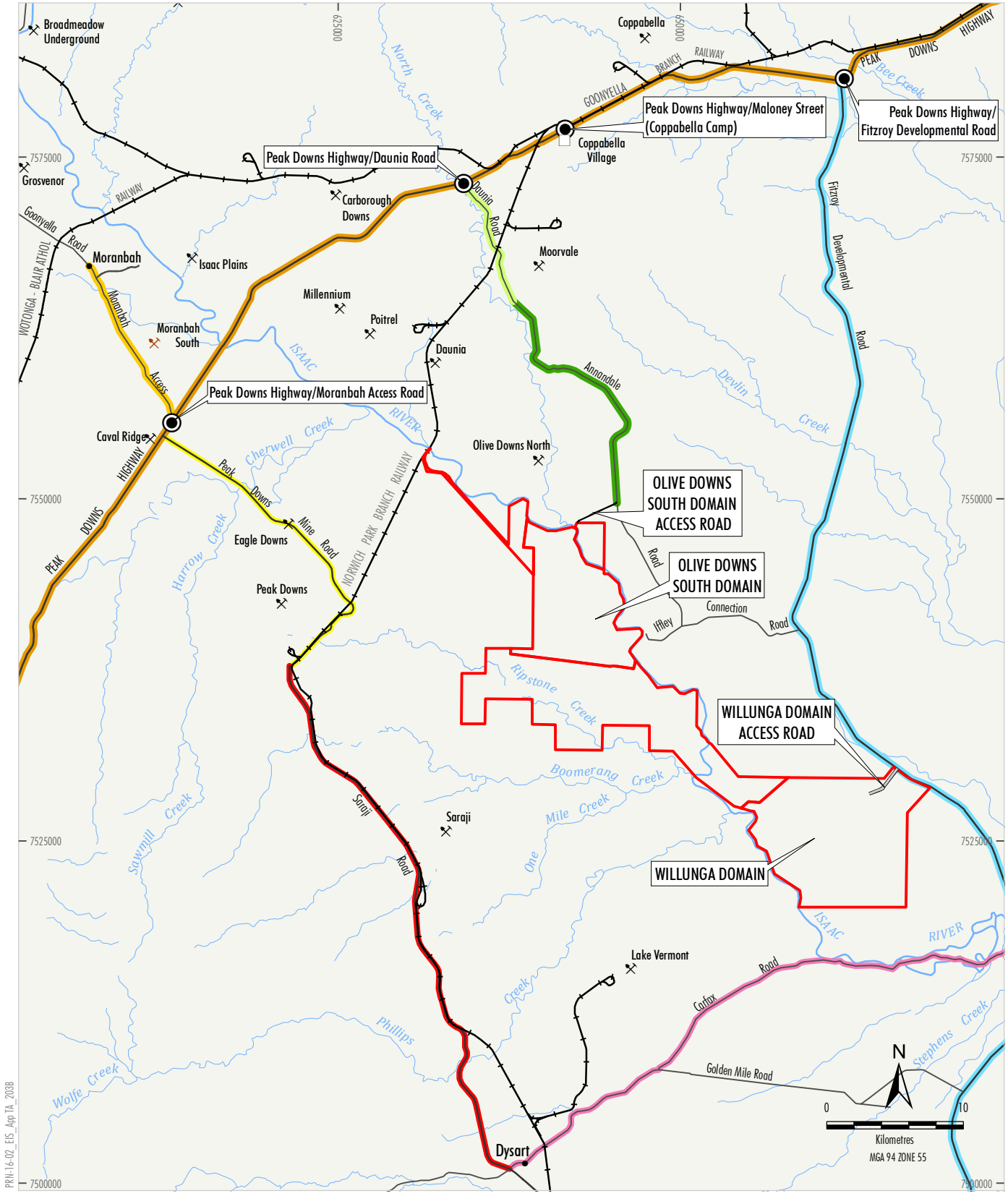
Project General Arrangement

Figure 2-1



LEGEND
Mining Lease Application Boundary
Railway
Intersection

Source: Geoscience Australia - Topographical Data 250K (2006)
Department of Natural Resources and Mines (2016)

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OLIVE DOWNS COKING COAL PROJECT
Existing Road Network

Figure 2-2

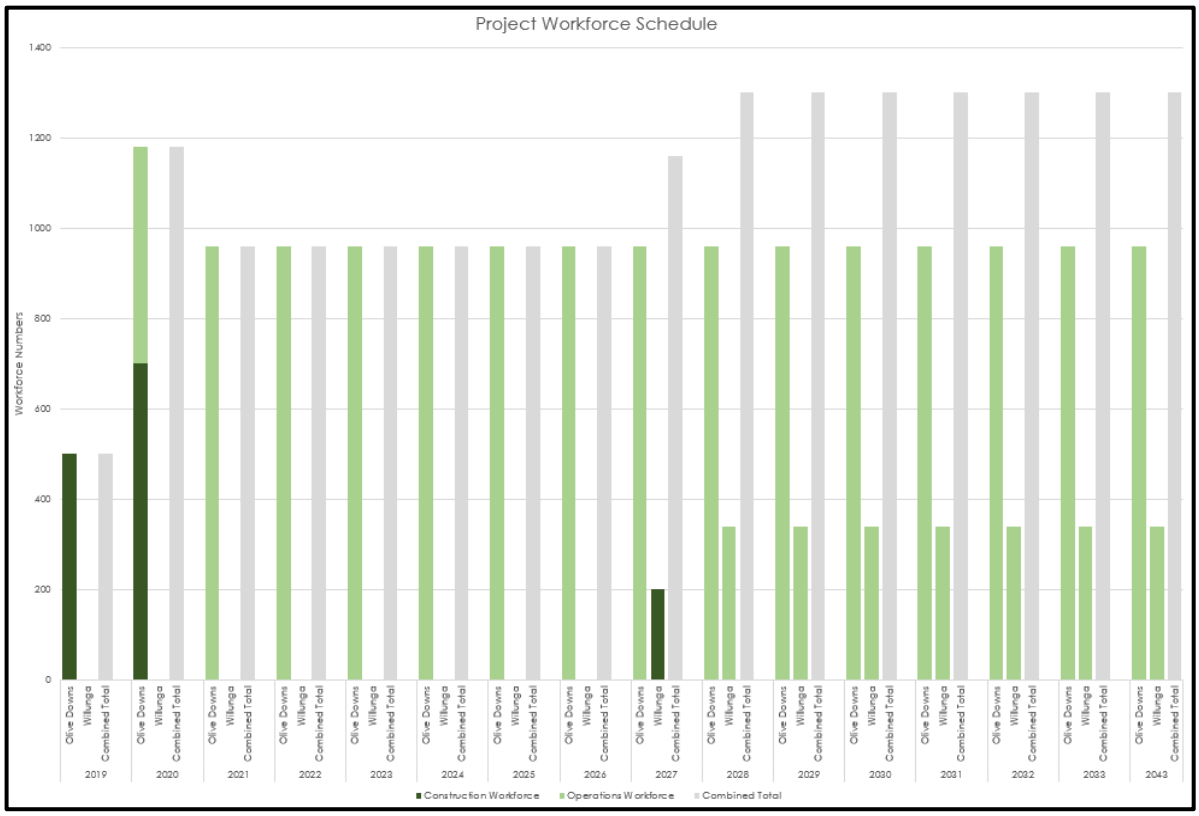
2.3 Workforce Projections

The Project's recruitment strategy would provide equitable access to employment opportunities and prioritise recruitment of people from the Isaac Regional Local Government Area (LGA) in the first instance, before seeking candidates from other areas.

The workforce would be sourced from the local area and make use of existing camp facilities in the local area. Project-related transport would include Drive-in / Drive-out (DIDO) from surrounding towns to the existing camp facilities and the Project area, carpooling and bus use scenarios. All workers are assumed to reside in nearby townships such as Nebo, Middlemount, Coppabella, Moranbah and Dysart. These assumptions apply to all phases of the Project, including construction and operations personnel.

Indicative workforce projections which have formed the basis of the assessment are provided in Figure 2..

Figure 2.3: Project Workforce Schedule (2019 to 2034)



(Source: Pembroke, 2018)

3. Existing Environment

3.1 Road Network

The major road transport routes in the vicinity of the Project are the Peak Downs Highway, located approximately 15 km to the north-west of the Project, and Fitzroy Developmental Road, located to the east of the Project.

Fitzroy Developmental Road runs directly along the Project eastern boundary at the Willunga domain and would provide access to the Willunga infrastructure facilities in the south-east of the Project extent. Additionally, the Peak Downs Mine Road, which becomes Saraji Road when it intersects with the Saraji Coal Mine, runs generally north-south approximately 10 km to the west of the Project.

The Iffley Connection Road (including Vermont Park Road), and Annandale Road are located to the east of the Project boundary and provide access from the Deverill, Iffley, Vermont Park, and Seloh Nolem properties to the Fitzroy Developmental Road and the Peak Downs Highway (via Daunia Road) respectively. Carfax Road runs east-west to the south of the Project boundary, connecting the Fitzroy Developmental Road with Dysart.

Direct access to the Project would be from Fitzroy Developmental Road for the Willunga Domain and access via a private road connecting to Annandale Road for the Olive Downs South Domain. The Project traffic is anticipated to generally be limited to Peak Downs Highway, Fitzroy Developmental Road and Annandale Road. The characteristics of these roads proximate to the two proposed site access locations are described in Table 3.1.

Table 3.1: Characteristics of Roads Proximate to the Project Site

Characteristic	Peak Downs Highway		Fitzroy Developmental Road [1]	Annandale Road [2]
	Proximate to Olive Downs South Domain Access	Proximate to Willunga Domain Access		
Trending Direction	East – West	East – West	North – South	North - South
Jurisdiction	TMR	TMR	TMR	Isaac Regional Council
Cross-Section	Two-lane / Two-way / Undivided	Four-lane / Two-way / Undivided	Two-way / undivided	Two-way / undivided
Pavement	Sealed	Sealed	Sealed	Unsealed
AADT	3,200	2,800	800	- [3]
Speed Limit	100 km/hr	100 km/hr	100 km/hr	Unposted

[1] Characteristics proximate to Willunga Domain access location
[2] Characteristics proximate to Olive Downs South Domain access location
[3] Data not available

The typical cross-section of Peak Downs Highway, Fitzroy Developmental Road and Annandale Road proximate to the site is presented in Figure 3.1 – Figure 3.4.

Figure 3.1: Peak Downs Highway (Proximate to Olive Downs South Domain Access)

Figure 3.2: Peak Downs Highway (Proximate to Willunga Domain Access)

Figure 3.3: Fitzroy Developmental Road

Figure 3.4: Annandale Road

3.2 Future Planning

In terms of future planning, reference has been made to TMR's 'Queensland Transport and Roads Investment Program 2016-17 to 2019-20' (QTRIP) which outlines State road network projects for Queensland. A summary of works from QTRIP relevant to the Project are presented in Table 3.2.

As described in Table 3.2 a number of capacity improvement projects are planned on the Peak Downs Highway, generally within close proximity to the regional centres of Mackay and Nebo. These works are planned to be undertaken prior to 2020.

Table 3.2: QTRIP Works Schedule

Project Location	Location Description[2]	Works Description
Peak Downs Highway (Clermont – Nebo)	Wuthung Road	Provide heavy vehicle parking
Peak Downs Highway (Nebo – Mackay)	Fiery Creek, Lonely Creek, Boundary Creek, and Cut Creek	Replace bridge/s and approaches
Peak Downs Highway	Mackay – Bowen Basin Service Link	Undertake transport project planning
Peak Downs Highway	Eton Range	Construct deviation – sealed standard

[2] Note that locational details provided in QTRIP are indicative only and for this reason cannot be shown on a map.

Most upgrades mentioned in Table 3.2 increase the capacity and safety of SCR within the vicinity of the Project and hence are considered relevant to the Project. However, quantitative effects of these upgrades cannot be determined, given the level of detail provided within the QTRIP document, and as such the effects of these upgrades have not been considered in any assessment.

3.3 Baseline Traffic Volumes

Background traffic volumes for use in the road link assessment (discussed further in Section 6) have been sourced from TMR, by way of 2016 Annual Average Daily Traffic (AADT) segment reports (obtained 22 May 2017 at the commencement of the assessment activities for this Project) for Peak Downs Highway between Mackay and Moranbah, and Fitzroy Developmental Road between Dingo and Mt. Flora. A copy of these segment reports is contained at Appendix A, with a summary of data provided at Table 3.3 below.

Table 3.3: Baseline Traffic Volumes – Peak Downs Highway and Fitzroy Developmental Road (2016)

Road Name	Segment	AADT						Historical Growth	
		NBD [1]	HV% [2]	SBD [3]	HV% [2]	Total	HV% [2]	5 Yr	10 Yr
Peak Downs Highway (Clermont - Nebo)	Peak Downs Hwy West of Wuthung Turnoff 65.28	267	26.97%	262	34.35%	529	30.62%	-6.15%	-1.25%
	33A Between Moranbah Turnoff & Dysart Turnoff	1214	15.57%	1249	19.86%	2463	17.74%	-9.95%	-1.24%
	Peak Downs Hwy 150m West of Isaac River	1177	19.03%	1174	33.99%	2351	26.50%	-6.78%	-0.81%
	West of Coppabella	1601	15.37%	1607	26.38%	3208	20.89%	-6.77%	1.30%
	East of Coppabella	1396	22.35%	1411	17.22%	2807	19.77%	-4.58%	0.75%
	East of Bee Creek	1759	13.47%	1750	19.26%	3509	16.36%	-5.12%	0.81%
	North of Braeside Road	1557	27.17%	1595	25.20%	3152	26.17%	-6.57%	0.87%
Peak Downs Highway (Nebo - Mackay)	Retreat Hotel Permanent Counter	1718	17.75%	1713	22.59%	3431	20.17%	-6.91%	-1.35%
	Weigh in Motion Site Eton	1863	22.92%	1905	24.83%	3768	23.89%	-7.12%	-1.79%
	West of Walkerston Township	2581	20.73%	2613	17.15%	5194	18.93%	-6.20%	-2.22%
	East of Walkerston Cemetery	4223	12.88%	4548	12.38%	8771	12.62%	-5.90%	-1.16%
	East of BSES	7543	14.09%	6791	7.69%	14334	11.06%	-5.39%	-1.35%
	West of Bernborough Avenue	4568	26.09%	4493	13.24%	9061	19.72%	-5.57%	-2.96%
	Bernborough Avenue - City Gates	5109	14.60%	4597	11.53%	9706	13.15%	-8.17%	-2.48%
Fitzroy Developmental Road (Dingo - Mt Flora)	Fitzroy Dev Rd 85C 2.8 km N of Cap Hwy	355	31.55%	358	38.55%	713	35.06%	-7.60%	-0.62%
	South of Middlemount Turnoff	369	20.05%	387	23.51%	756	21.83%	-7.91%	0.45%
	Valkyrie Permanent Counter	396	25.25%	405	27.41%	801	26.34%	-6.88%	-2.02%

[1] NBD – Northbound Direction
[2] HV% – Percentage of Heavy Vehicles
[3] SBD – Southbound Direction

For the purpose of converting AADT volumes to peak hour volumes (for the link and intersection assessments), a peak-to-daily ratio of 15% has been assumed, in accordance with guidance for rural roads provided in the RPDM 1st Edition – Chapter 5.

Growth rates obtained from historical data detailed within the AADT segment reports indicate that Peak Downs Highway and Fitzroy Developmental Road have experienced negative growth for various road sections over the past five to ten years. This could be attributed to a slowdown in mining projects occurring within the region, and the conclusion of construction activities associated with large project development. Notwithstanding the above, a growth rate of 2% per annum (linear) has been adopted to inform the basis of future traffic forecasts, to reflect typical background traffic growth in the absence of major project development. This assumption is considered to be conservative given the recent reductions in traffic volumes and therefore appropriate for determining a worst-case scenario for the RTA.

Traffic counts were also undertaken at key intersections proximate to the Project as listed below on 18 April 2018, for use in the intersection assessment. The results of those traffic counts are detailed in Appendix E and further discussion is provided in Section 7.

- Peak Downs Highway and Moranbah Access
- Peak Downs Highway and Daunia Road
- Peak Downs Highway and Maloney Street
- Peak Downs Highway and Fitzroy Developmental Road

3.4 Rail Network

3.4.1 Rail Lines

The Project would utilise the Norwich Park Branch Railway. The Norwich Park Branch Railway runs roughly north-south approximately 10 km to the west of the Project site. This branch forms part of the Goonyella Branch Railway line which transports coal from the Bowen Basin to the Hay Point and Dalrymple Bay Coal Terminal south-east of Mackay (Aurizon, 2016). The Norwich Park Branch Railway is owned and operated by Aurizon.

3.4.2 Level Crossings

A total of one (1) level crossing has been identified along Daunia Road / Annandale Road as shown in Figure 3.5 and no level crossings were identified along Peak Downs Highway and Fitzroy Developmental Road. The level crossing identified along Daunia Road / Annandale Road is located approximately 6 km south of the Peak Downs Highway. An inspection of aerial photography indicates that the existing level crossing is located on the unsealed section of Daunia Road / Annandale Road (with only the level crossing sealed), with the associated train service (Goonyella Branch Railway) being part of a private commercial network operated by Aurizon. Advance signage to alert motorists of the upcoming level crossing is provided along Daunia Road / Annandale Road in both directions (Northbound and Southbound), with boom gates and a flashing light system also provided at the level crossing as shown in Figure 3.6.

Figure 3.5: Identified Level Crossing

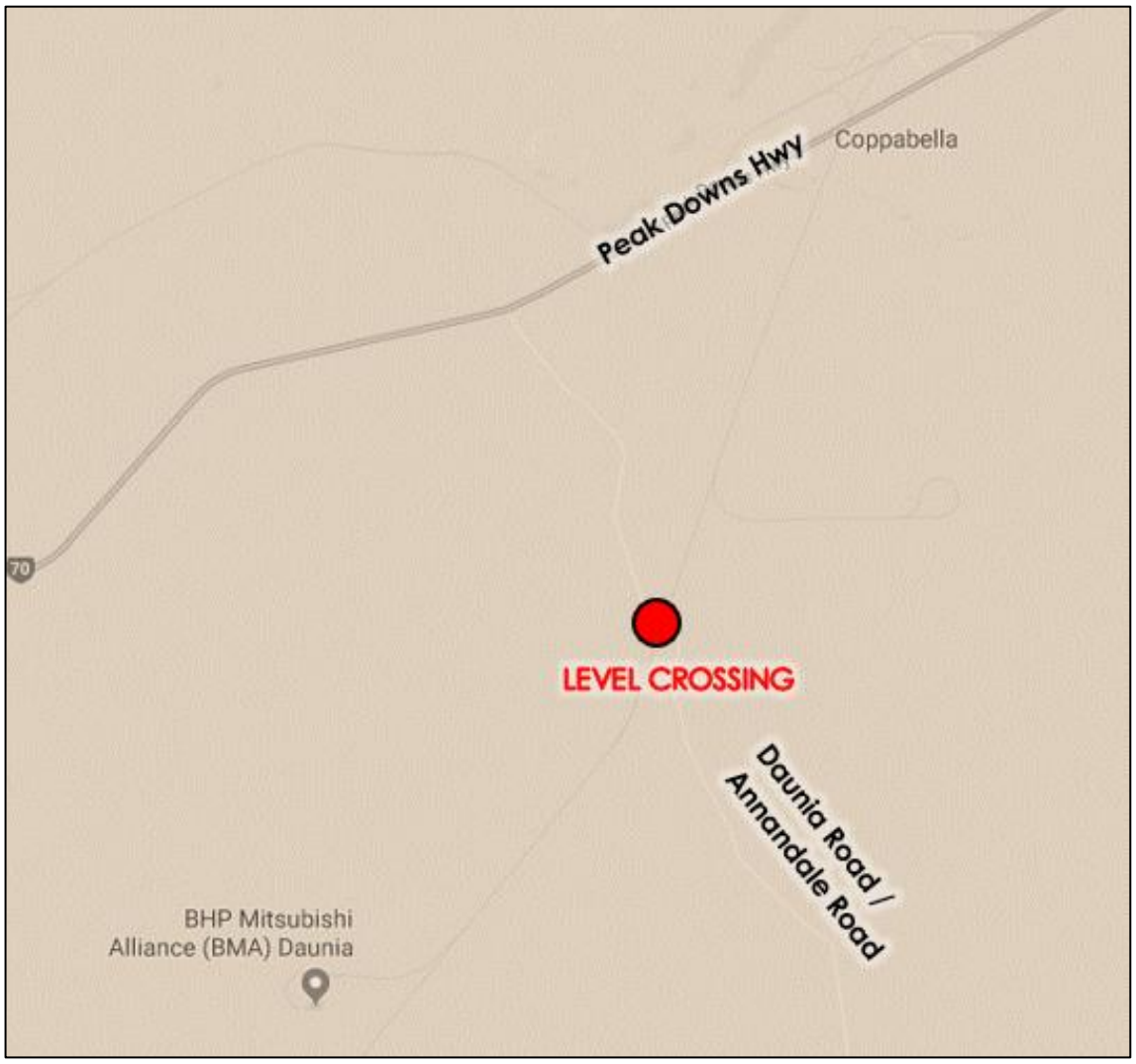


Figure 3.6: Daunia Road / Annandale Road Level Crossing

4. Cumulative Impacts

A list of existing/ approved / proposed projects that could potentially impact the traffic generated by the Project includes:

- Isaac Plains Coal Mine – Care and maintenance.
- Isaac Plains Coal Mine Expansion – Proposed.
- Millennium Expansion – Approved.
- Olive Downs North – Approved.
- Moranbah South Coal Mine – Proposed.
- Bowen Gas Project – Proposed.

A review of the reports for the Bowen Gas Project indicates that it is expected to generate relatively minor traffic volumes, with the peak AADT estimated to be 130 vehicles. Furthermore, the peak operational periods for the Bowen Gas Project are expected to occur early in its schedule and are therefore not expected to coincide with the peak traffic periods for the Project. As such it is expected that the traffic generated from the Bowen Gas Project would not significantly affect the Project traffic, nor would it result in a significant cumulative impact on the existing road network.

Already operating mines (e.g. Millennium and Poitrel) have been accounted for within the RTA. As these mines are already operating and have traffic already present on the road network, traffic from these projects would have been recorded by the traffic counts conducted for the Project, and therefore have not been separately assessed.

5. Project Traffic Generation

5.1 Design Horizons for Assessment

Project traffic volumes have been estimated based on operational assumptions and forecasts for the Project provided by the Proponent, for the following scenarios:

- 2020: Peak construction of Olive Downs South Domain
- 2027: Construction of Willunga Domain
- 2028: Peak combined operations of Olive Downs South Domain and Willunga Domain
- 2048: 20-year design horizon post full operations (relevant to the PIA only)

The rationale for design year selection is provided at Section 2.2.1.

5.2 Workforce Traffic Generation

Traffic generated by the Project workforce has been estimated based on first principles, utilising the workforce projections outlined in Section 2.3. Assumptions regarding the location of the workforce and likely roster arrangements, as detailed in the following sections, have been provided by Pembroke.

A summary of the anticipated workforce projections, correlated to the selected design horizons is provided at Table 5.1.

Table 5.1: Total Workforce Number for Design Horizons

Workforce Type	Estimated Number of Workers							
	2020 [1]		2027 [1]		2028 [1]		2048 [1]	
	Olive Downs South	Willunga	Olive Downs South	Willunga	Olive Downs South	Willunga	Olive Downs South	Willunga
Construction	700	0	0	200	0	0	0	0
Operational	480	0	960	0	960	340	960	340
Combined Total	1180		1160		1300		1300	

[1] For a conservative approach, peak periods of the development traffic are assumed to coincide with the network peak period.

5.2.1 Location and Mode of Travel of Workforce

Pembroke has provided assumptions in relation to the likely residence of the workforce and the associated directional distribution from these locations. Modes of travel to be adopted by the workforce are assumed to be bus, carpool and DIDO. A summary of expected workforce locations and their associated directional distributions is provided in Table 5.1 with the proportions of each mode of travel detailed in Table 5.3.

Table 5.2: Workforce Location and Directional Distributions

Origin / Destination of Workforce Movements	Proportion of Workforce	
	Olive Downs South Domain	Willunga Domain
Coppabella	9%	3%
Moranbah	37%	13%
Dysart	14%	5%
Middlemount	8%	3%
Nebo	6%	2%
Total	**74%**	**26%**

Table 5.3: Proportion of Workforce Utilisation by Mode of Travel

Mode of Travel	Proportion of Workforce Utilisation
Bus	25%
Carpool	10%
DIDO	65%
Total	**100%**

5.2.2 Workforce Rosters

The Project is expected to operate on two 12-hour shifts (i.e. day / night staff), during both construction and operational phases, with 50% of the workforce working the day shift and 50% of the workforce working the night shift.

The operational hours of the Project would be 24 hours a day, seven days a week. Construction rosters are expected to be 12 hour shifts with 21 days on and seven days off. Operational rosters are expected to be:

- mining operations on a 12.5 hour shift, seven days on, seven days off; and
- senior management and administration staff working a daytime shift, five days on, two days off.

It is noted that strategies may be provided as part of the recommendations of the Road Use Management Plan (RUMP) to stagger arrival / departures or to set shift times such that they do not coincide with the network peaks. The adoption of any such strategies would seek to alleviate the level of impact associated with the Project.

5.2.3 Vehicle Access Point Distribution

The split of workforce traffic requiring access to the Olive Downs South and Willunga Domains has been adopted based on the anticipated Project Schedule as described in Section 2.2.

Assumptions adopted for the assessment are summarised in Table 5.4.

Table 5.4: Distribution of Traffic Accessing Olive Downs South and Willunga

Design Year	Workforce Type	Olive Downs South Domain	Willunga Domain
2020	Construction	100%	0%
	Operations	100%	0%
2027	Construction	0%	100%
	Operations	100%	0%
2028	Operations	74%	26%
2048	Operations / Rehabilitation	74%	26%

5.2.4 Summary of Workforce Traffic Generation

Based on the assumptions documented in the preceding sections, estimates of workforce generated traffic (inclusive of bus movements and carpooling) are summarised in Table 5.5, with detailed breakdowns provided at Appendix B and traffic flow diagrams for the proposed access locations provided at Appendix C.

Table 5.5: Workforce Traffic Generation Summary

Design Year	Olive Downs South Domain				Willunga Domain			
	AM Peak [1]		PM Peak [1]		AM Peak [1]		PM Peak [1]	
	In	Out	In	Out	In	Out	In	Out
2020	449	449	449	449	0	0	0	0
2027	366	366	366	366	78	78	78	78
2028	365	365	365	365	130	130	130	130
2048	365	365	365	365	130	130	130	130

[1] For a conservative approach, peak periods of the development traffic are assumed to coincide with the network peak period.

5.3 Heavy Vehicle Traffic Generation

The proponent has provided estimates of heavy vehicle movements for the Project construction and operational phases. The anticipated origins / destinations of heavy vehicles are to/from Mackay and Moranbah.

A summary of anticipated two-way vehicle movements for the construction and operational phases of the Project is provided at Table 5.6.

Table 5.6: Heavy Vehicle Movements by Location and Project Phase

Project Phase	Origin / Destination (total 2-way movements)	
	Mackay	Moranbah
Construction	100 movements / day	-
Operational	10 movements / day	2 movements / day

Table 5.7 provides the breakdown of daily heavy vehicle movements by heavy vehicle type for construction and operational phases.

Table 5.7: Heavy Vehicle Movements by Heavy Vehicle Type

Project Phase	Heavy Vehicle Type	Origin / Destination (total 2-way movements)	
		Mackay	Moranbah
Construction	Semi-Trailer	40 movements / day	-
	B-Double	40 movements / day	
	Rigid	20 movements / day	
Operational	Semi-Trailer	4 movements / day	1 movements / day
	B-Double	4 movements / day	1 movements / day
	Rigid	2 movements / day	0 movements / day

It has been assumed that the directional split of heavy vehicles going to the Olive Downs South and Willunga Domains, is proportional to the workforce proportions at each domain. Furthermore, it has been assumed that heavy vehicles arrive evenly over a 12-hour day for both construction and operational phases. Based on these assumptions, estimates of heavy vehicle traffic generated at each domain are detailed in Table 5.8.

Table 5.8: Hourly Heavy Vehicle Traffic Generation Summary

Design Year	Olive Downs South Domain				Willunga Domain			
	AM Peak		PM Peak		AM Peak		PM Peak	
	In	Out	In	Out	In	Out	In	Out
2020	10	10	10	10	0	0	0	0
2027	2	2	2	2	8	8	9	9
2028	2	2	2	2	2	2	2	2
2048	2	2	2	2	2	2	2	2

6. Road Link Assessment

The following section has been prepared to assess anticipated Project impacts on the road network with due consideration of forecast traffic volumes "with and "without" the Project. This assessment has been undertaken in accordance with the principles outlined in GTIA which states the impact assessment criteria to be the following:

"All road links where the development traffic exceeds 5% of the base traffic in either direction on the link's annual average daily traffic (AADT) in the year of opening of each stage".

Where the development traffic exceeds 5% of the base traffic a Link Capacity Assessment is required as detailed further in Section 6.2 and Section 6.3.

6.1 Impact Identification

Table 6.1 summarises the comparison of baseline traffic to Project traffic (based on a consideration of the change in each direction of travel) to determine whether the 5% traffic impact threshold is exceeded. It should be noted that the 2048 design year has been excluded from the Road Link Assessment, as it is only required to be assessed for the Pavement Impact Assessment.

Table 6.1: Link Assessment – Impact Identification

Road Name	Road Segment	% Increase of AADT		
		2020	2027	2028
Peak Downs Highway (Clermont - Nebo)	Peak Downs Hwy West of Wuthung Turnoff 65.28	<5%	<5%	<5%
	33A Between Moranbah Turnoff & Dysart Turnoff	≥5%	≥5%	≥5%
	Peak Downs Hwy 150m West of Isaac River	≥5%	≥5%	≥5%
	West of Coppabella	≥5%	≥5%	≥5%
	East of Coppabella	≥5%	≥5%	≥5%
	East of Bee Creek	≥5%	≥5%	≥5%
	North of Braeside Road	≥5%	≥5%	≥5%
Peak Downs Highway (Nebo - Mackay)	Retreat Hotel Permanent Counter	<5%	≥5%	<5%
	Weigh in Motion Site Eton	<5%	<5%	<5%
	West of Walkerston Township	<5%	<5%	<5%
	East of Walkerston Cemetery	<5%	<5%	<5%
	East of BSES	<5%	<5%	<5%
	West of Bernborough Avenue	<5%	<5%	<5%
	Bernborough Avenue - City Gates	<5%	<5%	<5%
Fitzroy Developmental Road (Dingo - Mt Flora)	Fitzroy Dev Rd 85C 2.8 km N of Cap Hwy	<5%	<5%	<5%
	South of Middlemount Turnoff	<5%	<5%	<5%
	Valkyrie Permanent Counter	≥5%	≥5%	≥5%

On the basis of the summary provided in Table 6.1, the impact of forecast Project traffic exceeds 5% for the following road segments:

- Peak Downs Highway:
  - 33A Between Moranbah Turnoff & Dysart Turnoff.
  - Peak Downs Hwy 150m West of Isaac River.
  - West of Coppabella.
  - East of Coppabella.
  - East of Bee Creek.
  - North of Braeside Road.
  - Retreat Hotel Permanent Counter (2027 only).

- Fitzroy Developmental Road:
  - Valkyrie Permanent Counter.

A link capacity assessment for these road segments is provided in Section 6.3.

6.2 Link Capacity Calculations

The theoretical link capacity has been calculated in accordance with Austroads GTM: Part 3 for two-lane, two-way roads. A summary of the input assumptions that have been adopted in the calculations is contained in Table 6.2.

Table 6.2: Input Assumptions Adopted for Link Capacity Calculations

Input	Assumption
Lane widths	≥ 3.6m
Clear shoulder width	≥ 1.8m
All passenger cars	Heavy vehicles converted to passenger car units (pcu)
Flow conditions	Uninterrupted flow
Terrain	Level terrain
Directional split	50 / 50 split

Passenger Car Units (PCU) conversion factors were obtained from TMR's 'Cost Benefit Analysis Manual', as follows:

- Car: 1
- Rigid Truck: 1.4
- Semi-Trailer: 2.4
- B-Double: 4.1
- Oversized: 4.1

Based on Austroads GTM: Part 3, the threshold link capacity for two-lane, two-way roads corresponding to each Level of Service (LOS) has been calculated as follows:

- LOS A: < 490 pcu/h
- LOS B: 490 – 780 pcu/h
- LOS C: 781 – 1,190 pcu/h
- LOS D: 1,191 – 1,830 pcu/h
- LOS E: 1,831 – 3,200 pcu/h
- LOS F: > 3,200 pcu/h

It is noted that the above does not include any capacity adjustments to account for overtaking lanes. No documented simple methodology exists for this calculation, and therefore the analysis provided herein accounts for a conservative assessment of road sections where overtaking lanes are available.

For the purposes of this RTA, LOS D has been assumed as the operational threshold for 'acceptable' link performance.

6.3 Link Capacity Assessment

A summary of the anticipated LOS for each link "with" and "without" Project traffic is provided in Table 6.3. Detailed results including the traffic volumes "with" and "without" the Project are provided in Appendix D.

Table 6.3: Link Capacity Assessment Summary

Road Name	Road Segment	Link Capacity					
		2020		2027		2028	
		Base	Project	Base	Project	Base	Project
Peak Downs Highway (Clermont - Nebo)	33A Between Moranbah Turnoff & Dysart Turnoff	B	B	B	B	B	B
	Peak Downs Hwy 150m West of Isaac River	A	C	B	C	B	C
	West of Coppabella	B	C	B	C	B	C
	East of Coppabella	B	B	B	B	B	B
	East of Bee Creek	B	C	C	C	C	C
	North of Braeside Road	B	C	B	C	B	C
Peak Downs Highway (Nebo - Mackay)	Retreat Hotel Permanent Counter	B	B	C	C	C	C
Fitzroy Developmental Road (Dingo - Mt Flora)	Valkyrie Permanent Counter	A	A	A	B	A	B

Table 6.3 indicates that the LOS of the following links decreases as a result of Project generated traffic:

- Peak Downs Highway:
  - Peak Downs Hwy 150m West of Isaac River.
  - West of Coppabella.
  - East of Bee Creek.
  - North of Braeside Road.
- Fitzroy Developmental Road:
  - Valkyrie Permanent Counter.

The forecast LOS as a result of Project generated traffic is above the "acceptable" LOS D. Therefore, no significant impact to road links is predicted to occur as a result of Project generated traffic.

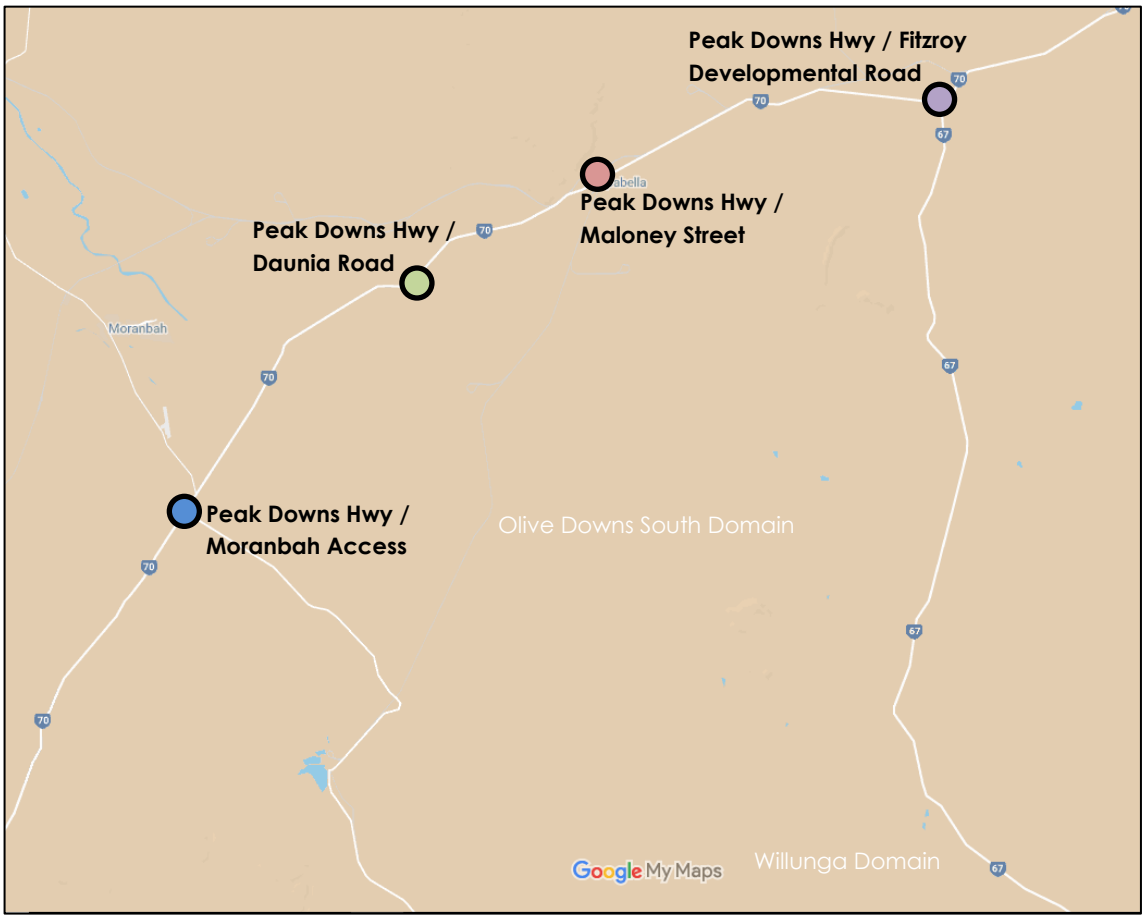
7. Intersection Assessment

Intersections adjacent to the Project which are expected to be affected as a result of Project generated traffic are as follows:

- Peak Downs Highway and Moranbah Access.
- Peak Downs Highway and Daunia Road.
- Peak Downs Highway and Maloney Street.
- Peak Downs Highway and Fitzroy Developmental Road.

Figure 7.1 shows the location of the above-mentioned intersections, with respect to the Olive Downs South and Willunga Domains. Traffic counts were undertaken at these intersections on 18 April 2018 to gain an appreciation of the existing traffic volumes. The results of the traffic counts are detailed in Appendix E.

Figure 7.1: Intersections Proximate to the Project



7.1 Impact Identification

An assessment of intersections proximate to the Project was undertaken for the Project design scenarios, to identify impacted intersections (i.e. intersections where the development traffic exceeds 5% of the base traffic for any movement in the design peak periods). Table 7.1 details intersections where the 5% threshold was exceeded for one or more movements.

Table 7.1: Intersection Impact Identification

Intersection	Design Scenario	Impact
Peak Downs Highway / Moranbah Access	2020	Exceeds 5% threshold for more than one movement
	2027	
	2028	
Peak Downs Highway / Daunia Road	2020	Exceeds 5% threshold for more than one movement
	2027	Exceeds 5% threshold for all movements
	2028	
Peak Downs Highway / Maloney Street	2020	Exceeds 5% threshold for more than one movement
	2027	
	2028	
Peak Downs Highway / Fitzroy Developmental Road	2020	Exceeds 5% threshold for more than one movement
	2027	Exceeds 5% threshold for all movements
	2028	

7.2 Turn Warrant Assessment

Turn warrant assessments in accordance with TMR's RPDM Volume 3: Part 4A were undertaken for impacted intersections identified in Section 7.1, to determine if upgrades to existing turn treatments are required as a result of Project generated traffic. Traffic flow diagrams of background and Project generated traffic at the impacted intersections are provided at Appendix F. A summary of the results of the turn warrant assessment is provided in Table 7.2 and Table 7.3, with detailed results available at Appendix G.

Table 7.2: Turn Warrant Assessment Results – Baseline Volumes

Major Road Name	Minor Road	2020		2027		2028	
		Left Turn	Right Turn	Left Turn	Right Turn	Left Turn	Right Turn
Peak Downs Highway (South)	Moranbah Access	Auxiliary Lane Short – AUL (s)	N/A	Auxiliary Lane Short – AUL (s)	N/A	Auxiliary Lane Short – AUL (s)	N/A
Peak Downs Highway (North)		N/A	Channelised lane Full – CHR	N/A	Channelised lane Full – CHR	N/A	Channelised lane Full –CHR
Peak Downs Highway (West)	Daunia Road	N/A	Basic Right Turn - BAR	N/A	Channelised Lane Short – CHR (s)	N/A	Channelised lane Full –CHR
Peak Downs Highway (East)		Basic Left Turn – BAL	N/A	Basic Left Turn – BAL	N/A	Auxiliary Lane Short – AUL (s)	N/A
Peak Downs Highway (West)	Maloney Street	Basic Left Turn - BAL	Channelised lane Full – CHR	Basic Left Turn - BAL	Channelised lane Full – CHR	Basic Left Turn - BAL	Channelised lane Full –CHR
Peak Downs Highway (East)		Auxiliary Lane Short – AUL (s)	Channelised Lane Short – CHR (s)	Auxiliary Lane Short – AUL (s)	Channelised Lane Short – CHR (s)	Auxiliary Lane Short – AUL (s)	Channelised Lane Short – CHR (s)
Peak Downs Highway (West)	Fitzroy Developmental Road	N/A	Channelised Lane Short – CHR (s)	N/A	Channelised Lane Short – CHR (s)	N/A	Channelised Lane Short – CHR (s)
Peak Downs Highway (East)		Basic Left Turn - BAL	N/A	Basic Left Turn - BAL	N/A	Basic Left Turn - BAL	N/A

Table 7.3: Turn Warrant Assessment Results – Baseline + Project Generated Volumes

Major Road Name	Minor Road	2020		2027		2028	
		Left Turn	Right Turn	Left Turn	Right Turn	Left Turn	Right Turn
Peak Downs Highway (South)	Moranbah Access	Auxiliary Lane Short – AUL (s)	N/A	Auxiliary Lane Short – AUL (s)	N/A	Auxiliary Lane Short – AUL (s)	N/A
Peak Downs Highway (North)		N/A	Channelised lane Full – CHR	N/A	Channelised lane Full – CHR	N/A	Channelised lane Full –CHR
Peak Downs Highway (West)	Daunia Road	N/A	Channelised lane Full – CHR	N/A	Channelised lane Full – CHR	N/A	Channelised lane Full –CHR
Peak Downs Highway (East)		Auxiliary Lane Short – AUL (s)	N/A	Auxiliary Lane Full – AUL	N/A	Auxiliary Lane Full – AUL	N/A
Peak Downs Highway (West)	Maloney Street	Auxiliary Lane Short – AUL (s)	Channelised lane Full – CHR	Auxiliary Lane Short – AUL (s)	Channelised lane Full – CHR	Auxiliary Lane Short – AUL (s)	Channelised lane Full –CHR
Peak Downs Highway (East)		Auxiliary Lane Full – AUL	Channelised lane Full – CHR	Auxiliary Lane Full – AUL	Channelised lane Full – CHR	Auxiliary Lane Full – AUL	Channelised lane Full –CHR
Peak Downs Highway (West)	Fitzroy Developmental Road	N/A	Channelised lane Full – CHR	N/A	Channelised lane Full – CHR	N/A	Channelised lane Full –CHR
Peak Downs Highway (East)		Auxiliary Lane Short – AUL (s)	N/A	Auxiliary Lane Short – AUL (s)	N/A	Auxiliary Lane Short – AUL (s)	N/A

The existing turn treatments for the above-mentioned intersections are indicated in Table 7.4.

Table 7.4: Existing Turn Treatments

Major Road Name	Minor Road	Existing Form	
		Left Turn	Right Turn
Peak Downs Highway (South)	Moranbah Access	Auxiliary Lane Short – AUL (s)	N/A
Peak Downs Highway (North)		N/A	Channelised lane Full – CHR
Peak Downs Highway (West)	Daunia Road	N/A	Channelised lane Full – CHR
Peak Downs Highway (East)		Auxiliary Lane Short – AUL (s)	N/A
Peak Downs Highway (West)	Maloney Street	Auxiliary Lane Short – AUL (s)	Channelised lane Full – CHR
Peak Downs Highway (East)		Auxiliary Lane Full – AUL	Channelised lane Full – CHR
Peak Downs Highway (West)	Fitzroy Developmental Road	N/A	Channelised lane Full – CHR
Peak Downs Highway (East)		Auxiliary Lane Short – AUL (s)	N/A

A comparison of the results in Table 7.3 and Table 7.4 indicates that the existing turn treatments provided at the Peak Downs Highway / Moranbah Access, Peak Downs Highway / Maloney Street and Peak Downs Highway / Fitzroy Developmental Road intersections already satisfy the turn warrant requirements with the Project-generated traffic included. This is also the case for the right turn treatment at the Peak Downs Highway / Daunia Road intersection.

The left turn lane formation at the Peak Downs Highway / Daunia Road intersection is currently a short Auxiliary Lane, however, a full Auxiliary Lane is required to cater for project generated traffic in the year 2027. As such, an upgrade to this intersection would be required to facilitate a full length Auxiliary left turn lane at 2027. The required form for this upgrade treatment is to be developed during the detailed design phase in consultation with TMR.

8. Access Intersection Assessment

8.1 Site Access Location

8.1.1 Olive Downs South Domain

The Project proposes to gain vehicular access to the Olive Downs South Domain via a section of private road from Annandale Road as discussed in Section 2.1. To achieve this, a new three-way intersection is proposed. It is proposed that parts of Annandale Road, from Daunia Road to the Olive Downs South Domain mine access road, would be upgraded by the Isaac Regional Council, in accordance with a road infrastructure agreement with Pembroke.

8.1.2 Willunga Domain

Vehicular access to the Willunga Domain is proposed directly from Fitzroy Developmental Road as discussed in Section 2.1. To achieve this access, a new three-way intersection is proposed.

The following sections examine the turn warrants and detail the geometric design considerations and intersection form of the proposed access intersections.

8.2 Turn Warrant Assessment

A turn warrant assessment has been undertaken in accordance with the methodology provided in the RPDM Volume 3: Part 4A for the proposed Project access locations. The following scenarios have been assessed:

- 2020: Peak construction of Olive Downs South Domain
- 2027: Construction of Willunga Domain
- 2028: Peak combined operations of Olive Downs South Domain and Willunga Domain

A summary of the results of this assessment is outlined in Sections 8.2.1 and 8.2.2 with detailed results at Appendix H. As previously mentioned, analysis for the 2048 design scenario applies only to the Pavement Impact Assessment in accordance with GTIA. As such, this scenario has been excluded from the Access Intersection Assessment.

8.2.1 Olive Downs South Domain Access

12-hour tube counts were undertaken to observe the traffic currently utilising Annandale Road proximate to the proposed site access. Results of the tube count (undertaken on 18 April 2019) and a site inspection (undertaken by GTA on 10 January 2018) indicate that there is minimal traffic currently using Annandale Road. As such it is expected that, following the construction of this access and upgrade of Annandale Road, the majority if not all of the traffic utilising Annandale Road would be Project-related traffic. As such, a basic left turn and right turn treatment from Annandale Road to the site access is expected to be sufficient. Further investigation regarding road priority can be undertaken during the detailed site design phase of the Project.

8.2.2 Willunga Domain Access

A summary of the results from the turn warrant assessment is outlined in Table 8.1, with detailed results available at Appendix H.

Table 8.1: Turn Warrant Assessment Results – Willunga Domain Access

Major Road	Required Turn Treatment					
	2020 [1]		2027		2028	
	Left Turn Movement	Right Turn Movement	Left Turn Movement	Right Turn Movement	Left Turn Movement	Right Turn Movement
Fitzroy Developmental Road (North)	N/A	N/A	N/A	Channelised Lane Short – CHR (s)	N/A	Channelised Lane Short – CHR (s)
Fitzroy Developmental Road (South)	N/A	N/A	Basic Left Turn - BAL	N/A	Basic Left Turn - BAL	N/A

[2] No project traffic going to / from Willunga Domain

The results of the turn warrant assessment indicate that BAL and CHR (s) turn treatments are required for both the 2027 and 2028 design analysis years. It is therefore recommended that these provisions are incorporated into the final design of the access intersection.

8.3 Geometric Design Considerations

GTA conducted a site investigation on 10 January 2018, which revealed that the proposed access locations meet the sight distance requirements set out within the Austroads GRD: Part 4A. The minimum Safe Intersection Sight Distance (SISD) required at both access locations, (i.e. Annandale Road and Fitzroy Developmental Road) are as follows:

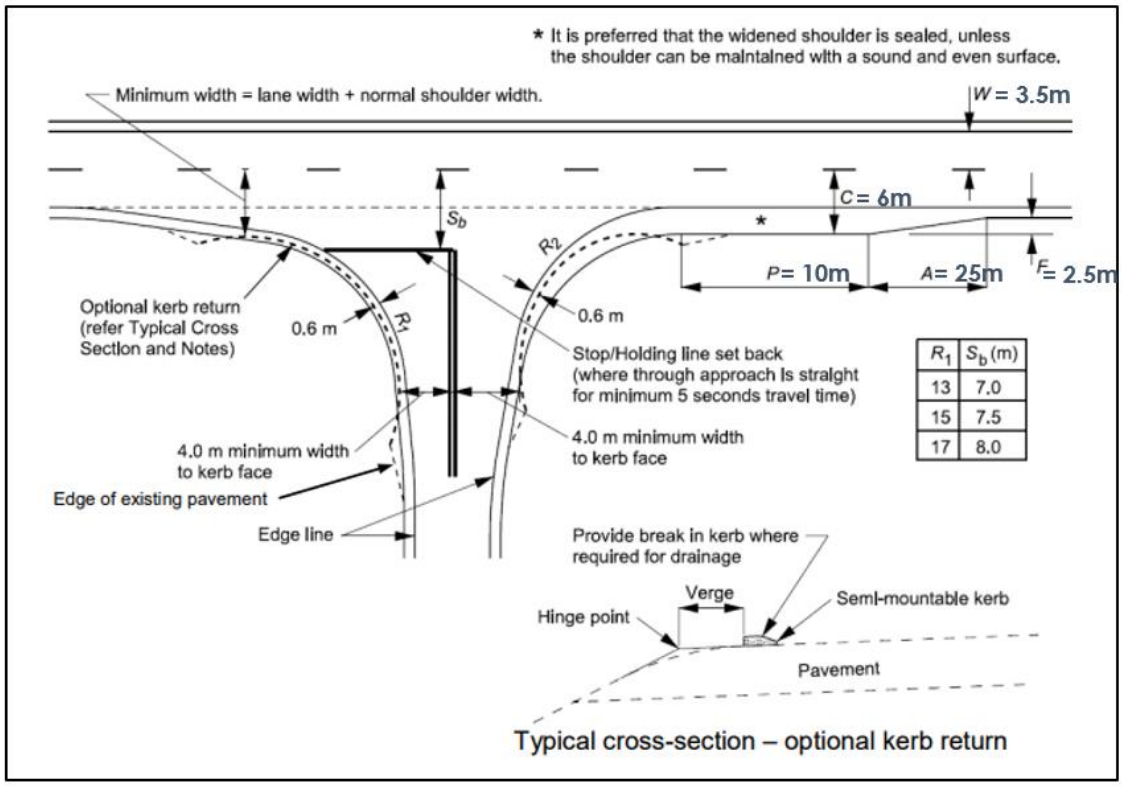
- Olive Downs South Domain Access: 151m (assumes 70 km/hr design speed and 2.0s reaction time)
- Willunga Domain Access: 300m (assumes 110 km/hr design speed and 2.5s reaction time)

No constraints were identified on site at either location, which could interfere with achieving the required minimum sight distances mentioned above.

8.4 Intersection Form

The indicative form for both access intersections is provided in Figure 8.1 to Figure 8.4, which is based on the requirements set out in Austroads GRD: Part 4A, noting that the width of each lane has been assumed to be 3.5m (general width of a lane).

Figure 8.1: BAL Olive Downs South Domain – Indicative Intersection Form



R_1	S_b (m)
13	7.0
15	7.5
17	8.0

Figure 8.2: BAR Olive Downs South Domain – Indicative Intersection Form

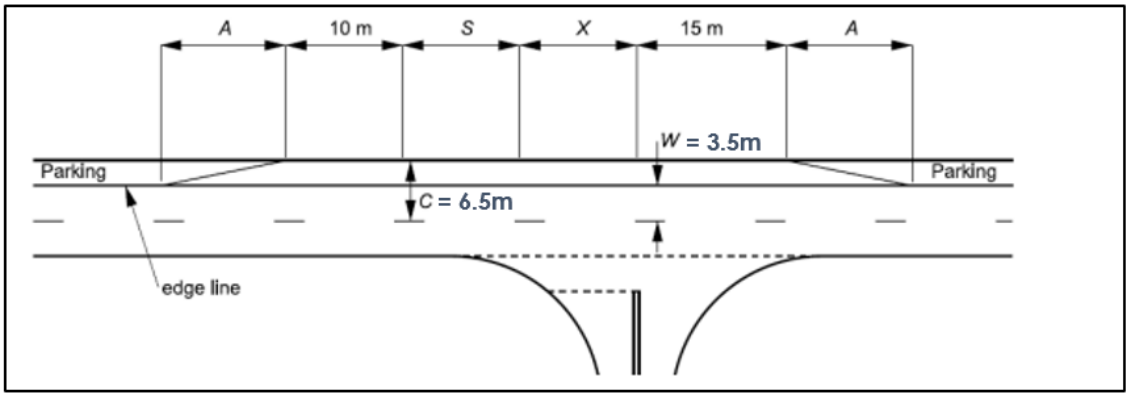
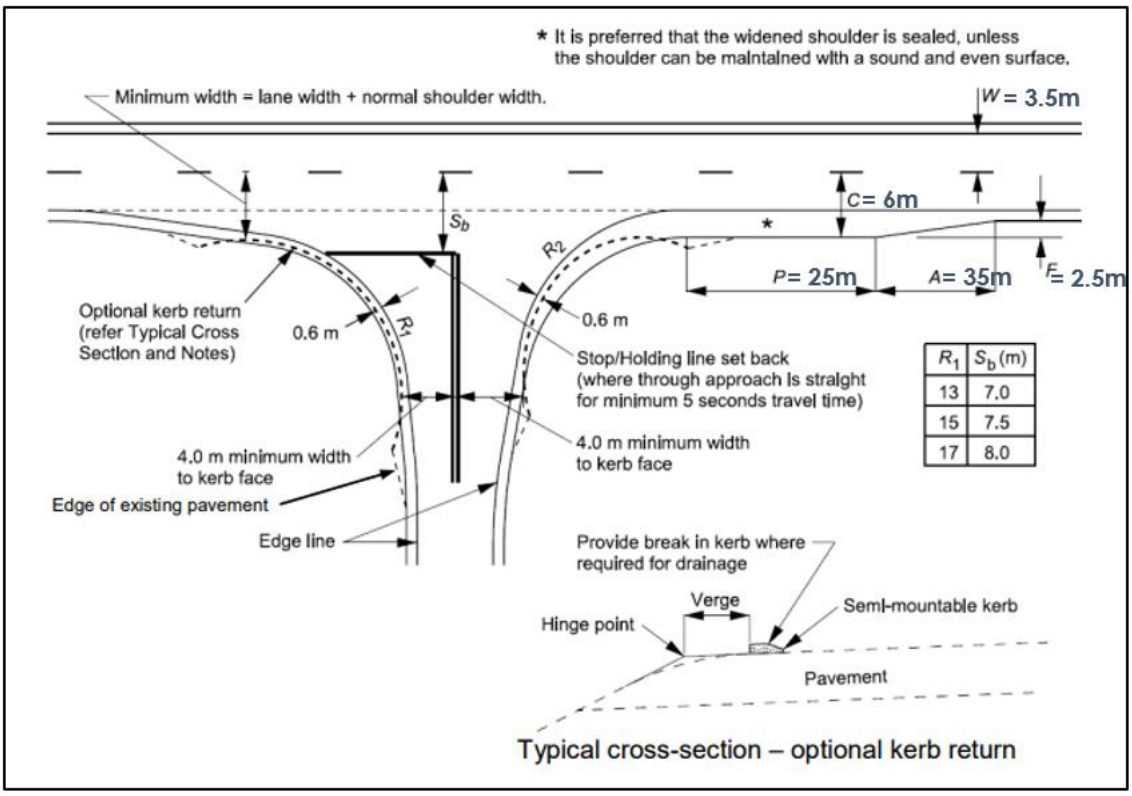
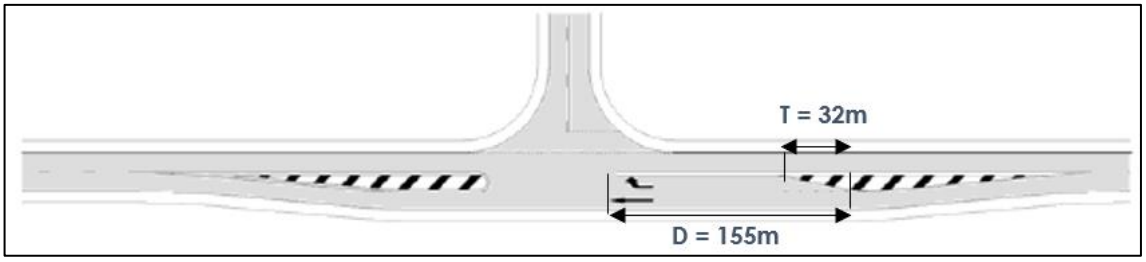


Figure 8.3: BAL Willunga Domain – Indicative Intersection Form



R_1	S_b (m)
13	7.0
15	7.5
17	8.0

Figure 8.4: CHR Willunga Domain – Indicative Intersection Form



9. Pavement Impact Assessment

9.1 SAR Conversion

In accordance with TMR's GTIA guidelines and Austroads Guide to Pavement Technology Part 2 document, background and Project generated traffic Standard Axle Repetitions (SAR's) were calculated based on AADT reports provided by TMR (for background traffic) and anticipated heavy vehicle movements for the Project. It is noted that a 50 / 50 split has been assumed between loaded and unloaded heavy vehicles entering and exiting the site. This is based on the assumption that there would be deliveries to the site, as well as removal of material from the site.

Appendix I details the background SAR's on the Peak Downs Highway and Fitzroy Developmental Road proximate to the Project site.

9.2 Impact Identification

A summary of the Project generated heavy vehicle movements (and SARs) on State Controlled Roads is provided in Appendix I. Based on the calculated development SAR's, impacts of greater than 5% have not been identified for any section of the Peak Downs Highway or Fitzroy Developmental Road. On this basis, and as per the methodology detailed in GTIA, assessment of contributions has not been undertaken, with the pavement impacts of the Project considered insignificant.

9.3 Future Assessment

Whilst the Pavement Impact Assessment (PIA) conducted as part of this RTA has not identified any impacts of greater than 5% along either the Peak Downs Highway or Fitzroy Developmental Road, Pembroke has consulted with TMR to appraise them of the findings from this RTA and to discuss their requirements going forward. Based on those discussions, Pembroke has agreed to review and update the PIA as required.

10. Road Safety Assessment

10.1 Road Safety Issues

The site inspection conducted by GTA on 10 January 2018 did not indicate any existing road safety issues on Peak Downs Highway or Fitzroy Developmental Road. It is noted that the Project generated traffic is expected to increase traffic volumes (namely turn movement volumes) along various intersections on Peak Downs Highway and Fitzroy Developmental Road. The impact due to Project generated traffic is expected to be offset by ensuring the affected intersections (as identified in Section 7) are adequately designed to accommodate the increase in turn volumes.

Furthermore, a review of road crash data detailed in Section 9.2 suggests that the majority of crashes that have occurred along Peak Downs Highway and Fitzroy Developmental Road (proximate to the site) have likely been caused as a result of driver error / behaviour. Although the Project is expected to increase traffic flow along these roads, it is not expected to exacerbate any current road safety issues (the majority of which are believed to be associated with driver behaviour) along Peak Downs Highway and Fitzroy Developmental Road proximate to the site. The RUMP would address safety issues and mitigation measures associated with Project workforce driver behaviour (Section 12).

It should be noted that traffic surveys (conducted on 18 April 2018) undertaken on Annandale Road indicate that there is limited traffic currently utilising this road and no road crash data is publicly available either. It is proposed that parts of Annandale Road, from Daunia Road to the Olive Downs South Domain mine access road, would be upgraded by the Isaac Regional Council, in accordance with a road infrastructure agreement with Pembroke. Safety issues would be identified and addressed during the detailed design phase of the road design.

10.2 Road Crash History

Road crash data for Peak Downs Highway and Fitzroy Developmental Road was sourced from TMR (obtained 24 January 2018) for a five-year period between 2012 – 2017. This crash data provides information on the number and severity of crashes along the Peak Downs Highway and Fitzroy Developmental Road, categorised into the following:

- Crashes resulting in fatality.
- Crashes resulting in hospitalisation.
- Crashes resulting in medical treatment.
- Minor crashes.
- Crashes resulting in property damage only.

Analysis of the recorded crashes on the Peak Downs Highway and Fitzroy Developmental Road proximate to the Project, indicates that a total of 23 crashes were recorded in the preceding 5-year period. Details of these crashes, including the number of crashes and associated casualties for each type of crash (i.e. based on the Definitions for Coding Accidents (DCA) code) are summarised in Table 10.1.

Table 10.1: Crash Data Summary

DCA Code	DCA Description	Total Count (no. crashes)	Severity (no. casualties)			
			Medical Treatment	Hospitalisation	Minor Injury	Fatality
201	Vehicles Opposite Approach: Head On	3	0	3	0	1
502	Vehicles Overtaking: Out of Control	1	1	0	0	0
607	Vehicles On Path: Temporary Object on Carriageway	1	0	0	1	0
608	Vehicles On Path: Accident or Broken Down	1	0	0	1	0
609	Passenger & Miscellaneous: Hit Animal	3	2	2	0	0
700	Off Path-Straight: Other	1	0	1	0	0
702	Off Path-Straight: Right Off Carriageway	1	0	1	0	0
703	Off Path-Straight: Left Off Carriageway Hit Object	4	1	3	0	0
704	Off Path-Straight: Right Off Carriageway Hit Object	2	1	1	0	0
705	Off Path-Straight: Out of Control on Carriageway	1	0	1	0	0
802	Off Path-Curve: Off Carriageway Left Bend	1	0	1	0	0
803	Off Path-Curve: Off Carriageway Right Bend Hit Object	2	0	2	0	1
804	Off Path-Curve: Off Carriageway Left Bend Hit Object	1	1	0	0	0
806	Vehicle Left-Turning at Intersection (Or Driveway)	1	0	1	0	0
Total		23	6	16	2	2

The results presented in Table 10.1 indicate that a broad range of crash types have occurred along the subject roads over the 5-year analysis period with no discernible pattern. It is assumed that the majority of the crashes recorded on Peak Downs Highway and Fitzroy Developmental Road have occurred as a result of driver behaviour based on the description of the crashes. Project workforce driver behaviour would be addressed via mitigation strategies outlined in the RUMPand it is expected that the Project would result in no changes to the type and rate of accidents.

11. Rail Level Crossings

Potential Project rail crossing impacts would be associated with an increased number of trains travelling along the Goonyella Branch Railway and the increased number of vehicles using the rail level crossing on Daunia Road.

11.1 Increased Train Movements

The Project would result in an increased number of trains travelling along the Goonyella Branch Railway, with a peak of up to eight product coal trains per day being loaded for the Project. This could result in increased traffic delays at the level crossings located along the Goonyella Branch Railway between the Project and the port. However, it is anticipated that the Project would not have a significant impact on these rail level crossings, since the number of coal trains associated with the Project would only be minimal in comparison to the large number of trains that travel along this network on a daily basis. It should be noted that:

- The Network Development Plan 2016 – 2017 (Aurizon, 2017) states that the current (FY2016) coal throughput of the Goonyella Branch Railway is 121.5 Mtpa.
- The Project proposes up to 15 Mtpa of product coal to be transported along the Goonyella system.
- This represents only 12.5% of the current coal throughput along the rail network.

11.2 Increased Road Movements

The Project would increase the number of vehicles using the rail level crossing on Daunia Road from approximately 17 vehicles per hour (two-way) to 937 vehicles per hour (two-way) at 2020 (i.e. peak construction period for Olive Downs Domain). It should be noted that this is an extremely conservative estimate, which assumes that the workforce changeover between shifts would result in all construction and operational employees using the level crossing within a one-hour period. This is considered to be extremely conservative given, in reality:

- The Project workforce is likely to arrive approximately 15 minutes prior to their shift commencing and departing approximately 15 minutes after their shift ends (i.e. there will be a crossover period of approximately 30 minutes between shifts where all rostered personnel are on-site).
- It would take approximately 25 minutes to travel between the level crossing and the mine site (approximately 35 km drive). Incorporating the crossover period this is likely to result in an approximately 1 – 1.5-hour gap between the arriving and departing workforce utilising the level crossing.

As described in Section 3.4, the existing rail level crossing is boom gate operated, with flashing light warning systems also provided. Signage and road marking requirements associated with railway level crossings are set out in the Manual of Uniform Traffic Control Devices Part 7: Railway Crossings (AS 1742.7, 2016). AS 1742.7 does not provide guidance on when a crossing should progress from one treatment to another, as such guidance is found in risk assessment models such as the Australian Level Crossing Assessment Model.

The Australian Level Crossing Assessment Model is managed by the rail operator (i.e. Aurizon) and therefore Pembroke Resources cannot undertake an assessment of the potential impacts on the Daunia Road rail level crossing. The relevant Project rail and road traffic data would therefore be provided to Aurizon to allow assessment of the potential impacts on this level crossing using the Australian Level Crossing Assessment Model.

Pembroke Resources would upgrade the Daunia Road rail level crossing based on the outcomes of this Australian Level Crossing Assessment Model. The upgrades would be conducted in accordance with AS 1742.7 and in consultation with Aurizon and Isaac Regional Council.

Project road traffic is not expected to result in significant changes to road traffic volumes at other rail level crossings.

12. Road Use Management Plan

As part of the Project, Pembroke would prepare a RUMP in consideration of the DTMR's *Traffic and Road Use Management Manual,* Austroads' *Guide to Traffic Management*, and the Austroads' *Guide to Road Safety*. The RUMP would include consideration of:

- Public safety at worksites
- Obstructions to road users
- Workforce management strategies to reduce traffic generation
- Management of driver behaviour to ensure that Project traffic is driving in a safe manner
- Driver fatigue management strategies
- Defining responsibilities and procedures for implementation, monitoring and RUMP strategy amendment.

The outcomes of the RTA are intended to inform the development of the RUMP, which would in turn influence the future transport strategies to be adopted. The impact mitigation strategies adopted within the RUMP would form the basis upon which State and Local government would monitor and assess the construction and operational activities of the Project. Some management strategies (which would be further detailed in the RUMP) that the Project can look to implement are:

- Operation of lighting on-site would be operated in accordance with the relevant Australian Standards.
- Discourage staff from using roads that do not form part of the preferred access routes to the sites
- Sponsorship of driver reviver rest areas to deal with driver fatigue
- Developing policy on how long drivers can operate a vehicle and how many breaks they require
- Consideration of seasonal weather influences on transport operations.
- Consideration of obstruction to other road users.
- Installation of appropriate signage.
- Implementation of speed limits.
- Limiting overtime and developing safe driving plans.

13. Conclusion

Pembroke proposes to develop a metallurgical coal mine and associated infrastructure within the Bowen Basin, located approximately 40 kilometres south-east of Moranbah, Queensland.

The Project comprises the Olive Downs South and Willunga mining domains and associated linear infrastructure corridors, including a rail spur connecting to the Norwich Park Branch Railway, a water pipeline connecting to the Eungella pipeline network, an ETL and access roads.

This RTA has examined the likely road transport implications of the Project. Based on the analysis and discussions presented within this report, the following conclusions are made:

- Worst case traffic demands for the Project are expected to occur in:
  - 2020: Peak construction period at Olive Downs South Domain
  - 2027: Construction commences at Willunga Domain with Olive Downs South Domain being operational
  - 2028: Peak combined operational workforce for the Project
  - 2048: 20-year design horizon post combined opening of both mines (used for the pavement impact assessment only;
- All road links along the Peak Downs Highway and Fitzroy Developmental Road are expected to operate within capacity with the Project generated traffic included;
- The intersection assessment undertaken indicates that no intersection upgrades are required at the Peak Downs Highway / Moranbah Access, Peak Downs Highway / Maloney Street and Peak Downs Highway / Fitzroy Developmental Road intersections. This is also the case for the right turn treatment at the Peak Downs Highway / Daunia Road intersection; however, an upgrade from a short auxiliary lane (AUL(s)) to a full auxiliary lane (AUL) is required for the left turn treatment at the Peak Downs Highway / Daunia Road intersection in 2027 to cater for project generated traffic.
- A turn warrant assessment indicates that the proposed site accesses should provide BAL turn treatments for left turns and a BAR right turn treatment for the Olive Downs South Domain, with a CHR right turn treatment for the Willunga Domain. It is recommended that these treatments are incorporated into the access arrangements as the designs progress further;
- Based on the calculated development SAR's the pavement impacts of the Project are considered to be insignificant, with no changes of greater than 5% identified for any section of the Peak Downs Highway or Fitzroy Developmental Road; and
- It is proposed that parts of Annandale Road, from Daunia Road to the Olive Downs South Domain mine access road, would be upgraded by the Isaac Regional Council, in accordance with a road infrastructure agreement with Pembroke.

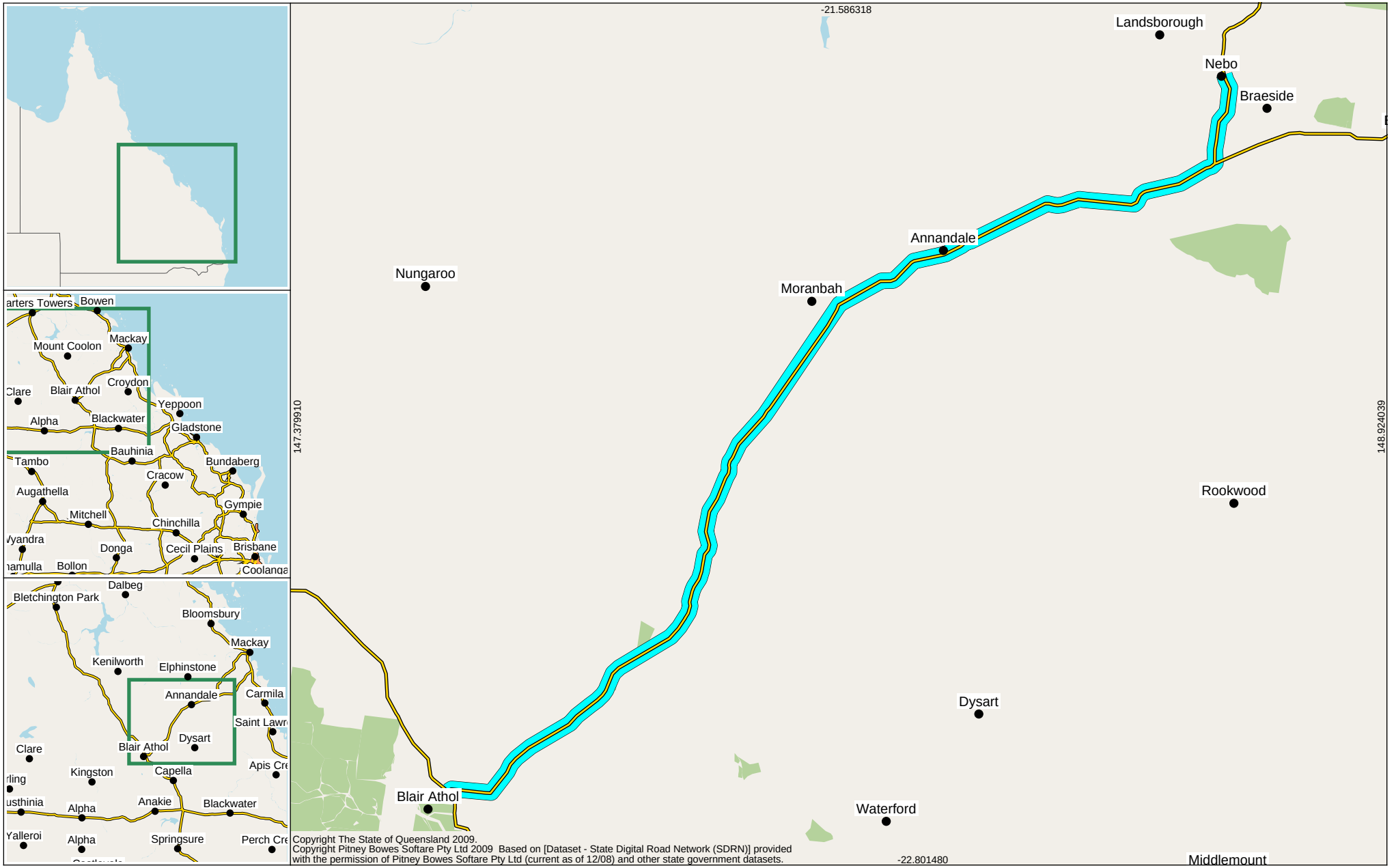
Appendix A

AADT Reports

AADT Segment Analysis Report (Complete)

Road Section 33A - PEAK DOWNS HIGHWAY (CLERMONT - NEBO)

Traffic Year 2016



Traffic Analysis and Reporting System
AADT Segment Analysis Report (Complete)
Road Section 33A - PEAK DOWNS HIGHWAY (CLERMONT - NEBO)
Traffic Year 2016

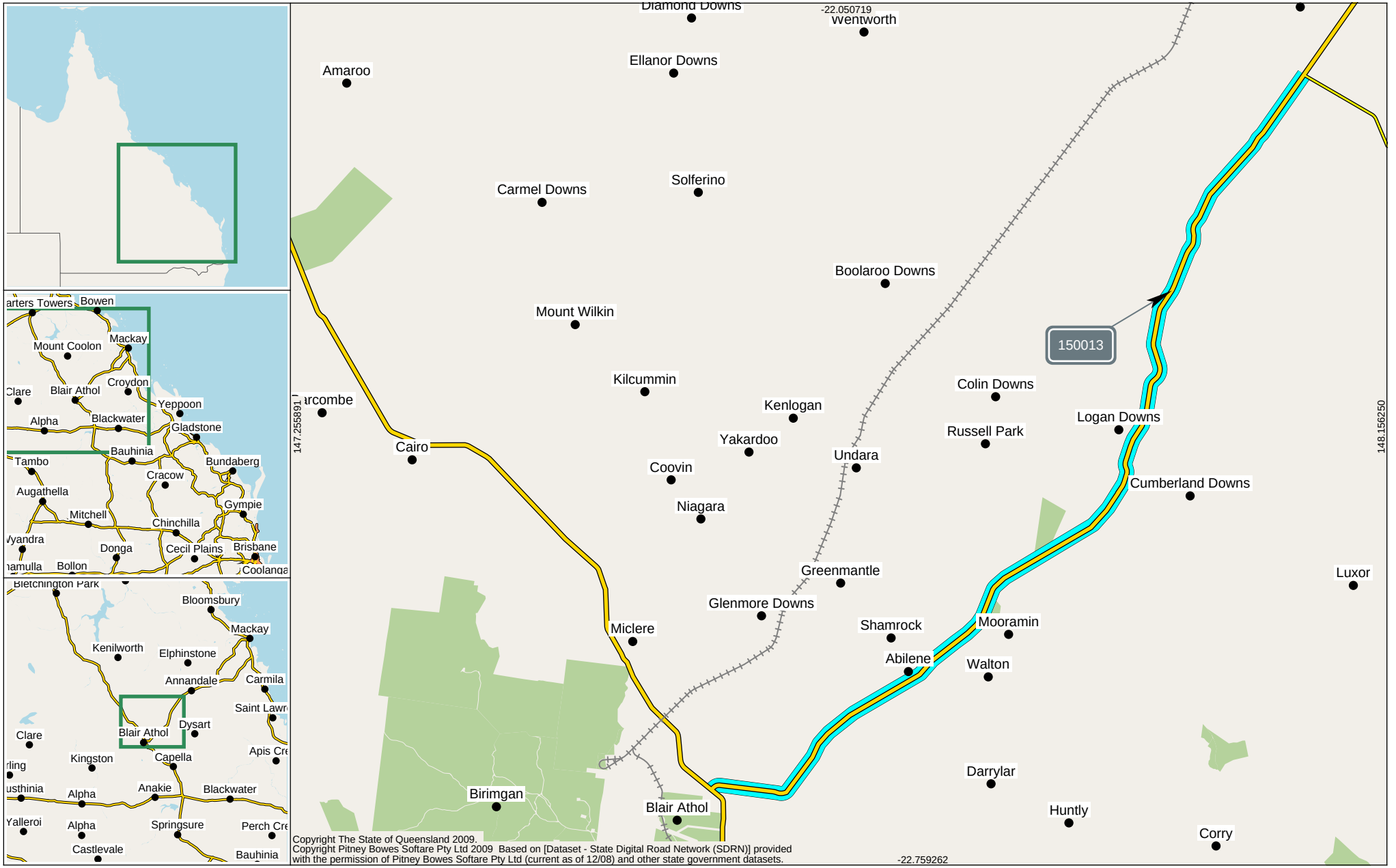
Road Segments Summary - All Vehicles

Region	Segment Start Tdist	Segment End Tdist	Site	Site Tdist	Description	AADT			VKT (Millions)			Data Year	Page
						G	A	B	G	A	B		
405	0.000 km	89.050 km	150013	43.730 km	Peak Downs Hwy West of Wuthung T/O 65.28	267	262	529	8.67837	8.51585	17.19422	2016	2
405	89.050 km	90.370 km	159613	89.500 km	33A Between Moranbah T/O & Dysart T/O	1,214	1,249	2,463	0.58491	0.60177	1.18667	2016	3
405	90.370 km	101.770 km	150012	94.105 km	Peak Downs Hwy 150m West of Isaac River	1,177	1,174	2,351	4.89750	4.88501	9.78251	2016	4
405	101.770 km	127.993 km	80147	127.330 km	West of Coppabella	1,601	1,607	3,208	15.32380	15.38123	30.70504	2016	5
405	127.993 km	149.366 km	80146	128.660 km	East of Coppabella	1,396	1,411	2,807	10.89040	11.00742	21.89781	2016	6
405	149.366 km	163.631 km	80197	151.000 km	East of Bee Creek	1,759	1,750	3,509	9.15863	9.11177	18.27040	2016	7
405	163.631 km	178.197 km	82884	176.282 km	North of Braeside Road	1,557	1,595	3,152	8.27793	8.47996	16.75789	2016	8
								Totals	57.81153	57.98301	115.79454		

Road Segments Summary - Heavy Vehicles only

VKT totals are calculated only if traffic class data is available for all sites.

Region	Segment Start Tdist	Segment End Tdist	Site	Site Tdist	Description	HV AADT						HV VKT (Millions)			Data Year	Page
						G		A		B						
						AADT	HV %	AADT	HV %	AADT	HV %	G	A	B		
405	0.000 km	89.050 km	150013	43.730 km	Peak Downs Hwy West of Wuthung T/O 65.28	72	26.97%	90	34.35%	162	30.62%	2.34023	2.92529	5.26553	2016	2
405	89.050 km	90.370 km	159613	89.500 km	33A Between Moranbah T/O & Dysart T/O	189	15.57%	248	19.86%	437	17.74%	0.09106	0.11949	0.21055	2016	3
405	90.370 km	101.770 km	150012	94.105 km	Peak Downs Hwy 150m West of Isaac River	224	19.03%	399	33.99%	623	26.50%	0.93206	1.66024	2.59230	2016	4
405	101.770 km	127.993 km	80147	127.330 km	West of Coppabella	246	15.37%	424	26.38%	670	20.89%	2.35456	4.05827	6.41283	2016	5
405	127.993 km	149.366 km	80146	128.660 km	East of Coppabella	312	22.35%	243	17.22%	555	19.77%	2.43396	1.89568	4.32964	2016	6
405	149.366 km	163.631 km	80197	151.000 km	East of Bee Creek	237	13.47%	337	19.26%	574	16.36%	1.23399	1.75467	2.98866	2016	7
405	163.631 km	178.197 km	82884	176.282 km	North of Braeside Road	423	27.17%	402	25.20%	825	26.17%	2.24892	2.13727	4.38619	2016	8
											Totals	11.63479	14.55090	26.18569		


Diamond Downs
-22.050719
Wentworth
Amaroo
Ellanor Downs
Carmel Downs
Solferino
Boolaroo Downs
Mount Wilkin
150013
Kilcummin
Colin Downs
Kenlogan
Logan Downs
Russell Park
Yakardoo
Undara
Cairo
Coovin
Cumberland Downs
Niagara
Greenmantle
Luxor
Glenmore Downs
Miclere
Shamrock
Mooramin
Abilene
Walton
Darrylar
Birimgan
Blair Athol
Huntly
Corry
147.255891
148.156250
-22.759262
Bowen
Mackay
Mount Coolon
Croydon
Blair Athol
Yeppoon
Blackwater
Alpha
Gladstone
Bauhinia
Tambo
Bundaberg
Cracow
Augathella
Gympie
Mitchell
Chinchilla
Donga
Cecil Plains
Brisbane
Bollon
Coolanga
Bloomsbury
Kenilworth
Elphinstone
Annandale
Carmila
Dysart
Clare
Kingston
Capella
Anakie
Springsure
Castlevale
Bauhinia
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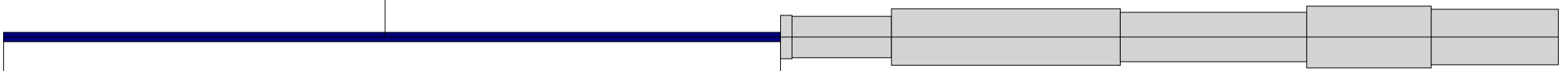
Site 150013. Point 350000033. West of Wuthung Permanent Counter.
43.73 km

The width of each Road Segment is proportional to its AADT.



0.00 km
Start Point 350000400. Int. Peak Downs Hwy / Gregory Hwy / Gregory Dev Rd.

89.05 km
End Point 350000031. Int. Peak Downs Hwy & Peak Downs - Dysart Rd.

This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-2.91%	-6.00%	-0.93%
A	-3.32%	-6.15%	-1.25%
B	-3.11%	-6.08%	-1.09%

All Vehicles (00)

G	267	100%
A	262	100%
B	529	100%

Light Vehicles (0A)

G	196	73.41%
A	174	66.41%
B	370	69.94%

Heavy Vehicles (0B)

G	72	26.97%
A	90	34.35%
B	162	30.62%

Short Vehicles (1A)

G	196	73.41%
A	174	66.41%
B	370	69.94%

Trucks and Buses (1B)

G	33	12.36%
A	52	19.85%
B	85	16.07%

Articulated Vehicles (1C)

G	15	5.62%
A	17	6.49%
B	32	6.05%

Road Trains (1D)

G	24	8.99%
A	21	8.02%
B	45	8.51%

Short 2-Axle Vehicles (2A)

G	175	65.54%
A	156	59.54%
B	331	62.57%

Short Vehicles Towing (2B)

G	21	7.87%
A	18	6.87%
B	39	7.37%

2-Axle Trucks and Buses (2C)

G	26	9.74%
A	44	16.79%
B	70	13.23%

3-Axle Trucks and Buses (2D)

G	5	1.87%
A	5	1.91%
B	10	1.89%

4-Axle Trucks (2E)

G	2	0.75%
A	3	1.15%
B	5	0.95%

3-Axle Articulated (2F)

G	2	0.75%
A	3	1.15%
B	5	0.95%

4-Axle Articulated (2G)

G	3	1.12%
A	5	1.91%
B	8	1.51%

5-Axle Articulated (2H)

G	1	0.37%
A	1	0.38%
B	2	0.38%

6-Axle Articulated (2I)

G	9	3.37%
A	8	3.05%
B	17	3.21%

B Double (2J)

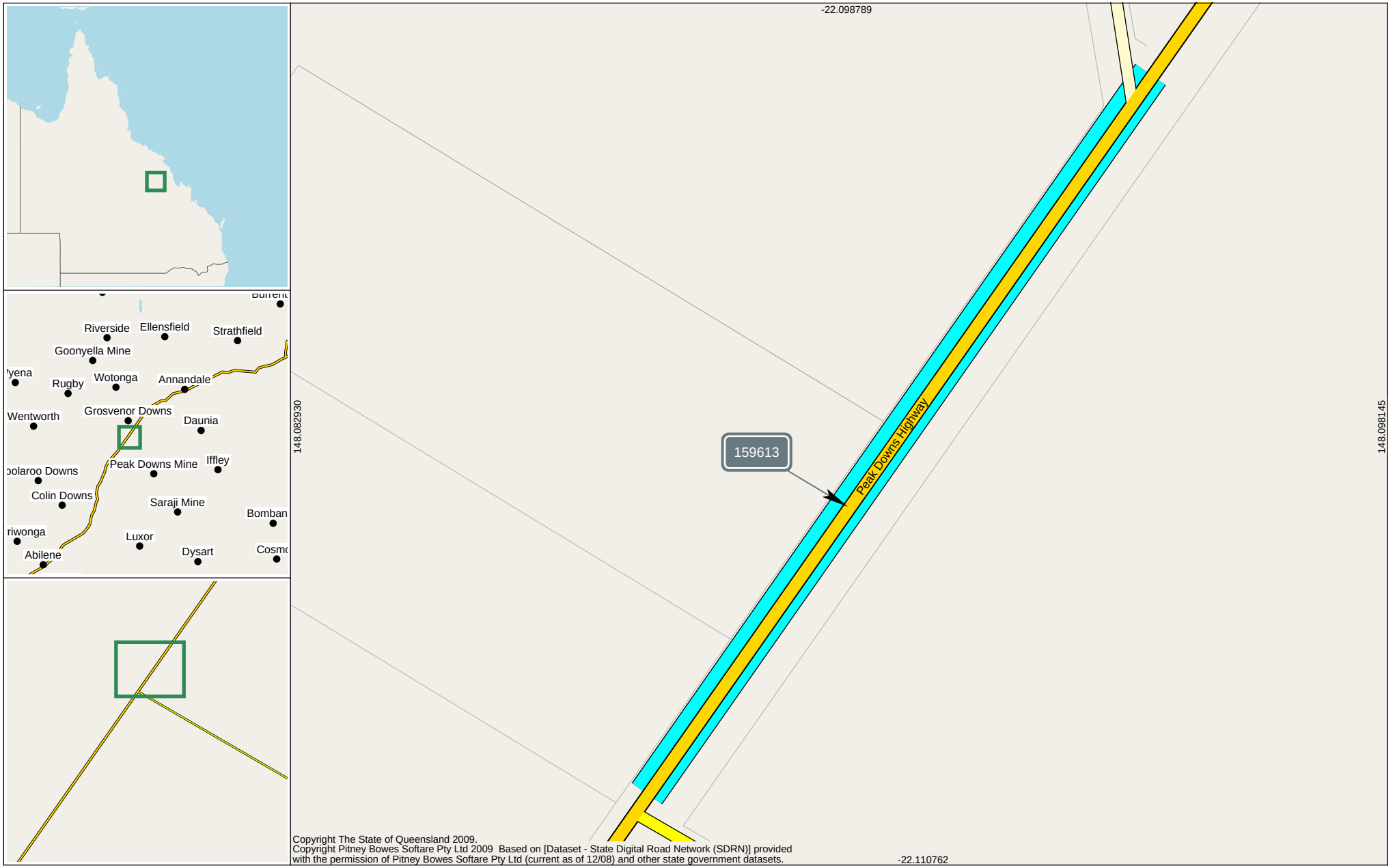
G	17	6.37%
A	14	5.34%
B	31	5.86%

Double Road Trains (2K)

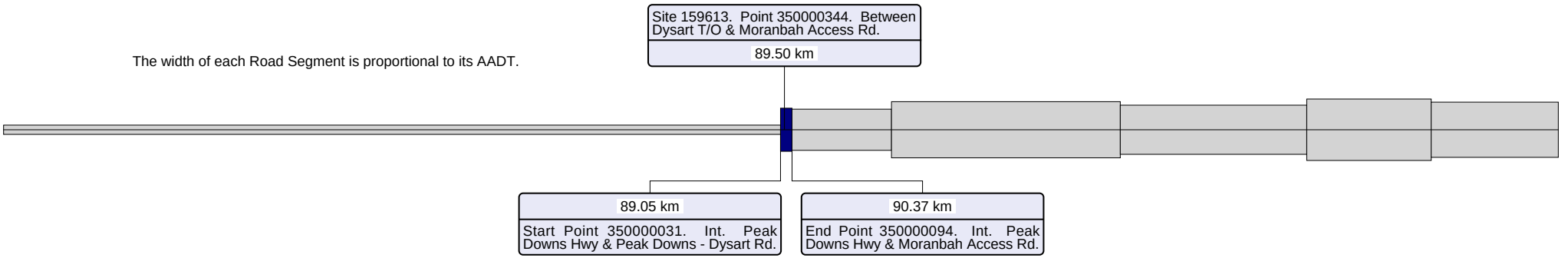
G	7	2.62%
A	7	2.67%
B	14	2.65%

Triple Road Trains (2L)

G	0	0%
A	0	0%
B	0	0%



The width of each Road Segment is proportional to its AADT.



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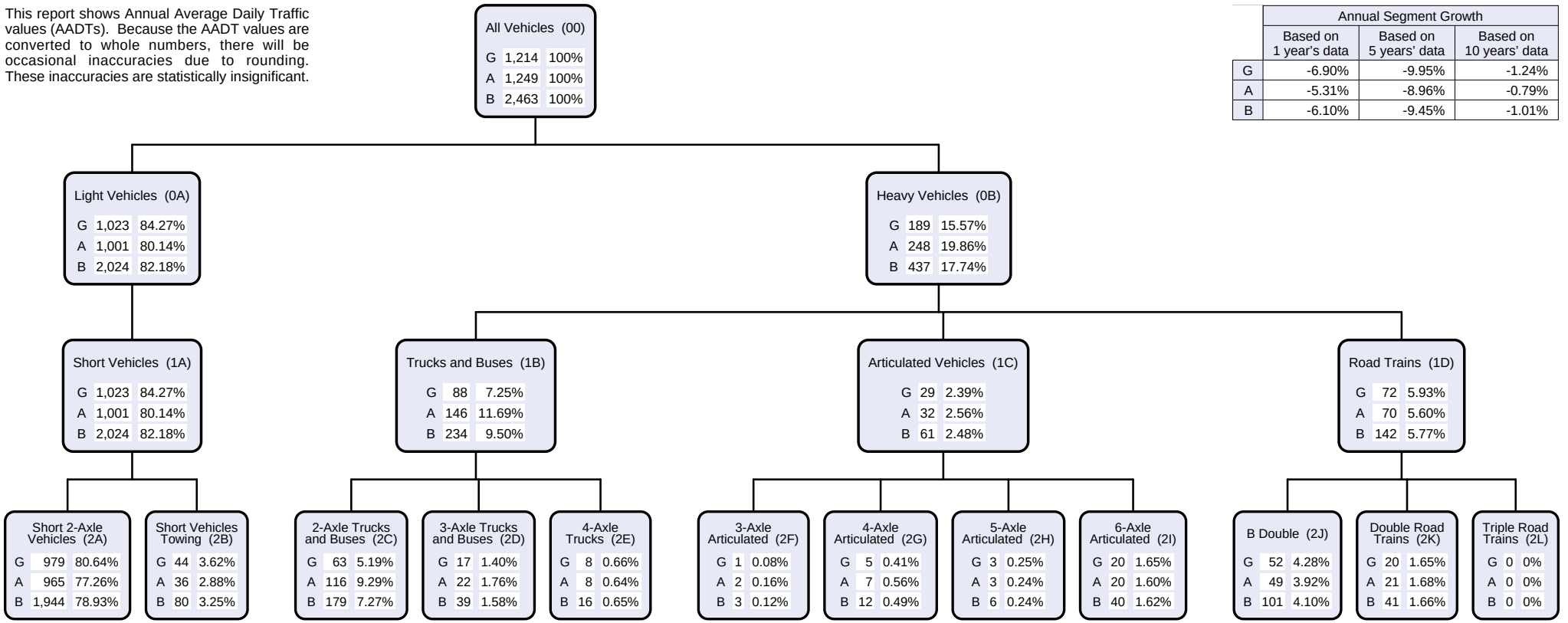
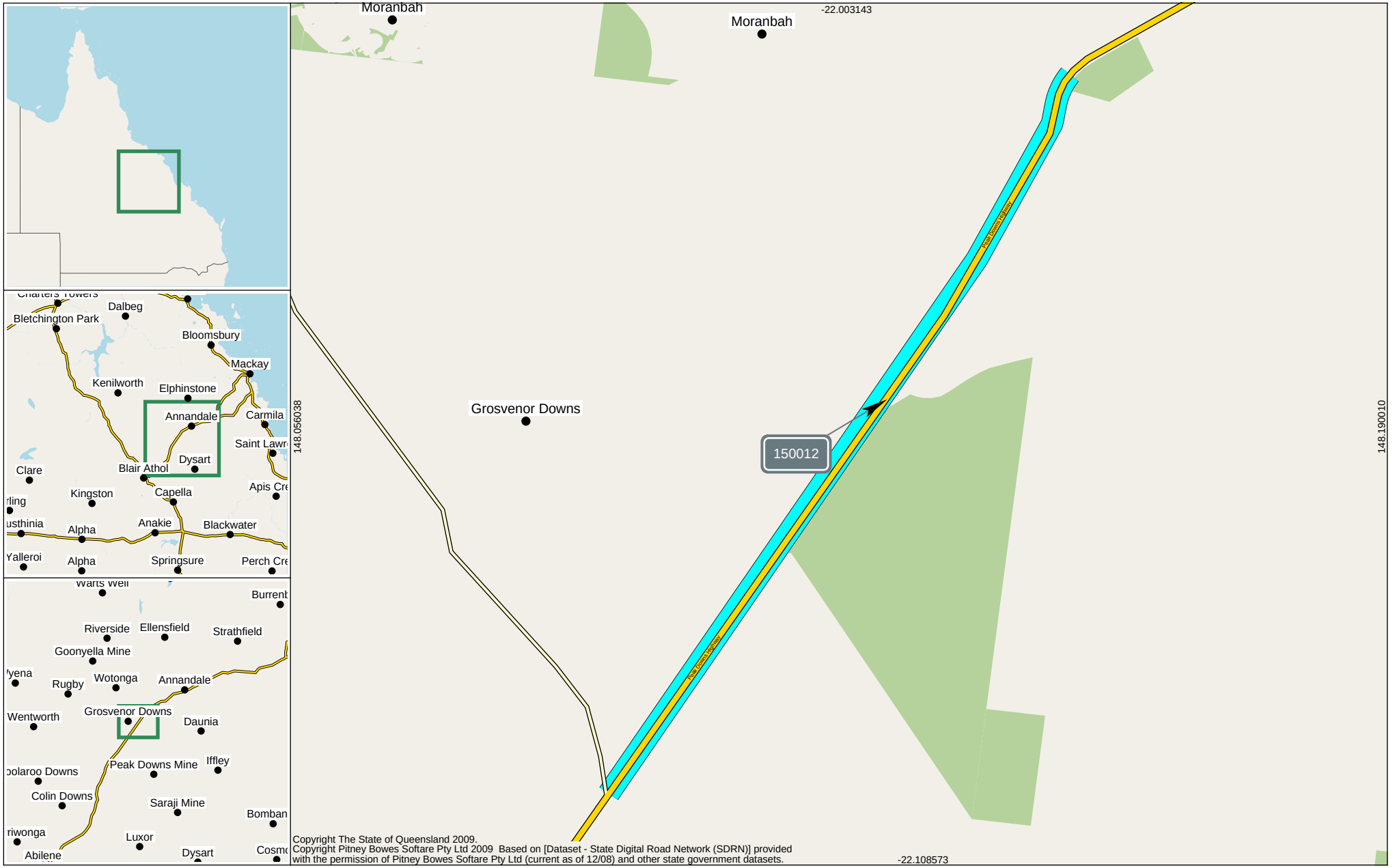
	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-6.90%	-9.95%	-1.24%
A	-5.31%	-8.96%	-0.79%
B	-6.10%	-9.45%	-1.01%





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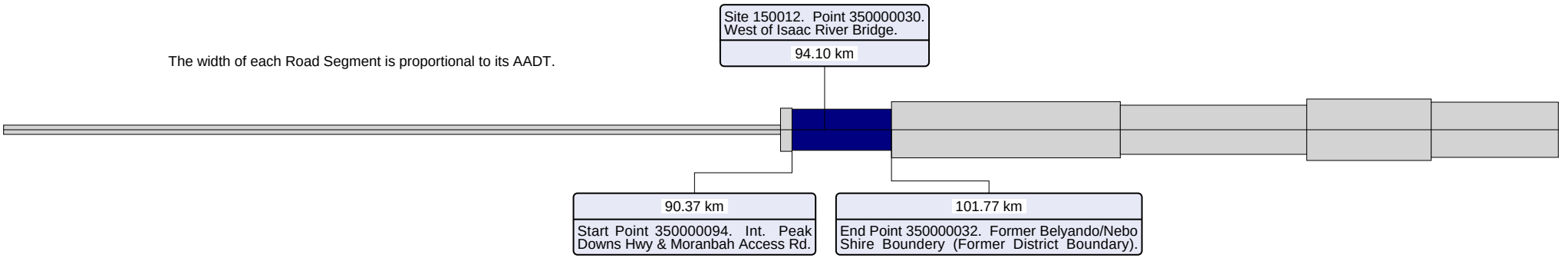

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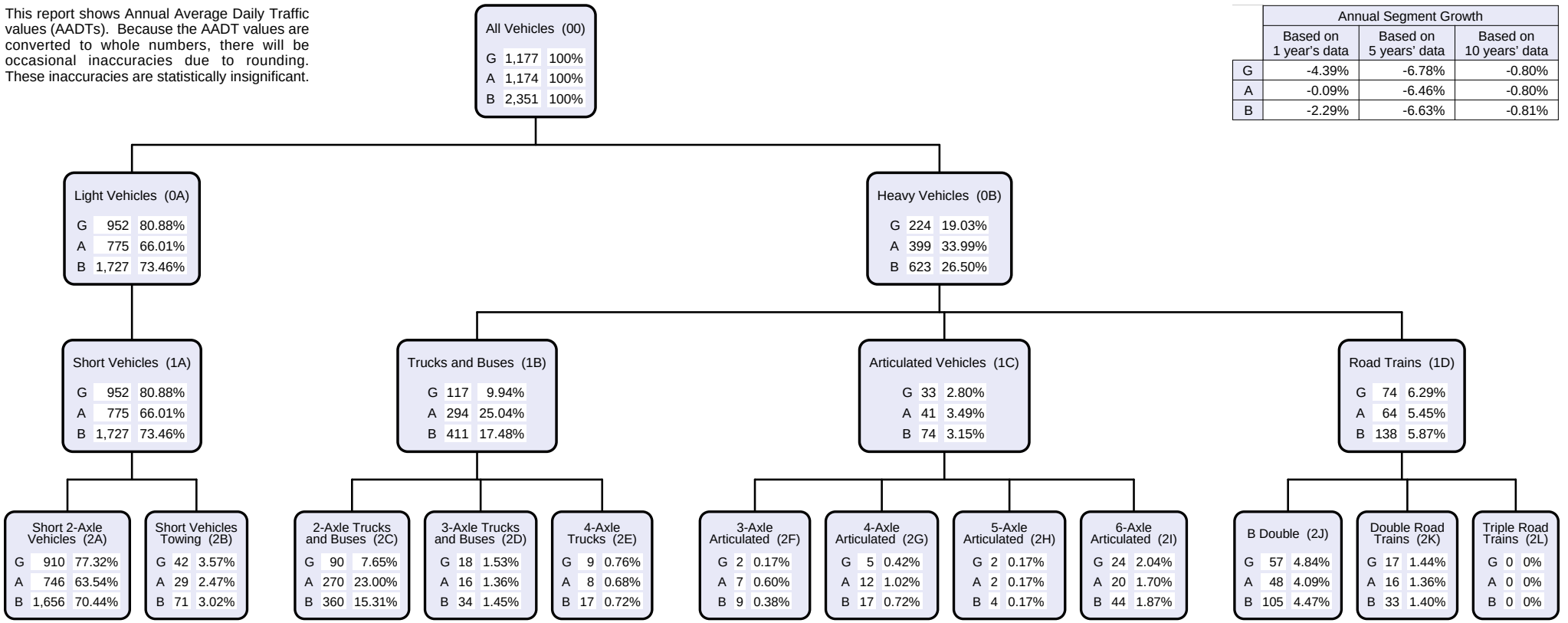
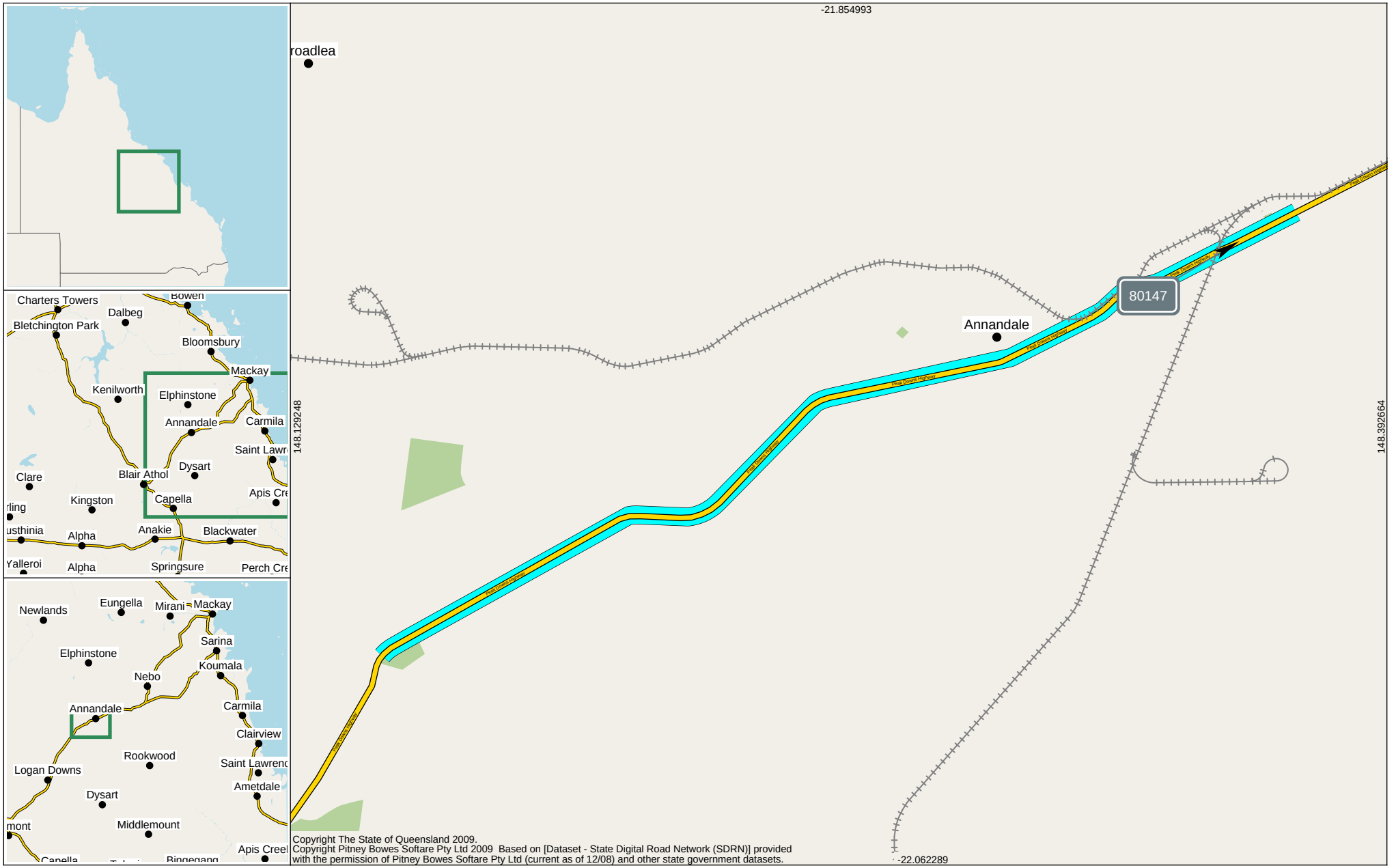
	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-4.39%	-6.78%	-0.80%
A	-0.09%	-6.46%	-0.80%
B	-2.29%	-6.63%	-0.81%




-21.854993
roadlea
80147
Annandale
148.129248
148.392664
-22.062289
Charters Towers
Dalbeg
Bowen
Bletchington Park
Bloomsbury
Mackay
Kenilworth
Elphinstone
Annandale
Carmila
Saint Lawr
Dysart
Blair Athol
Clare
Kingston
Capella
Apis Cre
Anakie
Blackwater
Alpha
Springsure
Perch Cre
Yalleroi
Newlands
Eungella
Mirani
Mackay
Sarina
Elphinstone
Koumala
Nebo
Annandale
Carmila
Clairview
Rookwood
Saint Lawrenc
Logan Downs
Ametdale
Dysart
Middlemount
Apis Creel
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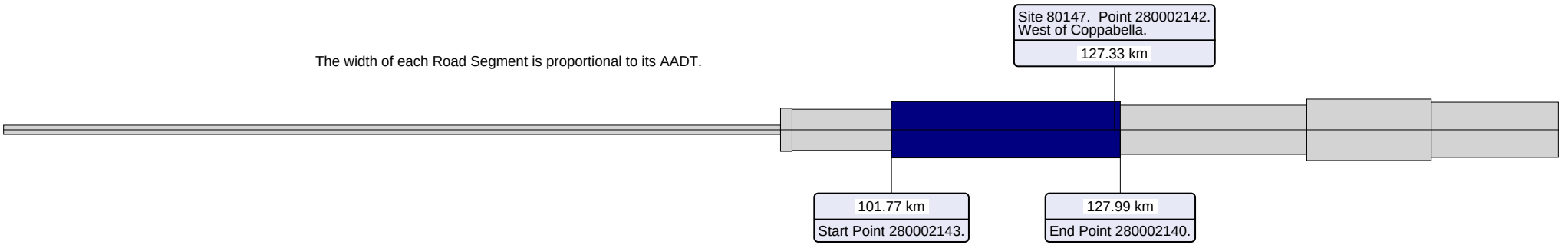

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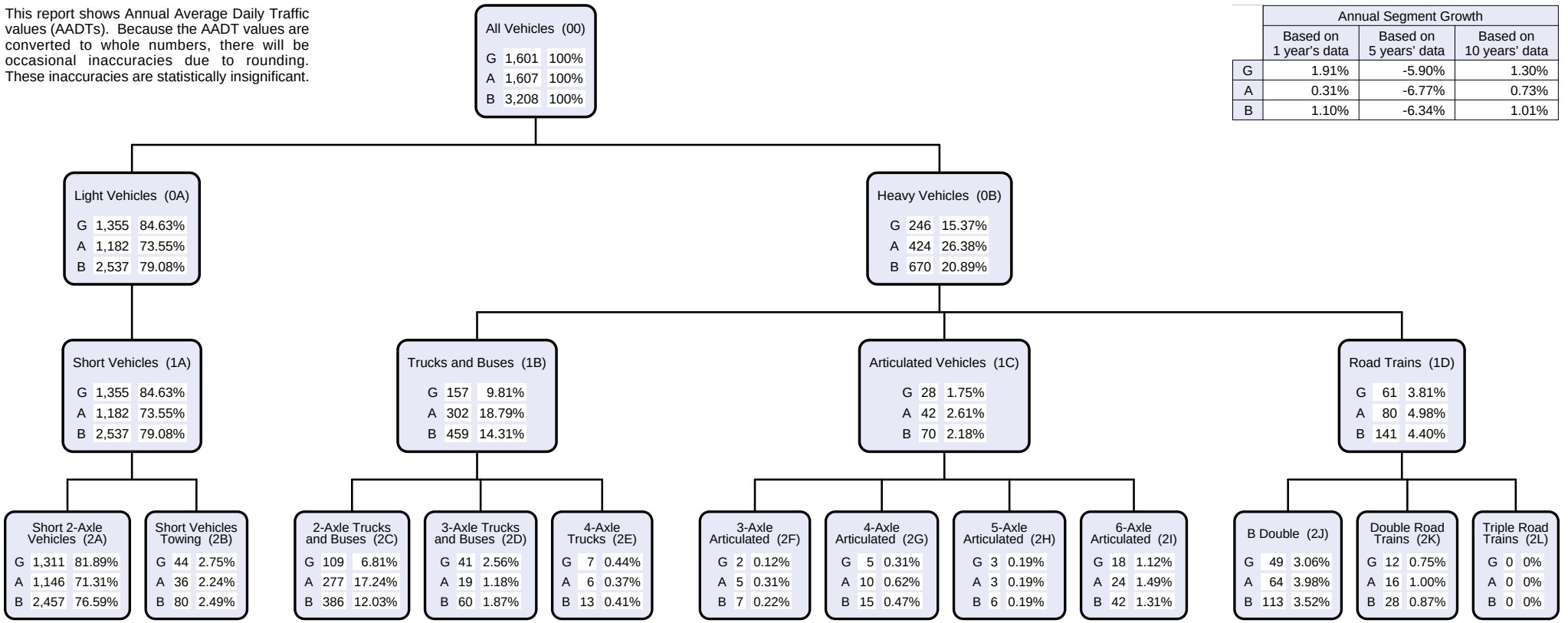
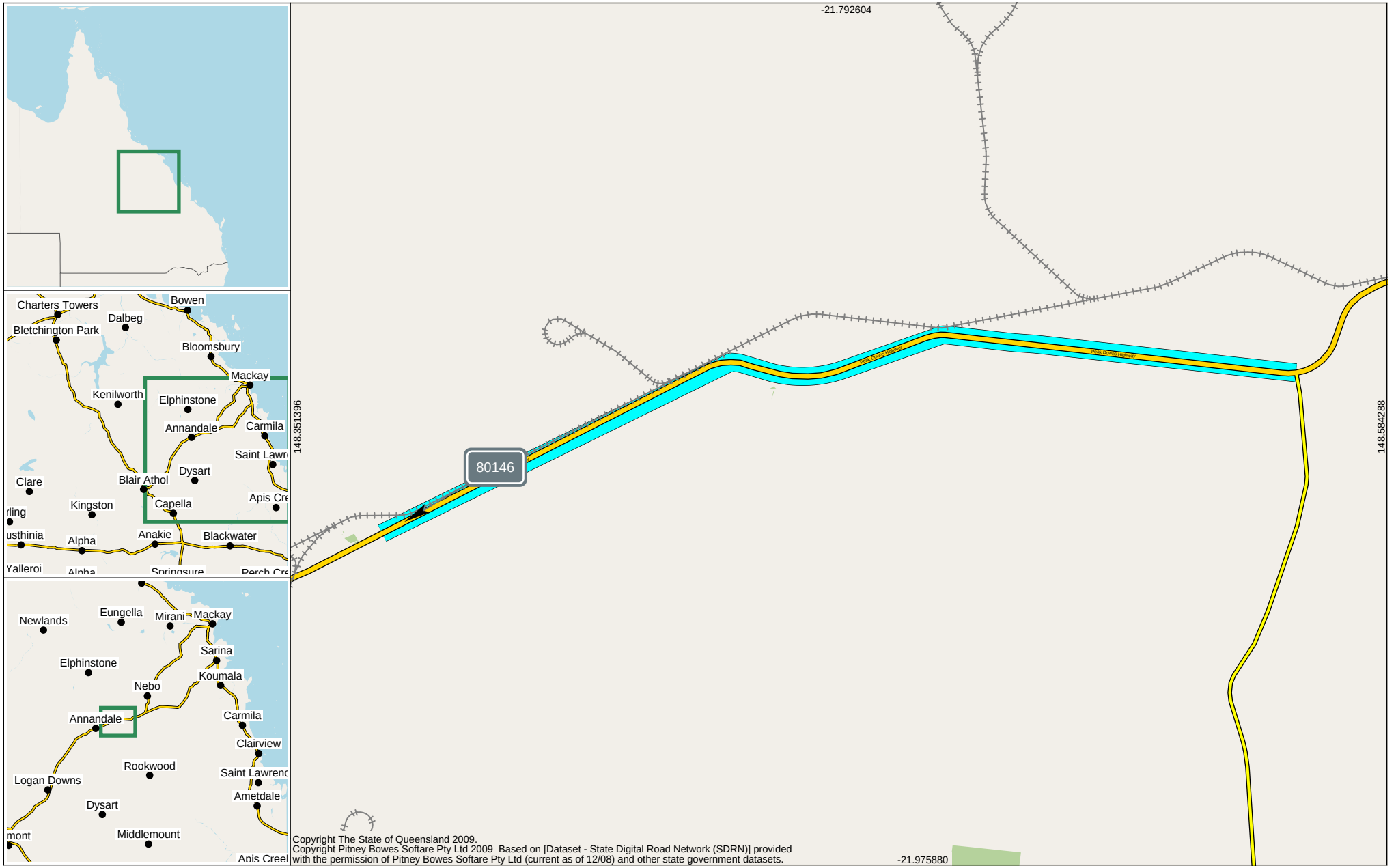
	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	1.91%	-5.90%	1.30%
A	0.31%	-6.77%	0.73%
B	1.10%	-6.34%	1.01%




-21.792604
148.351396
148.584288
80146
-21.975880
Charters Towers
Bowen
Dalbeg
Bletchington Park
Bloomsbury
Mackay
Kenilworth
Elphinstone
Annandale
Carmila
Saint Lawr
Dysart
Clare
Blair Athol
Capella
Kingston
Alpha
Anakie
Blackwater
Springsure
Newlands
Eungella
Mirani
Sarina
Koumala
Nebo
Rookwood
Logan Downs
Clairview
Ametdale
Middlemount
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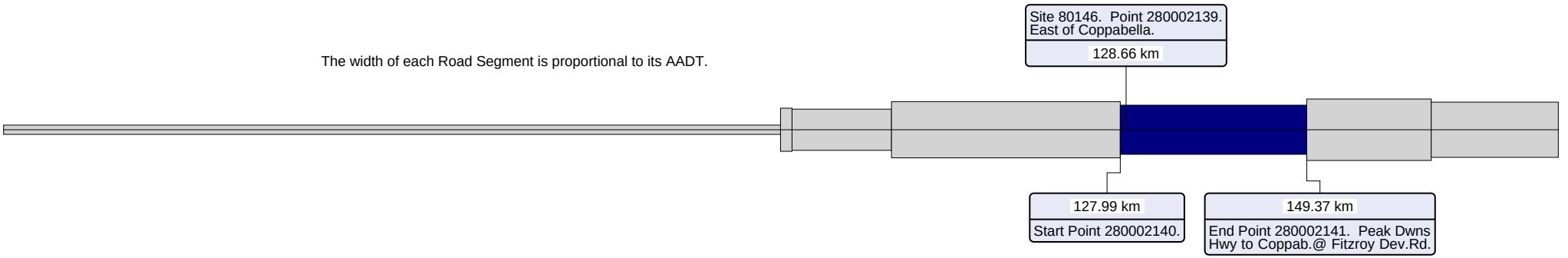
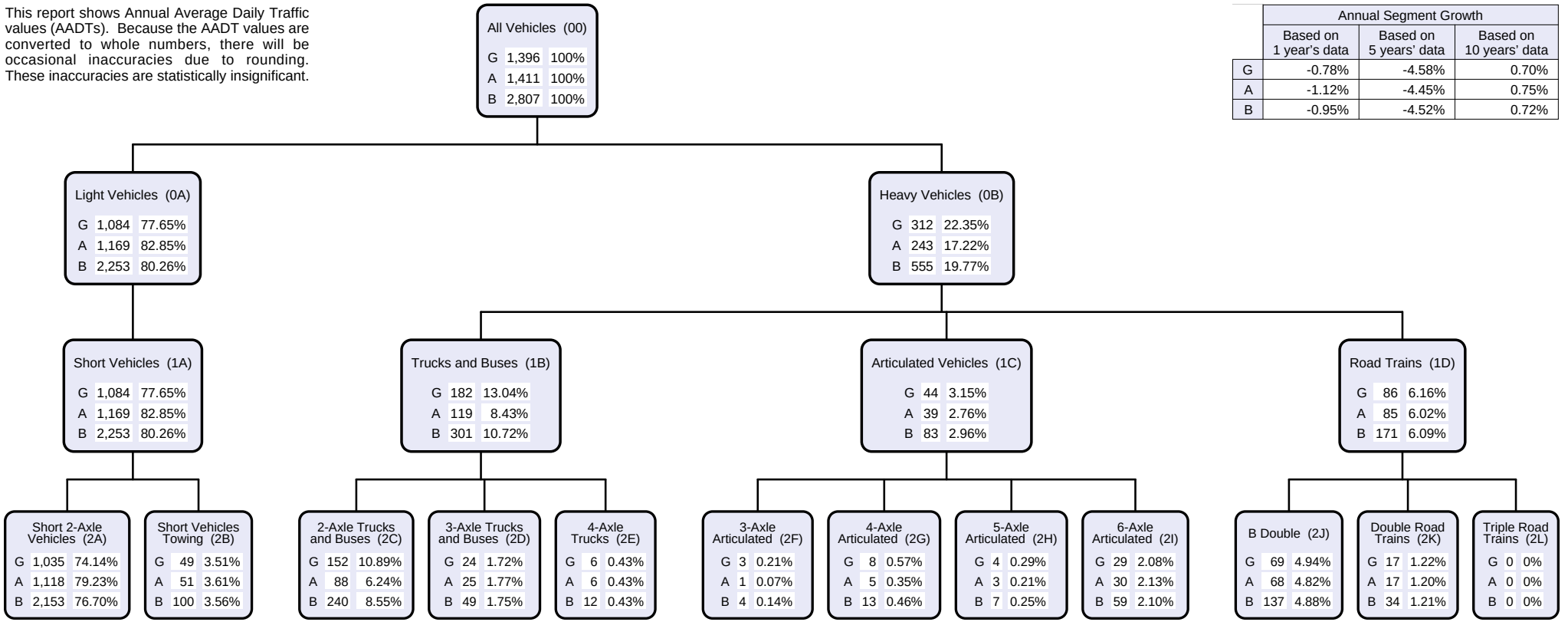
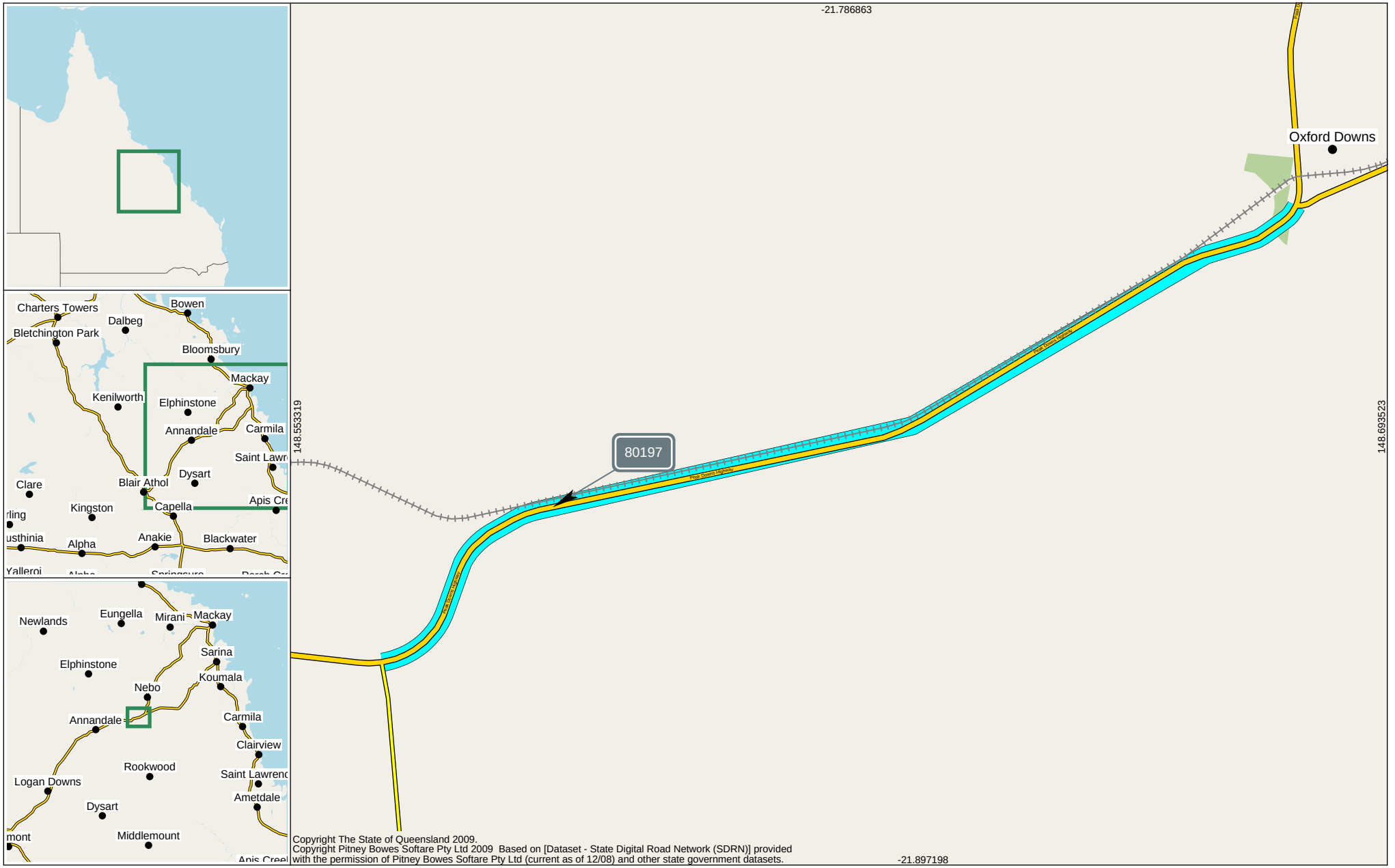


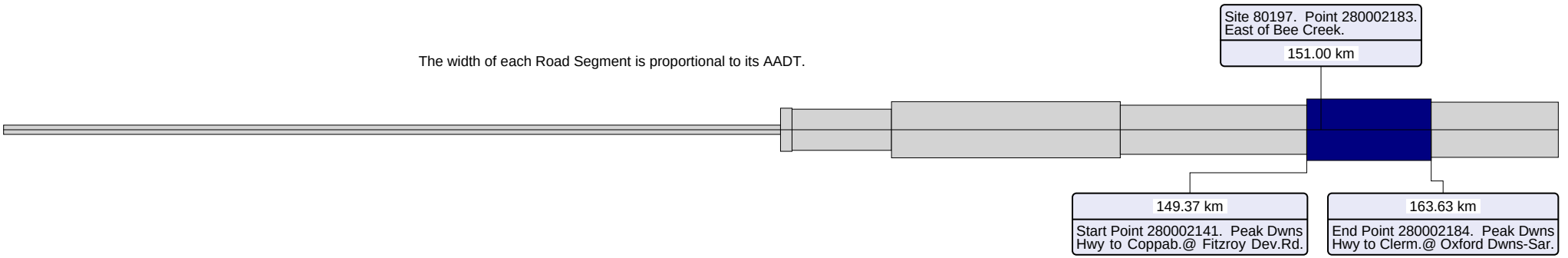
This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-0.78%	-4.58%	0.70%
A	-1.12%	-4.45%	0.75%
B	-0.95%	-4.52%	0.72%



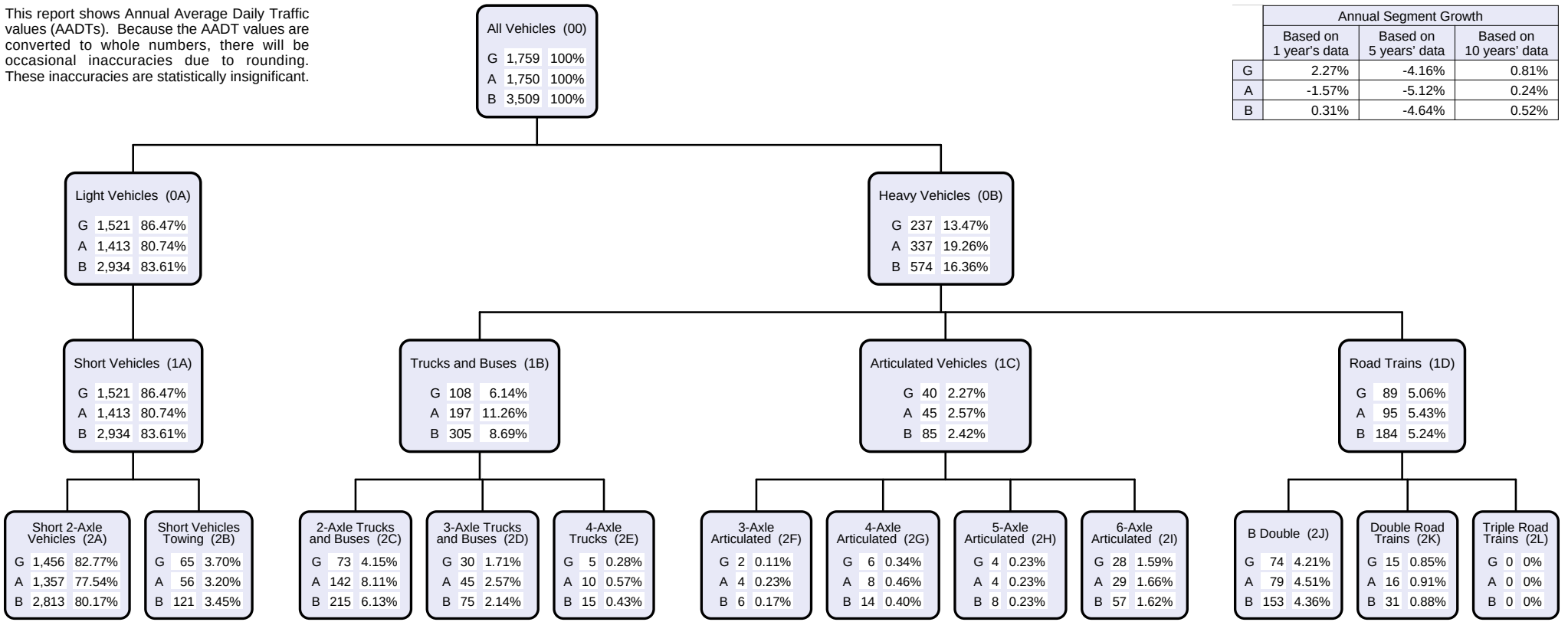


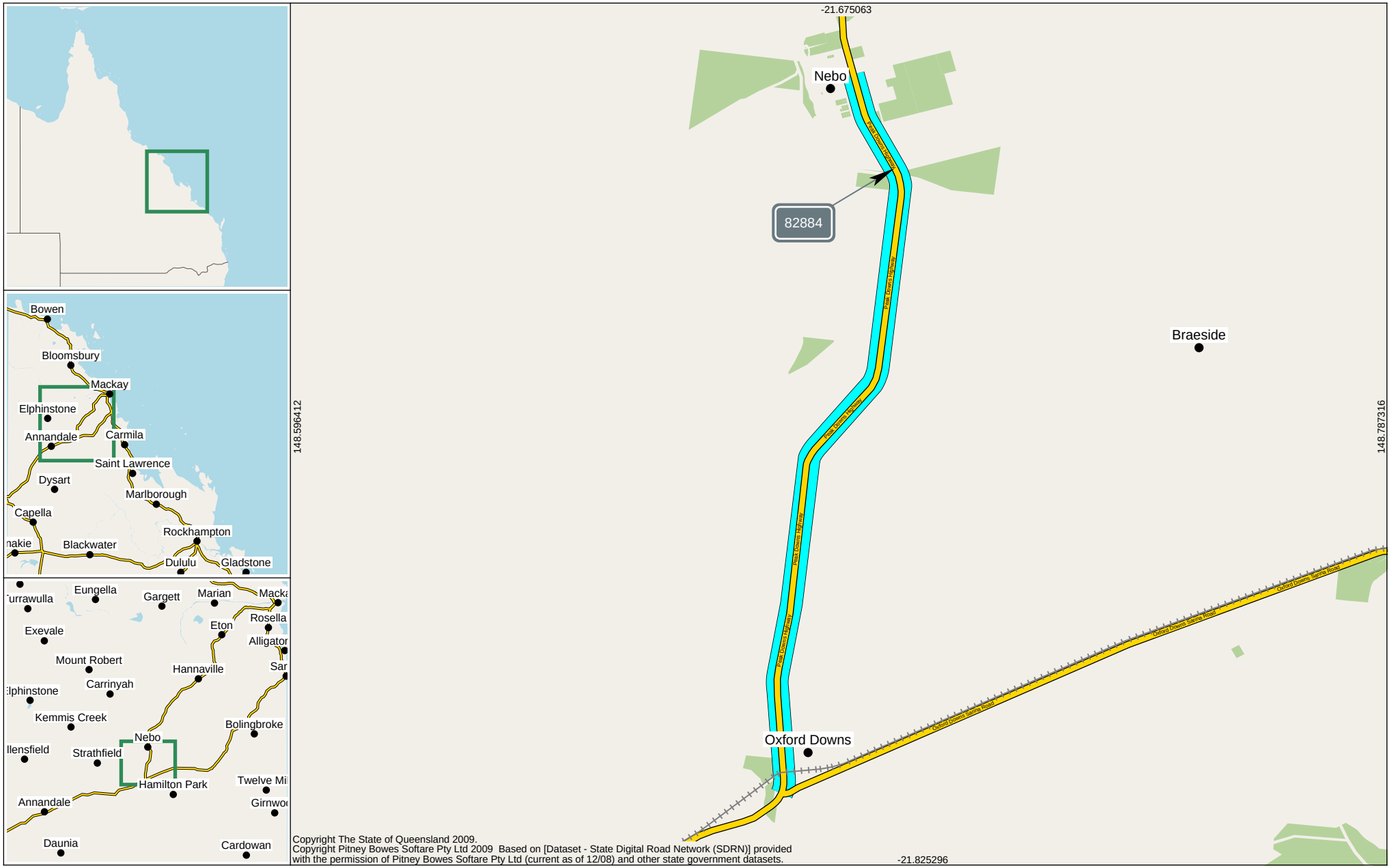
The width of each Road Segment is proportional to its AADT.



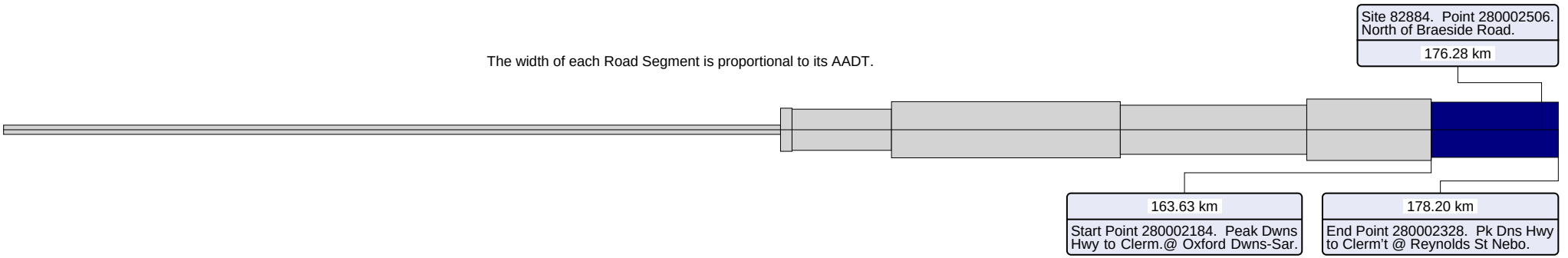
This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	2.27%	-4.16%	0.81%
A	-1.57%	-5.12%	0.24%
B	0.31%	-4.64%	0.52%



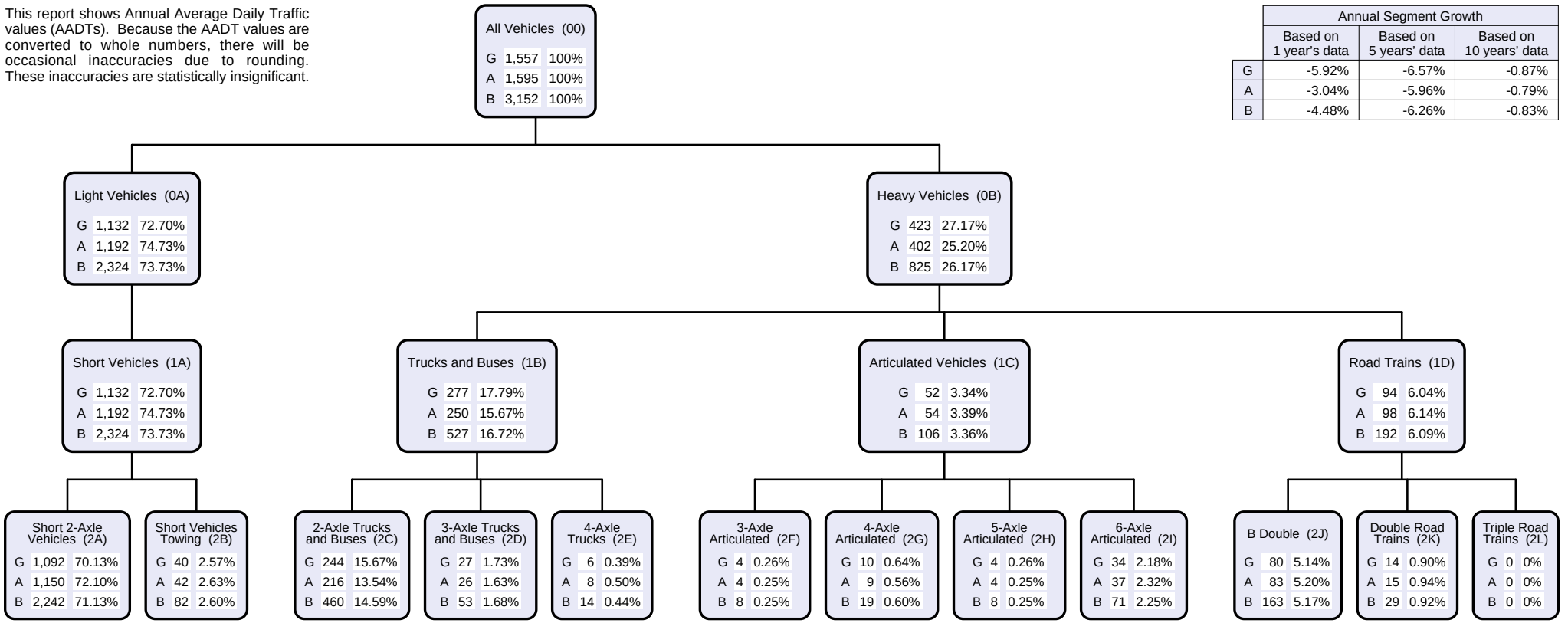


The width of each Road Segment is proportional to its AADT.



This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-5.92%	-6.57%	-0.87%
A	-3.04%	-5.96%	-0.79%
B	-4.48%	-6.26%	-0.83%



Report Notes for AADT Segment Analysis Report (Complete)

AADT Segment Report

Provides AADT Segment details for a Road Section together with the traffic flow data collected at the related Site. Traffic data is reported by the start and end Through Distance of the AADT Segments on each section of road. The road segments are represented diagrammatically with AADT data including:

AADT	by direction of traffic flow
VKT	Vehicle Kilometres Travelled
%VC	Percentage Vehicle Class as per the Austroads vehicle classification scheme

Annual Average Daily Traffic (AADT)

Annual Average Daily Traffic (AADT) is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

AADT Segment

Is a subdivision of a Road Section. The boundaries of an AADT Segment are it's Start Point and End Point (or Start and End Through Distance (TDist)) within the Road Section. These distances are measured in kilometres from the begining of the Road Section in Gazettal Direction. AADT Segments are determined by the traffic volume, collected at a count Site, located within the limits of each AADT Segment.

Annual Segment Growth (when displayed)

A percentage that represents the increase or decrease in AADT for the AADT Segment,using an exponential fit, calculated over a 1, 5 or 10 year period.

Area

For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. The Area field in TSDM reports displays the District Name and Number.

District Name	District
Central West District	401
Darling Downs District	402
Far North District	403
Fitzroy District	404
Mackay/Whitsunday District	405
Metropolitian District	406
North Coast District	407
North West District	409
Northern District	408
South Coast District	410
South West District	411
Wide Bay/Burnett District	412

Data Year

The most recent year the traffic data was collected for this AADT Segment.

Gazettal Direction

The Gazettal Direction is the direction of the traffic flow. It can be easily recognised by referring to the name of the road eg. Road Section: 10A Brisbane - Gympie denotes that the gazettal direction is from Brisbane to Gympie.

G	Traffic flowing in Gazettal Direction
A	Traffic flowing against Gazettal Direction
B	The combined traffic flow in both Directions

Road Section

Is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Site

The physical location of a traffic counting device. Sites are located at a specified Through Distance along a Road Section.

Site TDist

The Through Distance in gazettal direction from the start of the Road Section at which the site is located.

Site Description

The description of the physical location of the traffic counting device.

Start and End Point

The unique identifier for the Through Distance along a Road Section.

Through Distance

The distance, in kilometres, from the beginning of the Road Section in Gazettal Direction.

Traffic Class

Is the 12 Austroads vehicle categories or classes into which vehicles are placed or binned. Traffic classes are formed in a hierarchical format.

Volume or All Vehicles

00 = 0A + 0B

Light Vehicles

0A = 1A
1A = 2A + 2B

Heavy Vehicles

0B = 1B + 1C + 1D
1B = 2C + 2D + 2E
1C = 2F + 2G + 2H + 2I
1D = 2J + 2K + 2L

The following classes are the categories for which data can be captured:

Volume

00 All vehicles.

2-Bin

0A Light vehicles
0B Heavy vehicles

4-Bin

1A Short vehicles
1B Truck or bus
1C Articulated vehicles
1D Road train

12-Bin

2A Short 2 axle vehicles
2B Short vehicles towing
2C 2 axle truck or bus
2D 3 axle truck or bus
2E 4 axle truck
2F 3 axle articulated vehicle
2G 4 axle articulated vehicle
2H 5 axle articulated vehicle
2I 6 axle articulated vehicle
2J B double
2K Double road train
2L Triple road train

Vehicle Kilometres Travelled (VKT)

Daily VKT is a measure of the traffic demand. It is calculated by the length of an AADT Segment in kilometres multiplied by its AADT. The yearly VKT is the daily VKT multiplied by 365 days.

AADT Segment Summary - All Vehicles

The Total VKT can be used to gauge the demand on an entire Road Section.

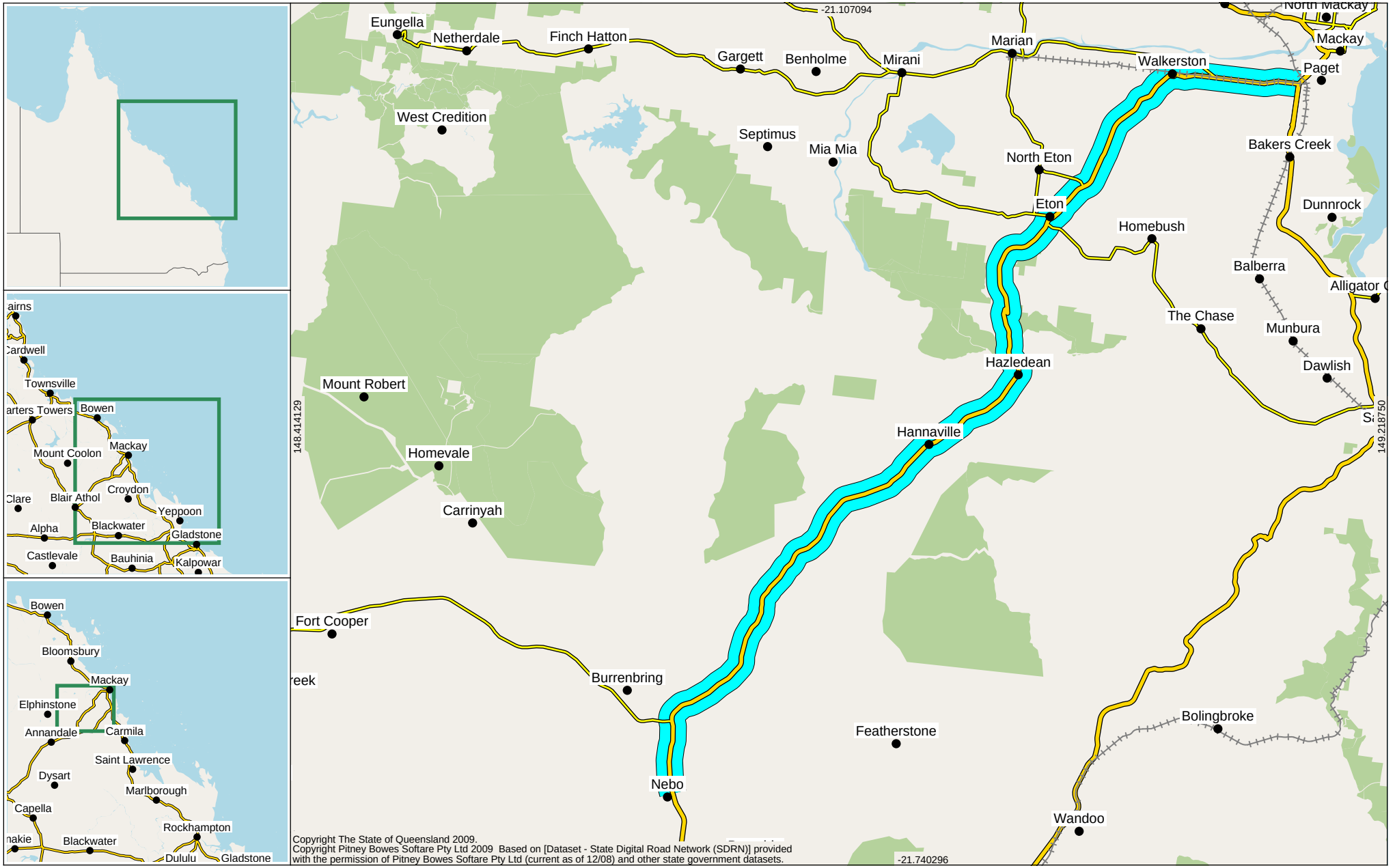
AADT Segment Summary - Heavy Vehicles only

A blank field indicates that vehicle classification data was not collected for this AADT Segment.

AADT Segment Analysis Report (Complete)

Road Section 33B - PEAK DOWNS HIGHWAY (NEBO - MACKAY)

Traffic Year 2016



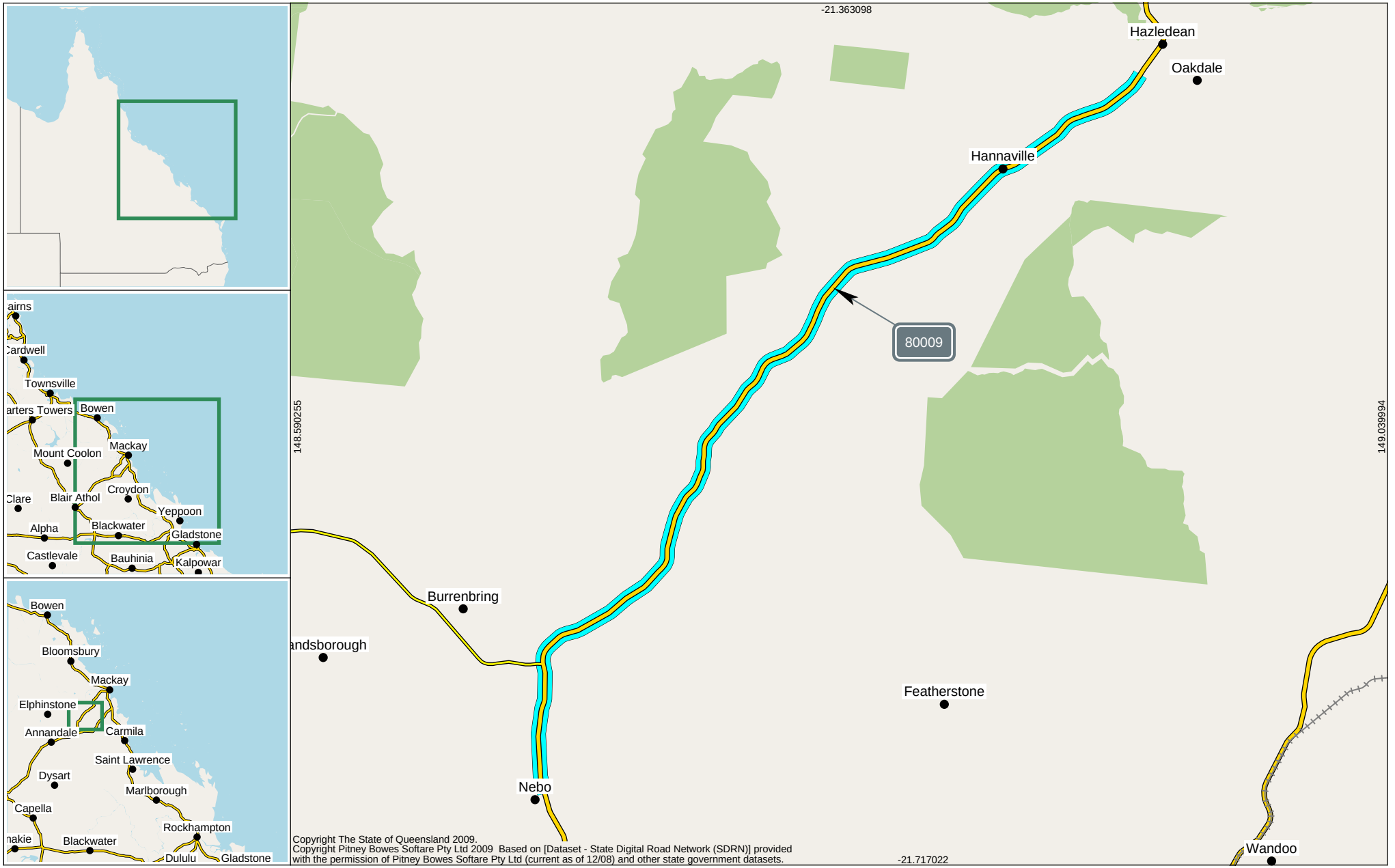
Road Segments Summary - All Vehicles

Region	Segment Start Tdist	Segment End Tdist	Site	Site Tdist	Description	AADT			VKT (Millions)			Data Year	Page
						G	A	B	G	A	B		
405	0.000 km	44.824 km	80009	6.990 km	Retreat Hotel Permanent Counter	1,718	1,713	3,431	28.10779	28.02598	56.13377	2016	2
405	44.824 km	62.061 km	83159	57.022 km	WiM Site Eton	1,863	1,905	3,768	11.72107	11.98532	23.70639	2016	3
405	62.061 km	76.902 km	80020	76.217 km	West of Walkerston Township	2,581	2,613	5,194	13.98119	14.15453	28.13572	2016	4
405	76.902 km	81.402 km	82777	80.146 km	East of Walkerston Cemetary	4,223	4,548	8,771	6.93628	7.47009	14.40637	2016	5
405	81.402 km	85.724 km	82778	84.691 km	East of BSES	7,543	6,791	14,334	11.89931	10.71301	22.61232	2016	6
405	85.724 km	87.062 km	82838	86.754 km	West of Bernborough Avenue	4,568	4,493	9,061	2.23087	2.19425	4.42512	2016	7
405	87.062 km	87.868 km	82839	87.576 km	Bernborough Avenue - City Gates	5,109	4,597	9,706	1.50302	1.35239	2.85541	2016	8
								Totals	76.37952	75.89556	152.27509		

Road Segments Summary - Heavy Vehicles only

VKT totals are calculated only if traffic class data is available for all sites.

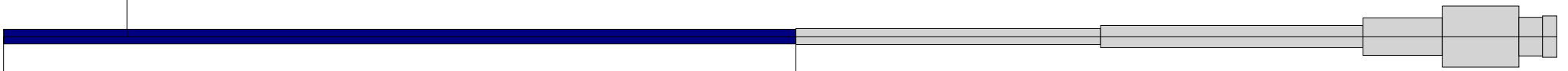
Region	Segment Start Tdist	Segment End Tdist	Site	Site Tdist	Description	HV AADT						HV VKT (Millions)			Data Year	Page
						G		A		B						
						AADT	HV %	AADT	HV %	AADT	HV %	G	A	B		
405	0.000 km	44.824 km	80009	6.990 km	Retreat Hotel Permanent Counter	305	17.75%	387	22.59%	692	20.17%	4.99003	6.33161	11.32165	2016	2
405	44.824 km	62.061 km	83159	57.022 km	WiM Site Eton	427	22.92%	473	24.83%	900	23.89%	2.68647	2.97588	5.66235	2016	3
405	62.061 km	76.902 km	80020	76.217 km	West of Walkerston Township	535	20.73%	448	17.15%	983	18.93%	2.89808	2.42680	5.32488	2016	4
405	76.902 km	81.402 km	82777	80.146 km	East of Walkerston Cemetary	544	12.88%	563	12.38%	1,107	12.62%	0.89352	0.92473	1.81825	2016	5
405	81.402 km	85.724 km	82778	84.691 km	East of BSES	1,063	14.09%	522	7.69%	1,585	11.06%	1.67691	0.82347	2.50039	2016	6
405	85.724 km	87.062 km	82838	86.754 km	West of Bernborough Avenue	1,192	26.09%	595	13.24%	1,787	19.72%	0.58214	0.29058	0.87272	2016	7
405	87.062 km	87.868 km	82839	87.576 km	Bernborough Avenue - City Gates	746	14.60%	530	11.53%	1,276	13.15%	0.21947	0.15592	0.37539	2016	8
											Totals	13.94662	13.92900	27.87561		



Site 80009. Point 280002061. Retreat Hotel Permanent Counter.

6.99 km

The width of each Road Segment is proportional to its AADT.



0.00 km

Start Point 280002062. Peak Dns Hwy to M'kay @ Reynolds St Nebo.

44.82 km

End Point 280002284. Peak Downs Hwy to Nebo @ Blue Mtn Rd.

This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-4.40%	-6.76%	-1.26%
A	-4.62%	-6.91%	-1.35%
B	-4.51%	-6.83%	-1.31%

All Vehicles (00)

G	1,718	100%
A	1,713	100%
B	3,431	100%

Light Vehicles (0A)

G	1,413	82.25%
A	1,325	77.35%
B	2,738	79.80%

Heavy Vehicles (0B)

G	305	17.75%
A	387	22.59%
B	692	20.17%

Short Vehicles (1A)

G	1,413	82.25%
A	1,325	77.35%
B	2,738	79.80%

Trucks and Buses (1B)

G	129	7.51%
A	202	11.79%
B	331	9.65%

Articulated Vehicles (1C)

G	56	3.26%
A	67	3.91%
B	123	3.58%

Road Trains (1D)

G	120	6.98%
A	118	6.89%
B	238	6.94%

Short 2-Axle Vehicles (2A)

G	1,350	78.58%
A	1,273	74.31%
B	2,623	76.45%

Short Vehicles Towing (2B)

G	63	3.67%
A	52	3.04%
B	115	3.35%

2-Axle Trucks and Buses (2C)

G	97	5.65%
A	170	9.92%
B	267	7.78%

3-Axle Trucks and Buses (2D)

G	26	1.51%
A	26	1.52%
B	52	1.52%

4-Axle Trucks (2E)

G	6	0.35%
A	6	0.35%
B	12	0.35%

3-Axle Articulated (2F)

G	2	0.12%
A	5	0.29%
B	7	0.20%

4-Axle Articulated (2G)

G	7	0.41%
A	16	0.93%
B	23	0.67%

5-Axle Articulated (2H)

G	5	0.29%
A	5	0.29%
B	10	0.29%

6-Axle Articulated (2I)

G	42	2.44%
A	41	2.39%
B	83	2.42%

B Double (2J)

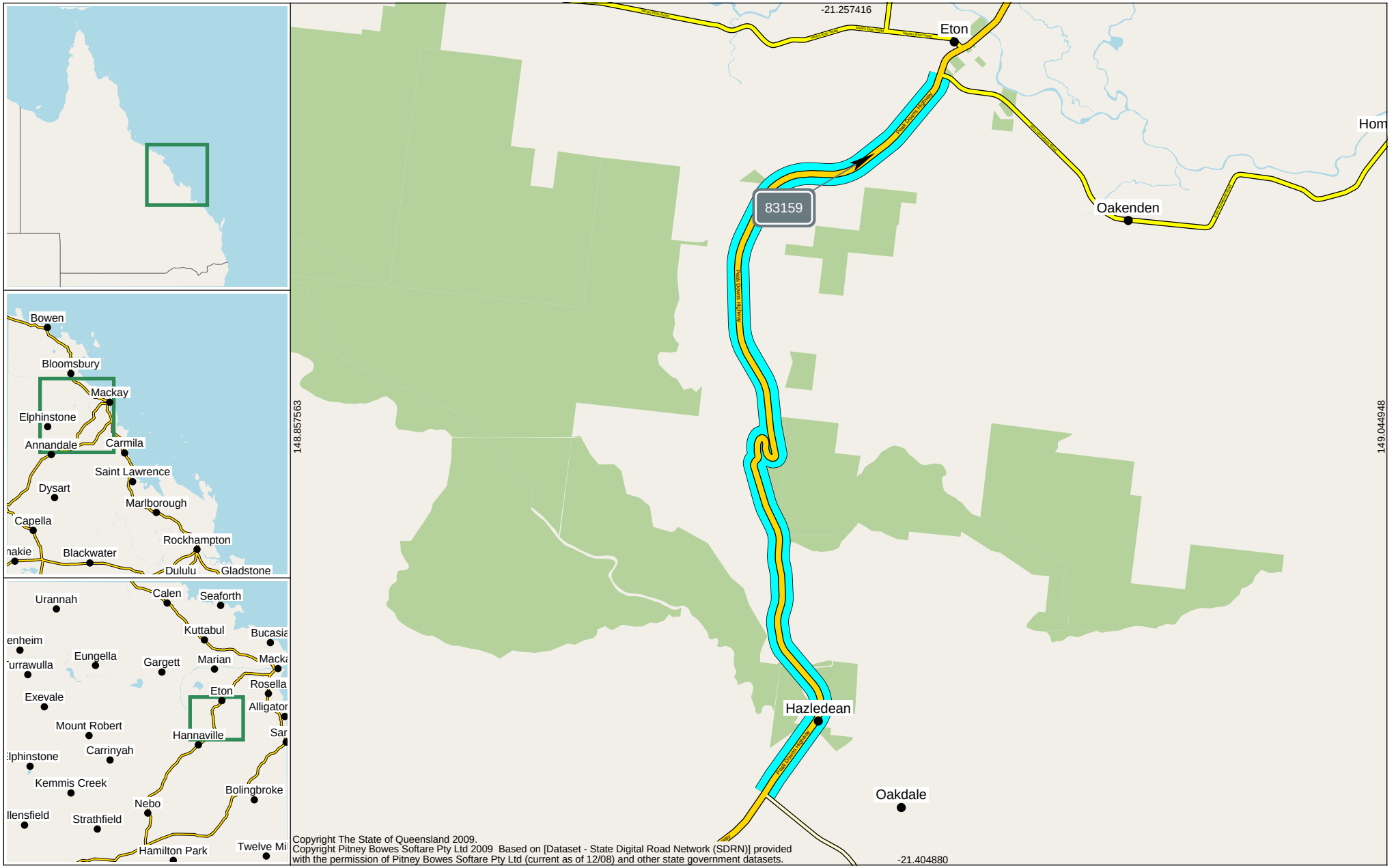
G	107	6.23%
A	105	6.13%
B	212	6.18%

Double Road Trains (2K)

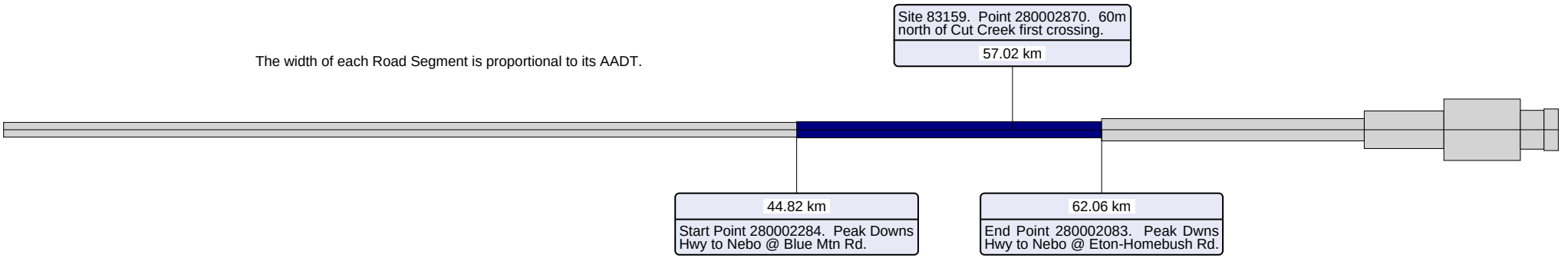
G	6	0.35%
A	6	0.35%
B	12	0.35%

Triple Road Trains (2L)

G	7	0.41%
A	7	0.41%
B	14	0.41%



The width of each Road Segment is proportional to its AADT.



This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-1.48%	-6.01%	-1.74%
A	-7.79%	-7.12%	-1.82%
B	-4.78%	-6.58%	-1.79%

All Vehicles (00)

G	1,863	100%
A	1,905	100%
B	3,768	100%

Light Vehicles (0A)

G	1,438	77.19%
A	1,434	75.28%
B	2,872	76.22%

Heavy Vehicles (0B)

G	427	22.92%
A	473	24.83%
B	900	23.89%

Short Vehicles (1A)

G	1,438	77.19%
A	1,434	75.28%
B	2,872	76.22%

Trucks and Buses (1B)

G	271	14.55%
A	283	14.86%
B	554	14.70%

Articulated Vehicles (1C)

G	67	3.60%
A	81	4.25%
B	148	3.93%

Road Trains (1D)

G	89	4.78%
A	109	5.72%
B	198	5.25%

Short 2-Axle Vehicles (2A)

G	1,372	73.64%
A	1,365	71.65%
B	2,737	72.64%

Short Vehicles Towing (2B)

G	66	3.54%
A	69	3.62%
B	135	3.58%

2-Axle Trucks and Buses (2C)

G	237	12.72%
A	239	12.55%
B	476	12.63%

3-Axle Trucks and Buses (2D)

G	27	1.45%
A	35	1.84%
B	62	1.65%

4-Axle Trucks (2E)

G	7	0.38%
A	9	0.47%
B	16	0.42%

3-Axle Articulated (2F)

G	6	0.32%
A	5	0.26%
B	11	0.29%

4-Axle Articulated (2G)

G	9	0.48%
A	9	0.47%
B	18	0.48%

5-Axle Articulated (2H)

G	5	0.27%
A	6	0.31%
B	11	0.29%

6-Axle Articulated (2I)

G	47	2.52%
A	61	3.20%
B	108	2.87%

B Double (2J)

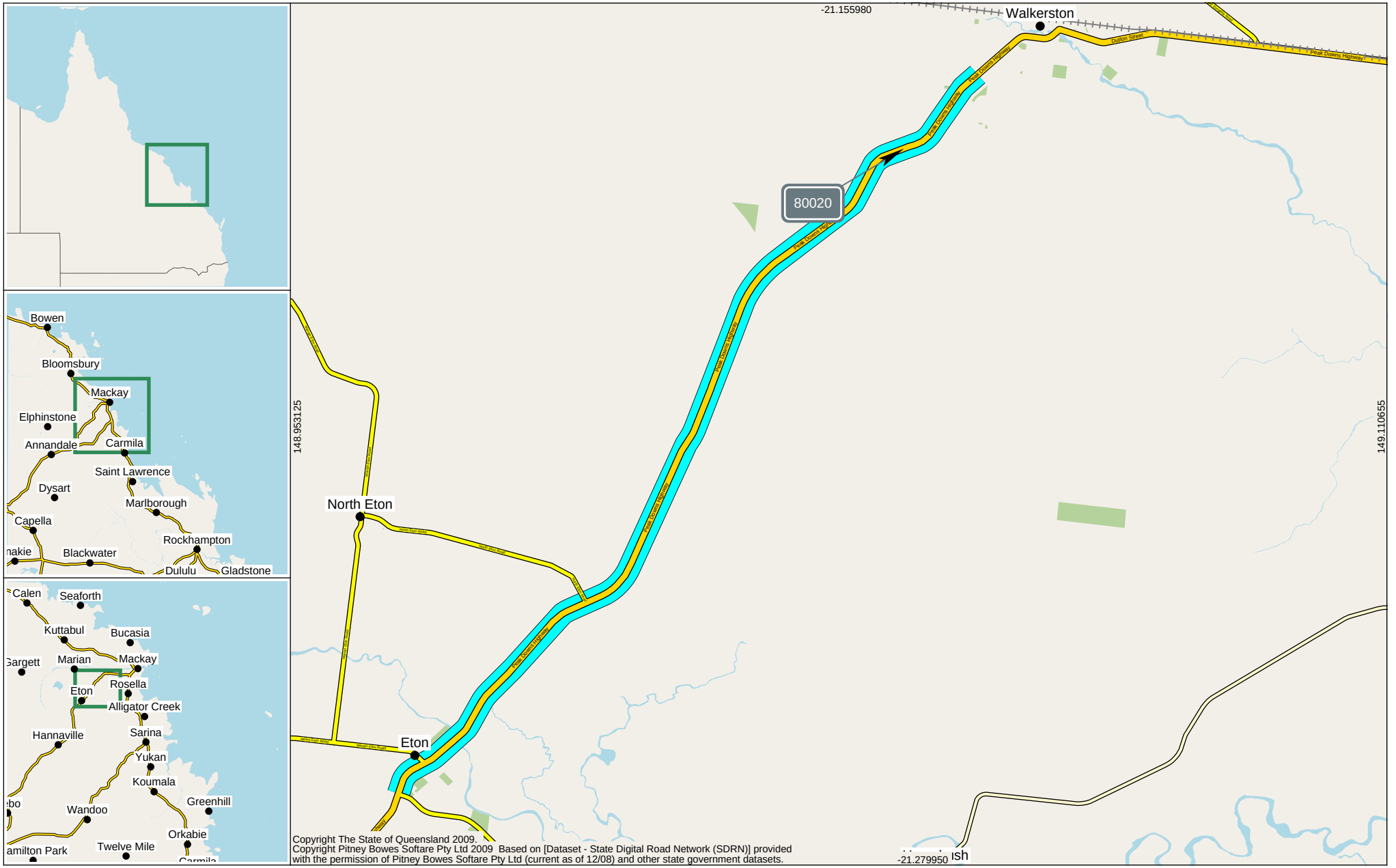
G	88	4.72%
A	108	5.67%
B	196	5.20%

Double Road Trains (2K)

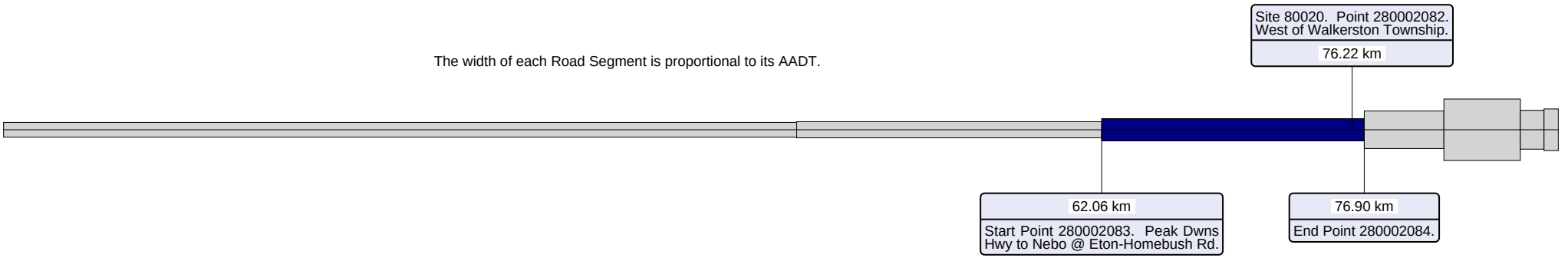
G	1	0.05%
A	1	0.05%
B	2	0.05%

Triple Road Trains (2L)

G	0	0%
A	0	0%
B	0	0%

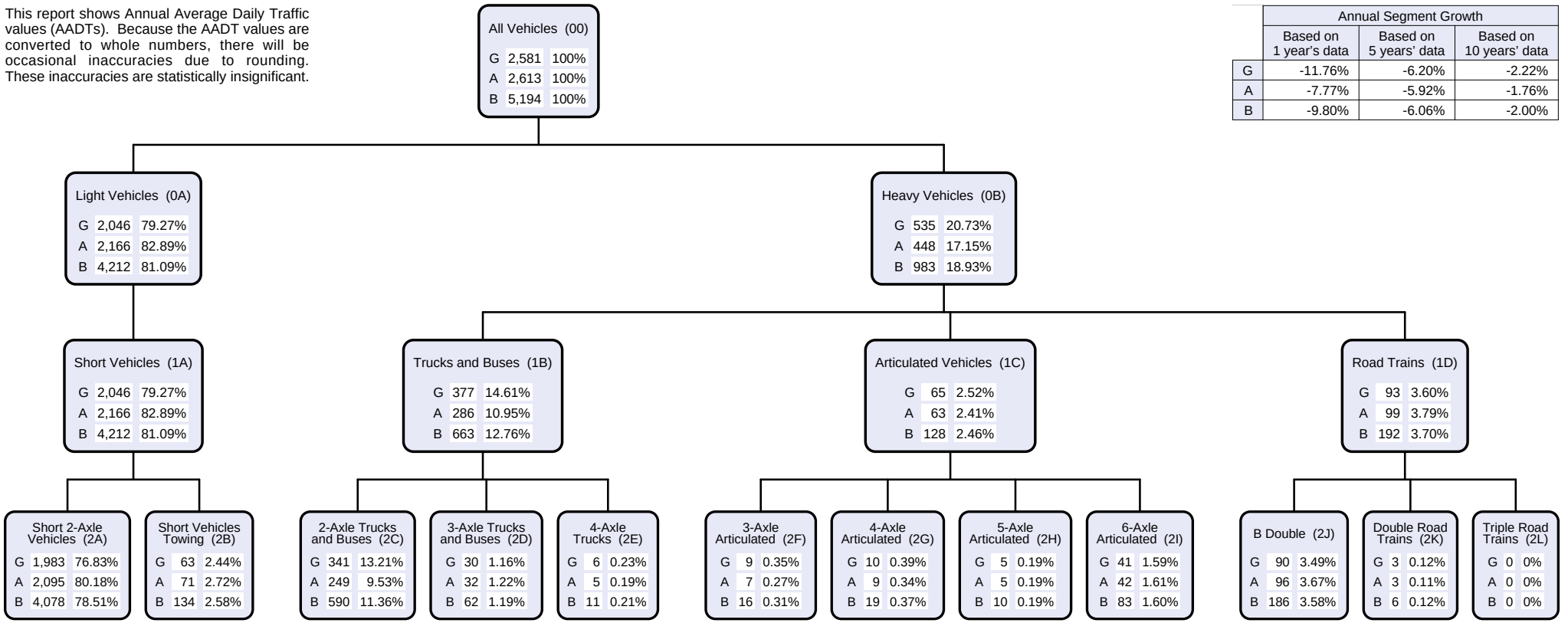


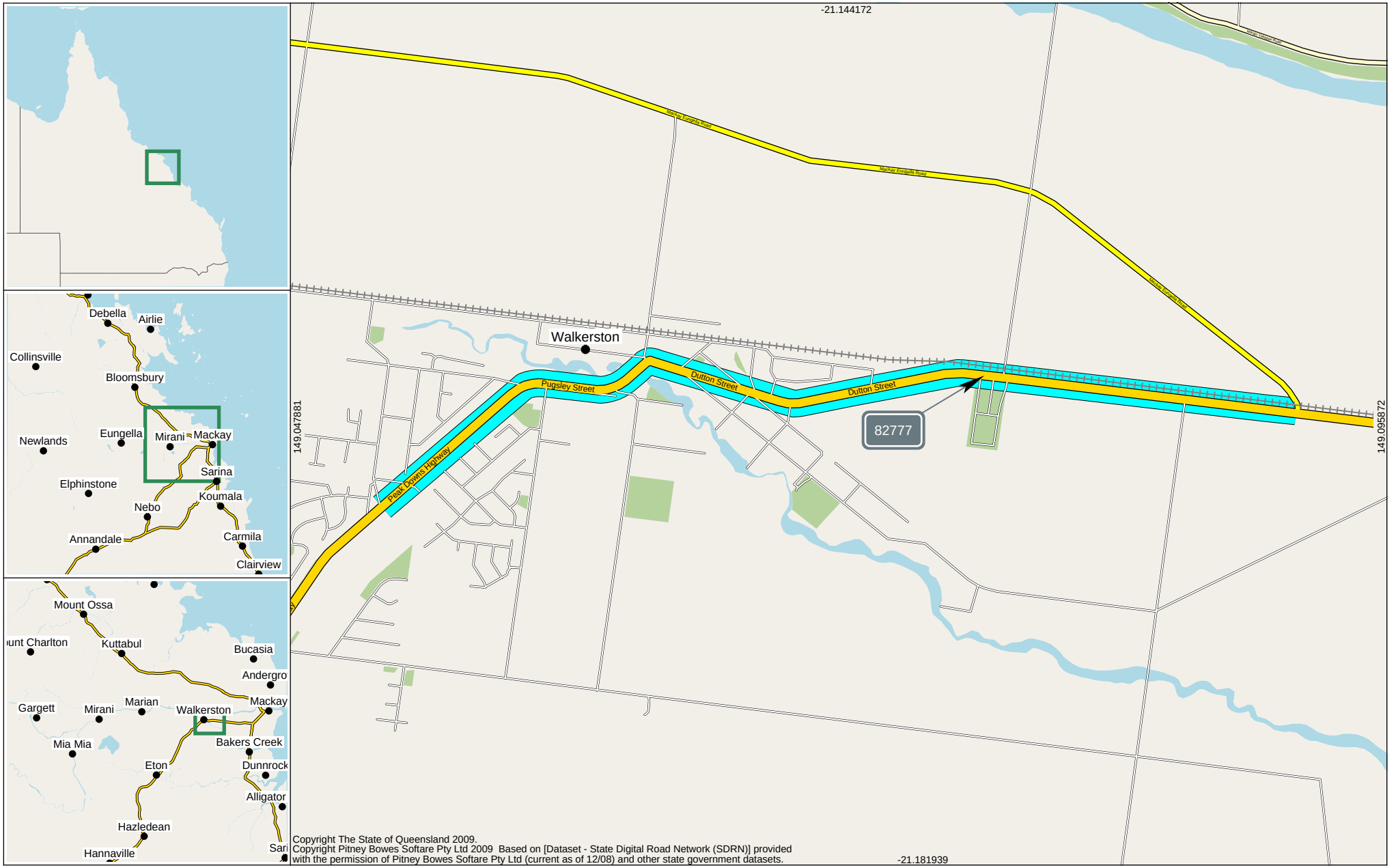
The width of each Road Segment is proportional to its AADT.



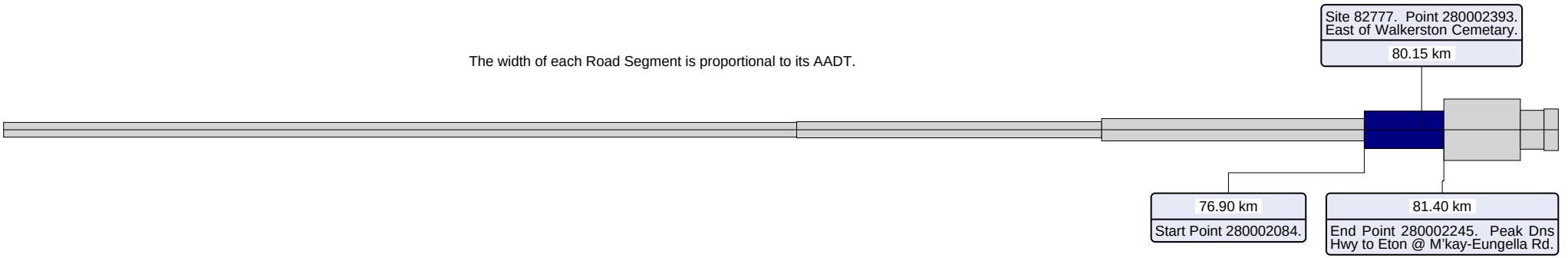
This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-11.76%	-6.20%	-2.22%
A	-7.77%	-5.92%	-1.76%
B	-9.80%	-6.06%	-2.00%



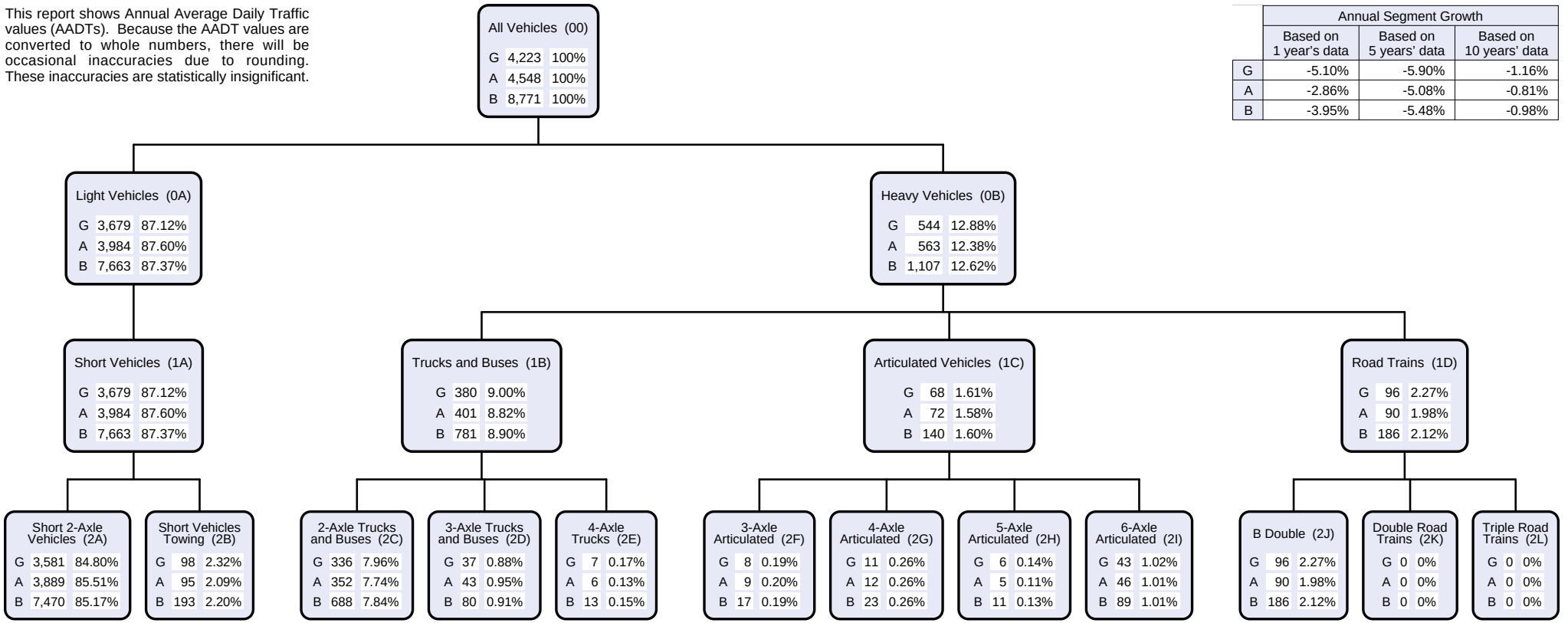


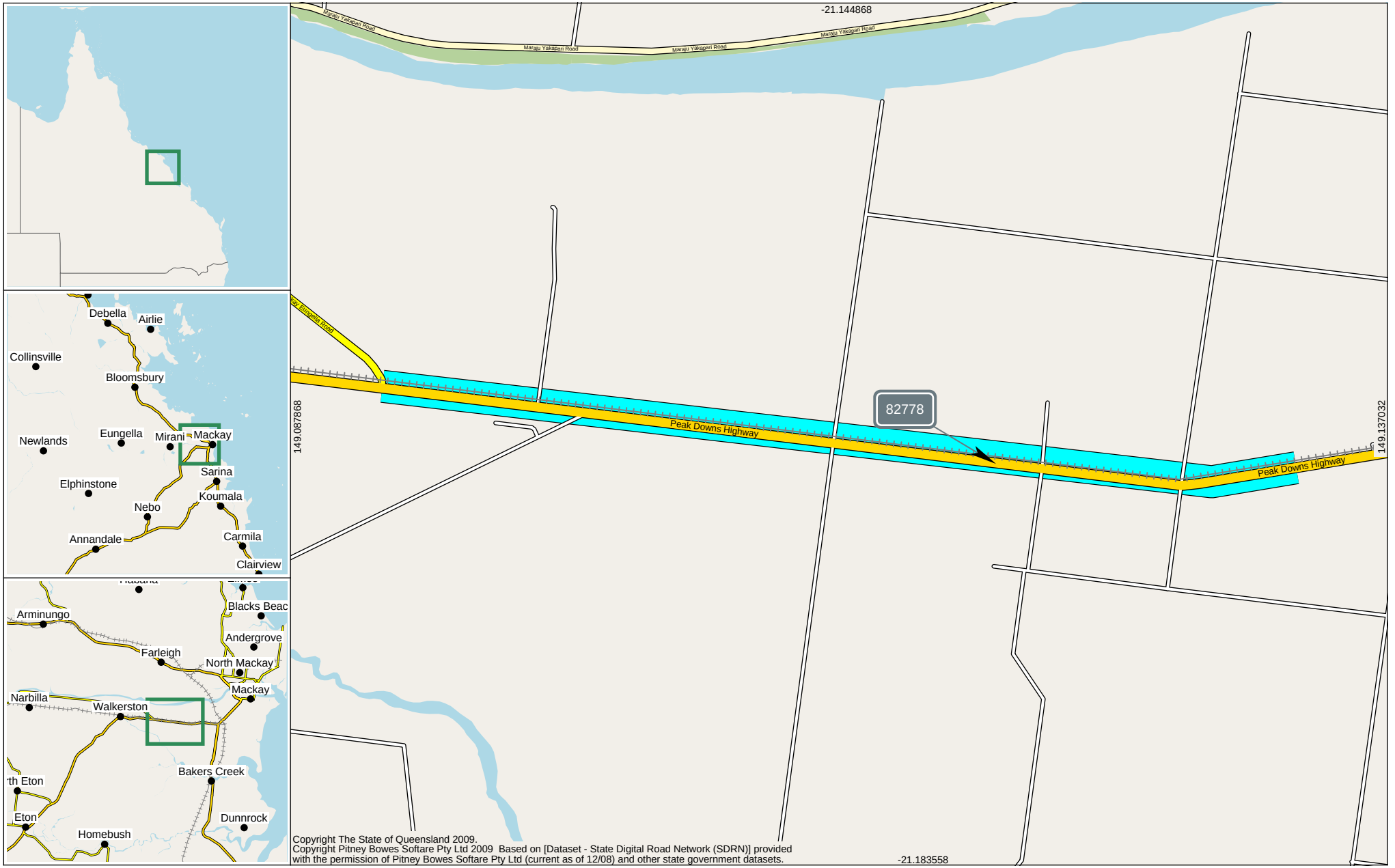
The width of each Road Segment is proportional to its AADT.



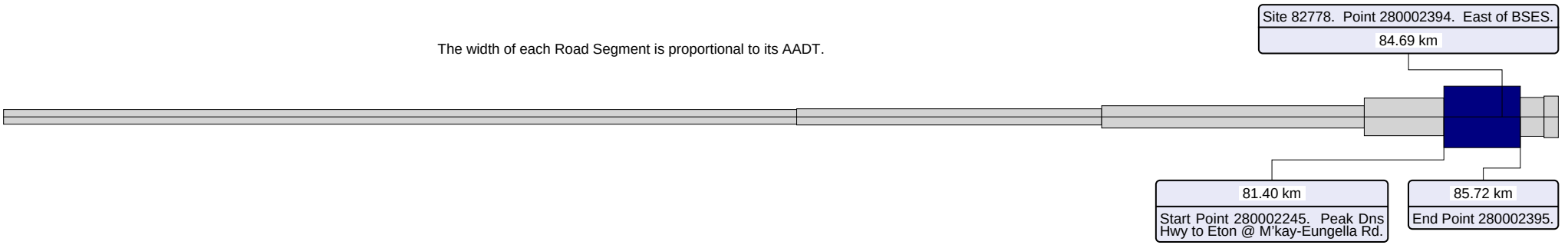
This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-5.10%	-5.90%	-1.16%
A	-2.86%	-5.08%	-0.81%
B	-3.95%	-5.48%	-0.98%



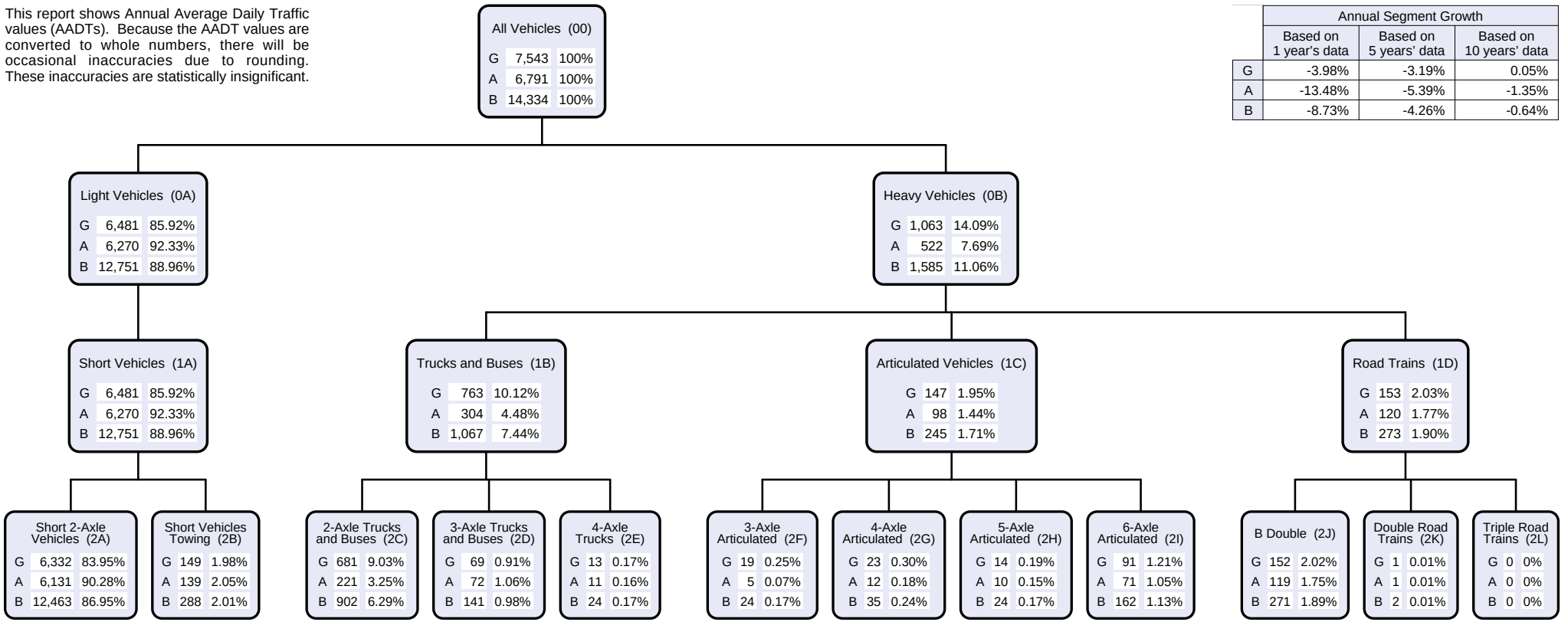


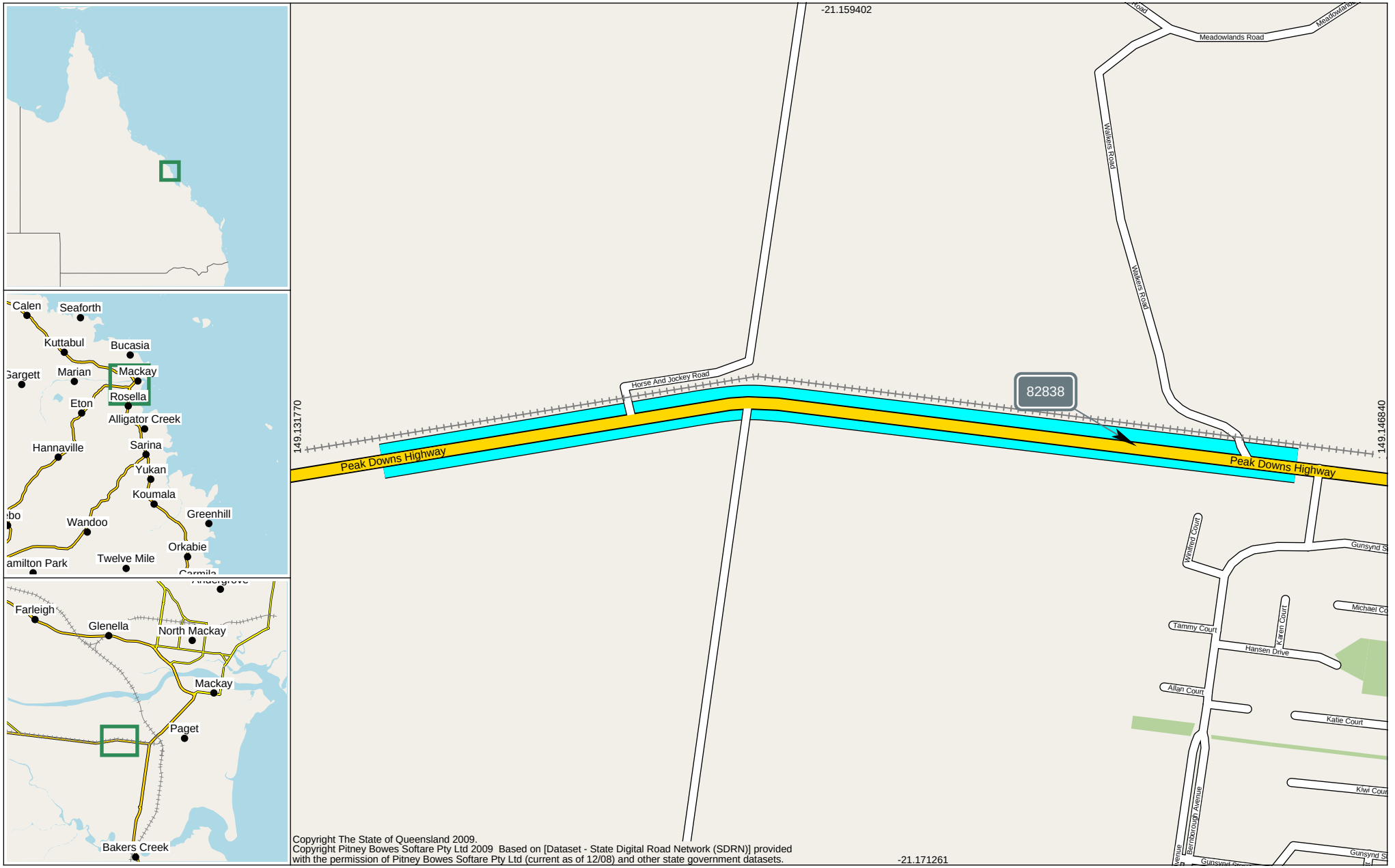
The width of each Road Segment is proportional to its AADT.



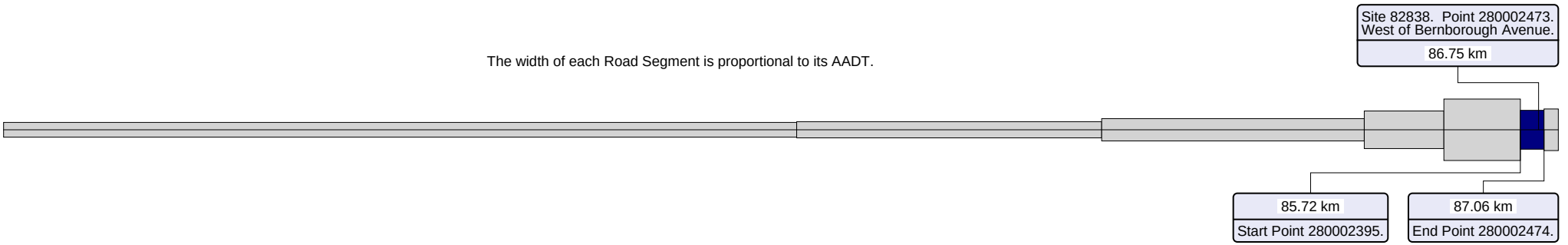
This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-3.98%	-3.19%	0.05%
A	-13.48%	-5.39%	-1.35%
B	-8.73%	-4.26%	-0.64%



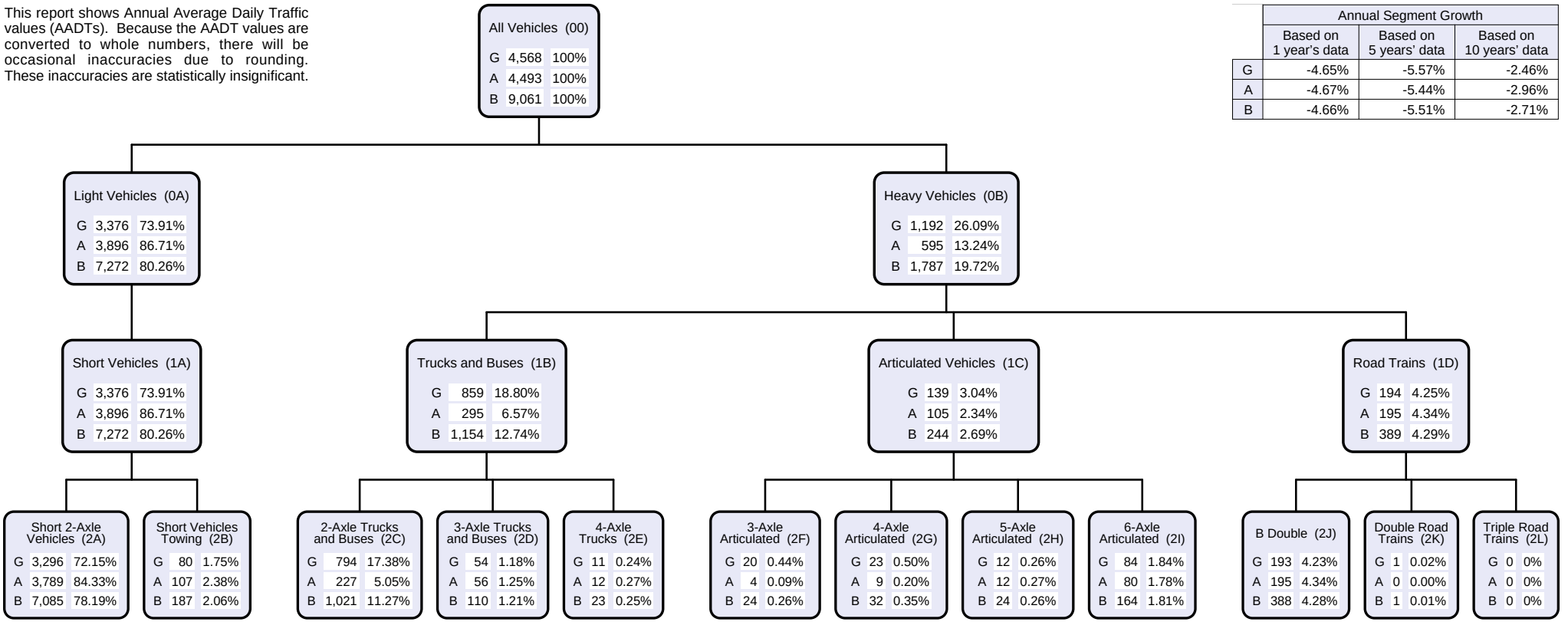


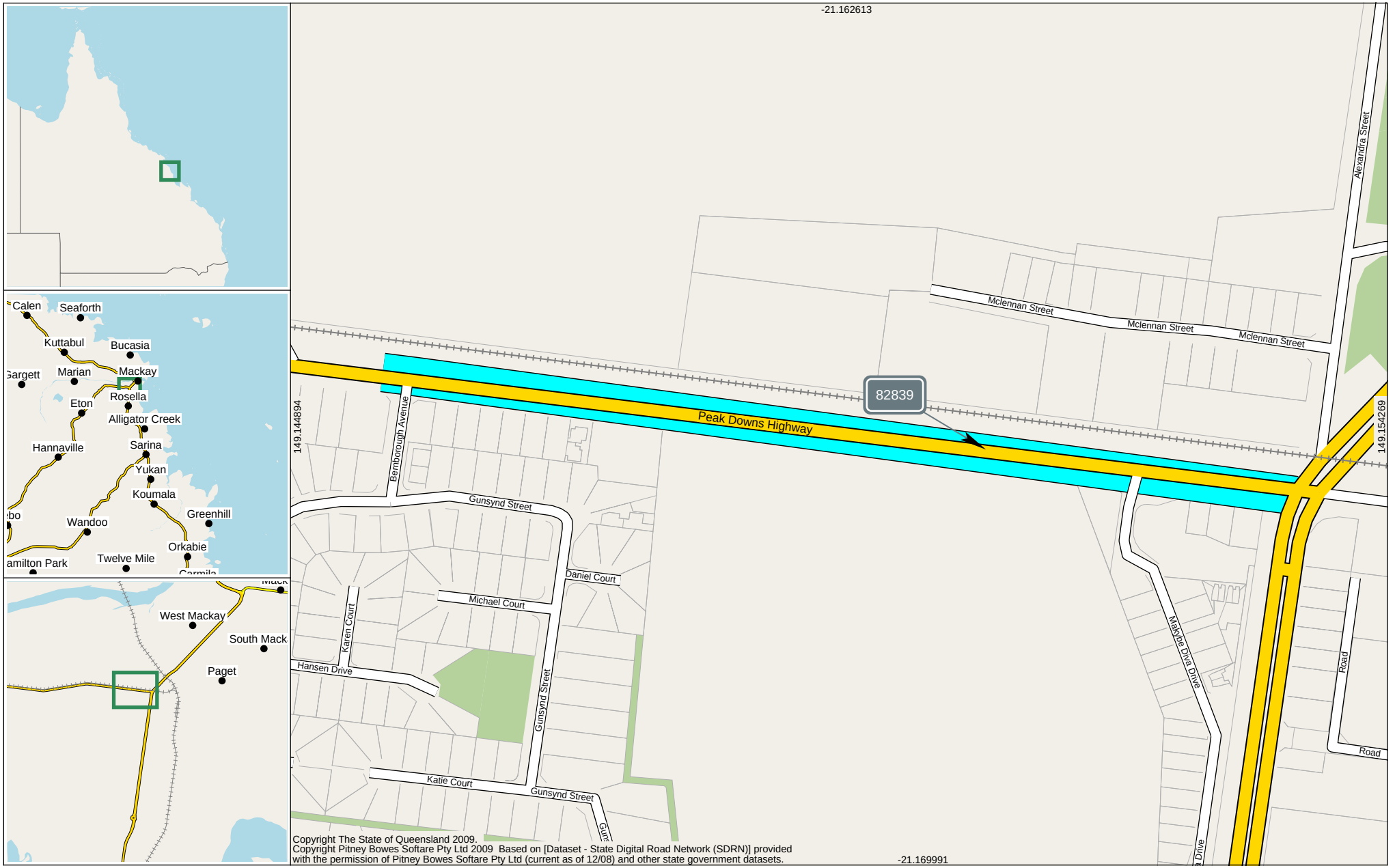
The width of each Road Segment is proportional to its AADT.



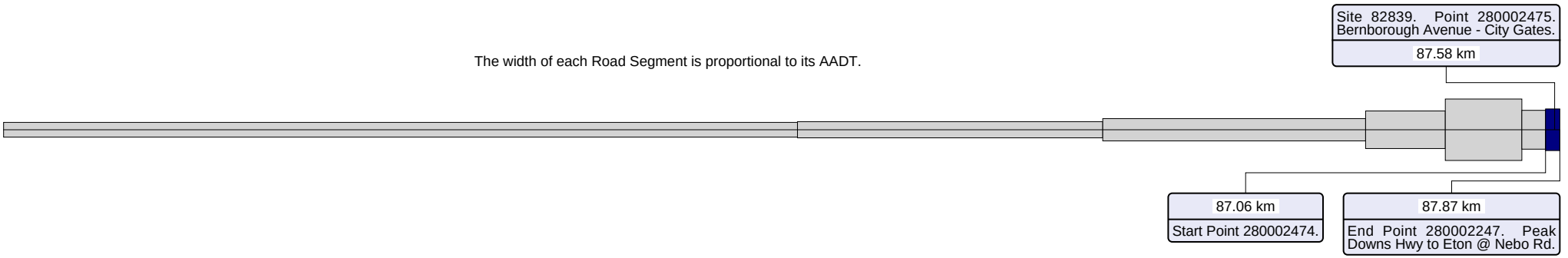
This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-4.65%	-5.57%	-2.46%
A	-4.67%	-5.44%	-2.96%
B	-4.66%	-5.51%	-2.71%



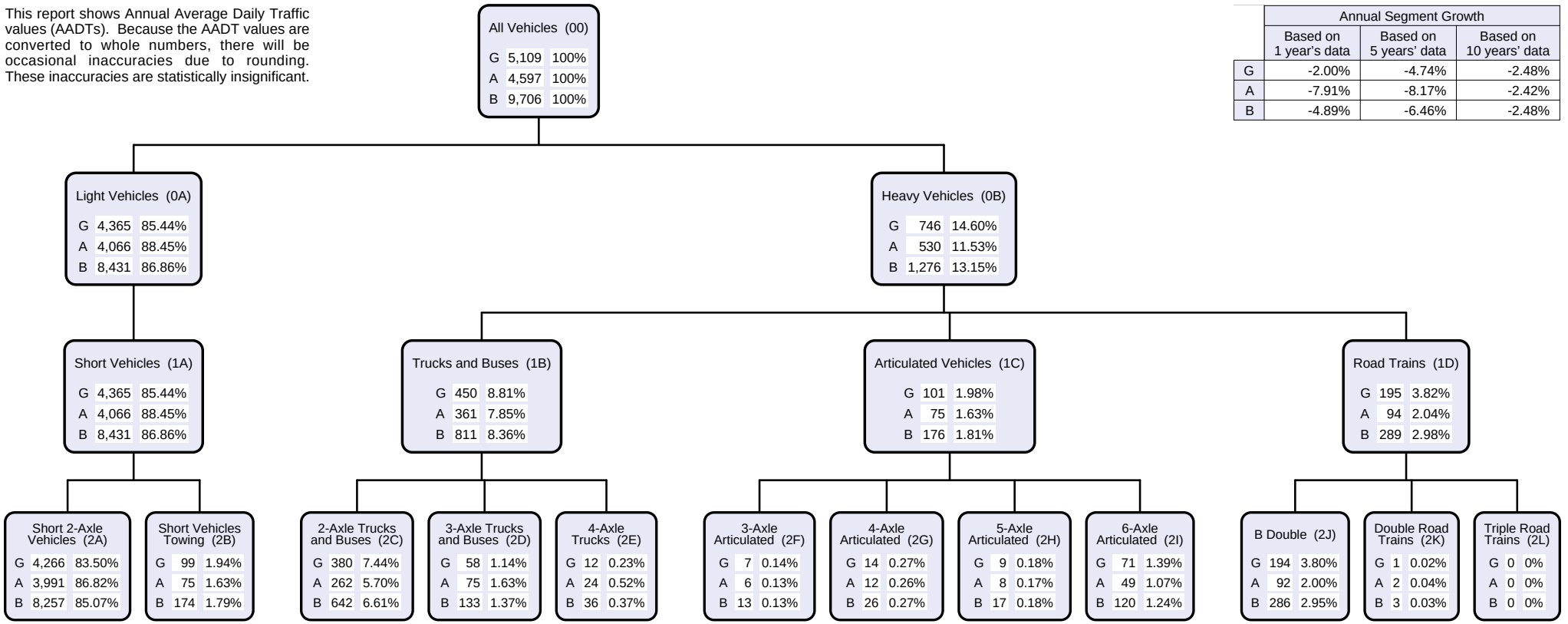


The width of each Road Segment is proportional to its AADT.



This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-2.00%	-4.74%	-2.48%
A	-7.91%	-8.17%	-2.42%
B	-4.89%	-6.46%	-2.48%



Report Notes for AADT Segment Analysis Report (Complete)

AADT Segment Report

Provides AADT Segment details for a Road Section together with the traffic flow data collected at the related Site. Traffic data is reported by the start and end Through Distance of the AADT Segments on each section of road. The road segments are represented diagrammatically with AADT data including:

AADT	by direction of traffic flow
VKT	Vehicle Kilometres Travelled
%VC	Percentage Vehicle Class as per the Austroads vehicle classification scheme

Annual Average Daily Traffic (AADT)

Annual Average Daily Traffic (AADT) is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

AADT Segment

Is a subdivision of a Road Section. The boundaries of an AADT Segment are it's Start Point and End Point (or Start and End Through Distance (TDist)) within the Road Section. These distances are measured in kilometres from the begining of the Road Section in Gazettal Direction. AADT Segments are determined by the traffic volume, collected at a count Site, located within the limits of each AADT Segment.

Annual Segment Growth (when displayed)

A percentage that represents the increase or decrease in AADT for the AADT Segment,using an exponential fit, calculated over a 1, 5 or 10 year period.

Area

For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. The Area field in TSDM reports displays the District Name and Number.

District Name	District
Central West District	401
Darling Downs District	402
Far North District	403
Fitzroy District	404
Mackay/Whitsunday District	405
Metropolitian District	406
North Coast District	407
North West District	409
Northern District	408
South Coast District	410
South West District	411
Wide Bay/Burnett District	412

Data Year

The most recent year the traffic data was collected for this AADT Segment.

Gazettal Direction

The Gazettal Direction is the direction of the traffic flow. It can be easily recognised by referring to the name of the road eg. Road Section: 10A Brisbane - Gympie denotes that the gazettal direction is from Brisbane to Gympie.

G	Traffic flowing in Gazettal Direction
A	Traffic flowing against Gazettal Direction
B	The combined traffic flow in both Directions

Road Section

Is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Site

The physical location of a traffic counting device. Sites are located at a specified Through Distance along a Road Section.

Site TDist

The Through Distance in gazettal direction from the start of the Road Section at which the site is located.

Site Description

The description of the physical location of the traffic counting device.

Start and End Point

The unique identifier for the Through Distance along a Road Section.

Through Distance

The distance, in kilometres, from the beginning of the Road Section in Gazettal Direction.

Traffic Class

Is the 12 Austroads vehicle categories or classes into which vehicles are placed or binned. Traffic classes are formed in a hierarchical format.

Volume or All Vehicles

00 = 0A + 0B

Light Vehicles

0A = 1A
1A = 2A + 2B

Heavy Vehicles

0B = 1B + 1C + 1D
1B = 2C + 2D + 2E
1C = 2F + 2G + 2H + 2I
1D = 2J + 2K + 2L

The following classes are the categories for which data can be captured:

Volume

00 All vehicles.

2-Bin

0A Light vehicles
0B Heavy vehicles

4-Bin

1A Short vehicles
1B Truck or bus
1C Articulated vehicles
1D Road train

12-Bin

2A Short 2 axle vehicles
2B Short vehicles towing
2C 2 axle truck or bus
2D 3 axle truck or bus
2E 4 axle truck
2F 3 axle articulated vehicle
2G 4 axle articulated vehicle
2H 5 axle articulated vehicle
2I 6 axle articulated vehicle
2J B double
2K Double road train
2L Triple road train

Vehicle Kilometres Travelled (VKT)

Daily VKT is a measure of the traffic demand. It is calculated by the length of an AADT Segment in kilometres multiplied by its AADT. The yearly VKT is the daily VKT multiplied by 365 days.

AADT Segment Summary - All Vehicles

The Total VKT can be used to gauge the demand on an entire Road Section.

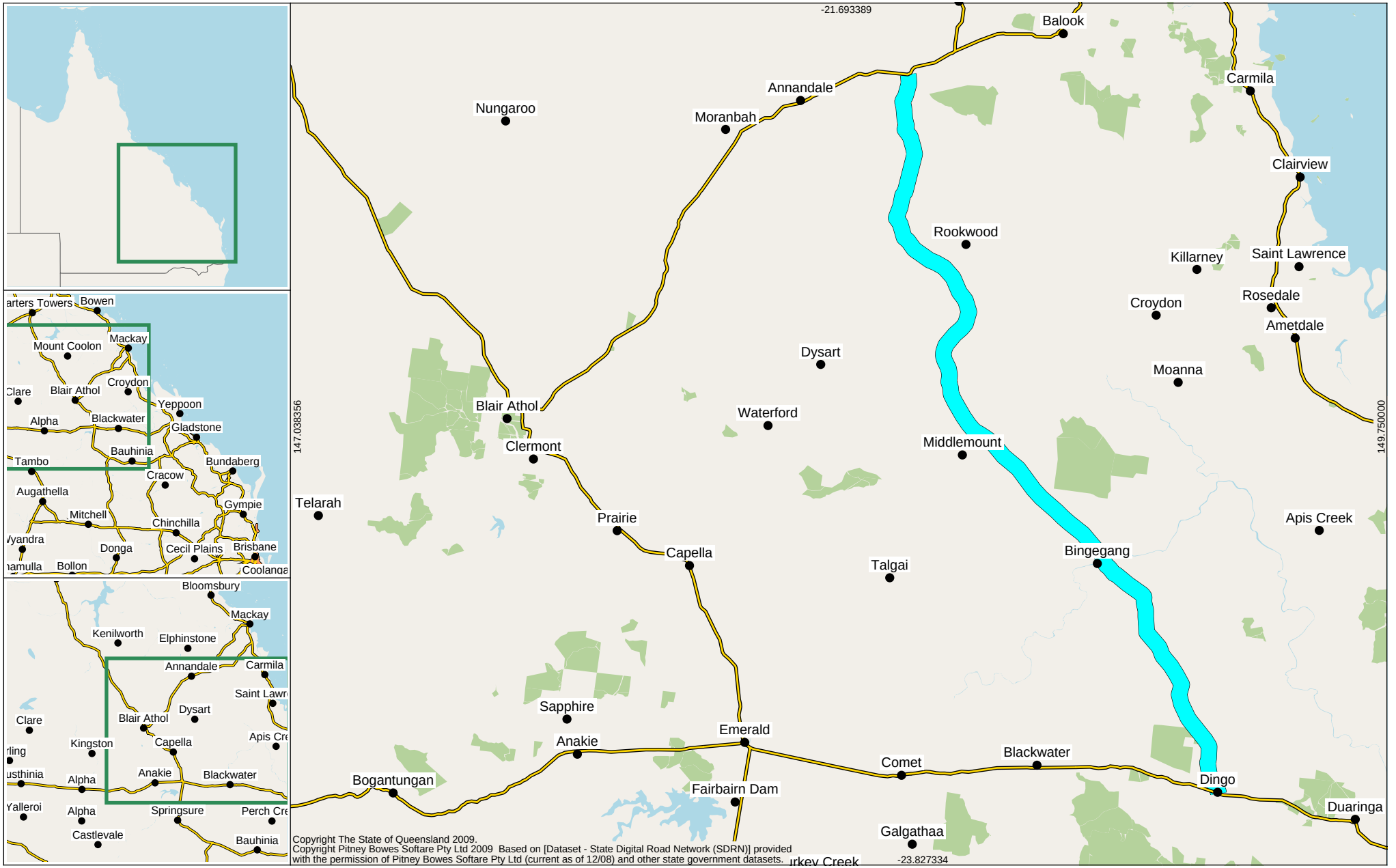
AADT Segment Summary - Heavy Vehicles only

A blank field indicates that vehicle classification data was not collected for this AADT Segment.

AADT Segment Analysis Report (Complete)

Road Section 85C - FITZROY DEV ROAD (DINGO - MT. FLORA)

Traffic Year 2016



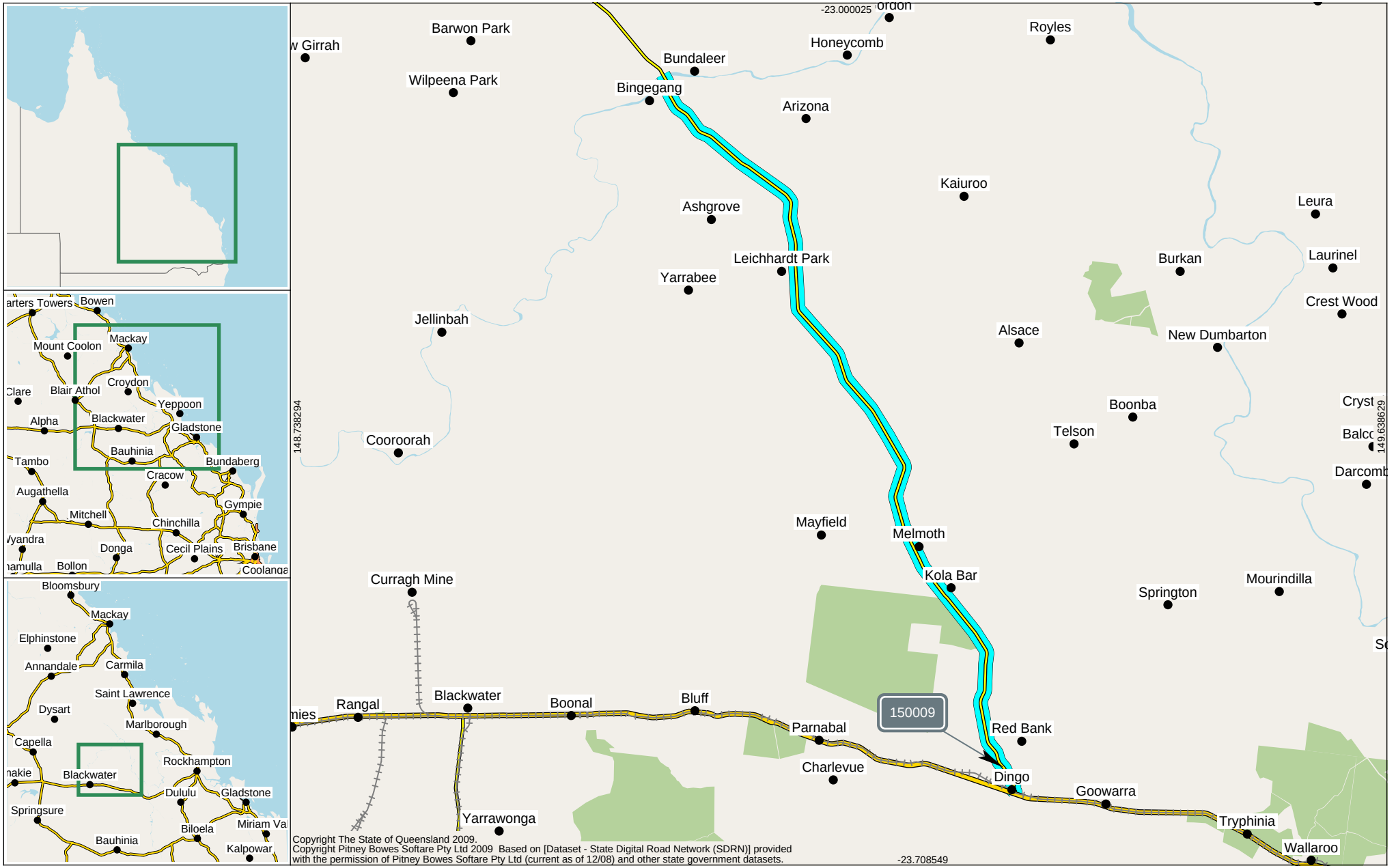
Road Segments Summary - All Vehicles

Region	Segment Start Tdist	Segment End Tdist	Site	Site Tdist	Description	AADT			VKT (Millions)			Data Year	Page
						G	A	B	G	A	B		
404	0.000 km	76.220 km	150009	2.800 km	Fitzroy Dev Rd 85C 2.8 km N of Cap Hwy	355	358	713	9.87621	9.95967	19.83587	2016	2
405	76.220 km	120.560 km	80191	120.260 km	South of Middlemount Turnoff	369	387	756	5.97193	6.26325	12.23518	2016	3
405	120.560 km	234.680 km	80025	212.756 km	Valkyrie Permanent Counter	396	405	801	16.49490	16.86979	33.36469	2016	4
								Totals	32.34304	33.09270	65.43575		

Road Segments Summary - Heavy Vehicles only

VKT totals are calculated only if traffic class data is available for all sites.

Region	Segment Start Tdist	Segment End Tdist	Site	Site Tdist	Description	HV AADT						HV VKT (Millions)			Data Year	Page
						G		A		B						
						AADT	HV %	AADT	HV %	AADT	HV %	G	A	B		
404	0.000 km	76.220 km	150009	2.800 km	Fitzroy Dev Rd 85C 2.8 km N of Cap Hwy	112	31.55%	138	38.55%	250	35.06%	3.11587	3.83920	6.95508	2016	2
405	76.220 km	120.560 km	80191	120.260 km	South of Middlemount Turnoff	74	20.05%	91	23.51%	165	21.83%	1.19762	1.47275	2.67038	2016	3
405	120.560 km	234.680 km	80025	212.756 km	Valkyrie Permanent Counter	100	25.25%	111	27.41%	211	26.34%	4.16538	4.62357	8.78895	2016	4
											Totals	8.47888	9.93553	18.41440		


-23.000025
Barwon Park
Royles
Honeycomb
Bundaleer
Wilpeena Park
Bingegang
Arizona
Kaiuroo
Ashgrove
Leura
Leichhardt Park
Burkan
Laurinel
Yarrabee
Crest Wood
Jellinbah
Alsace
New Dumbarton
Boonba
Telson
148.738294
Cooroorah
149.638629
Darcomb
Mayfield
Melmoth
Kola Bar
Curragh Mine
Springton
Mourindilla
Rangal
Blackwater
Boonal
Bluff
150009
Parnabal
Red Bank
Charlevue
Dingo
Goowarra
Tryphinia
Wallaroo
Yarrawonga
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Mount Coolon
Mackay
Croydon
Blair Athol
Yeppoon
Alpha
Blackwater
Gladstone
Bauhinia
Tambo
Bundaberg
Cracow
Augathella
Gympie
Mitchell
Chinchilla
Donga
Cecil Plains
Brisbane
Bollon
Coolangatta
Bloomsbury
Elphinstone
Annandale
Carmila
Saint Lawrence
Dysart
Marlborough
Capella
Rockhampton
Dululu
Gladstone
Springsure
Biloela
Miriam Va
Bauhinia
Kalpowar
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AADT Segment Analysis Report (Complete)

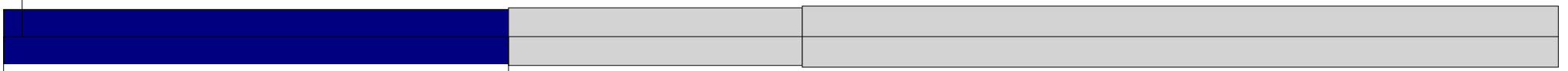
Area 404 - Fitzroy District Road Section 85C - FITZROY DEV ROAD (DINGO - MT. FLORA)

Traffic Year 2016 - Data Collection Year 2016

Site 150009. Point 350000021. Springton Ck 2.8km Nth of Capricorn Hwy.

2.80 km

The width of each Road Segment is proportional to its AADT.



0.00 km

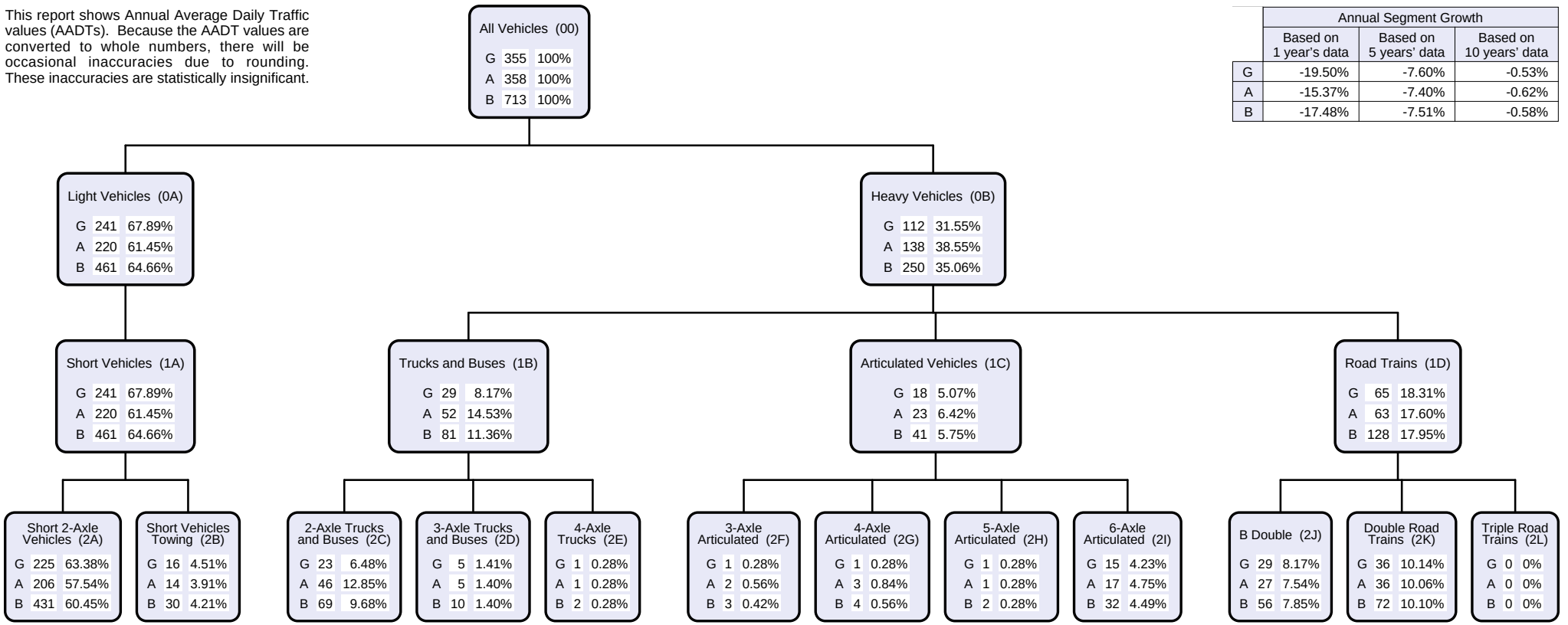
Start Point 350000022. Int of Capricorn Hwy & Fizroy Dev Rd.

76.22 km

End Point 350000288. Centre of Robert Acton Bridge @ Mackenzie River. CH/Isaac Regional Council Bdy.

This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

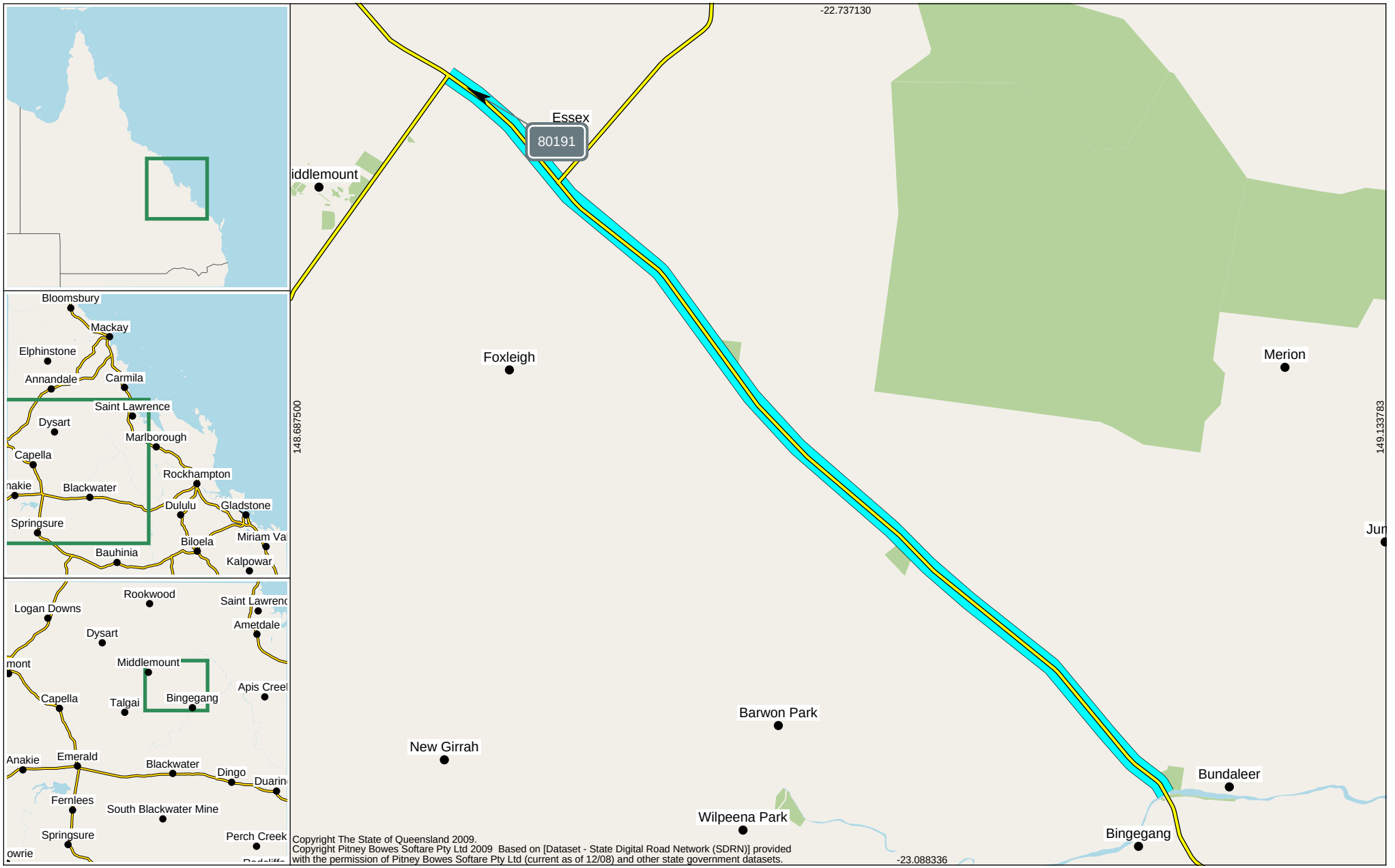
	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-19.50%	-7.60%	-0.53%
A	-15.37%	-7.40%	-0.62%
B	-17.48%	-7.51%	-0.58%



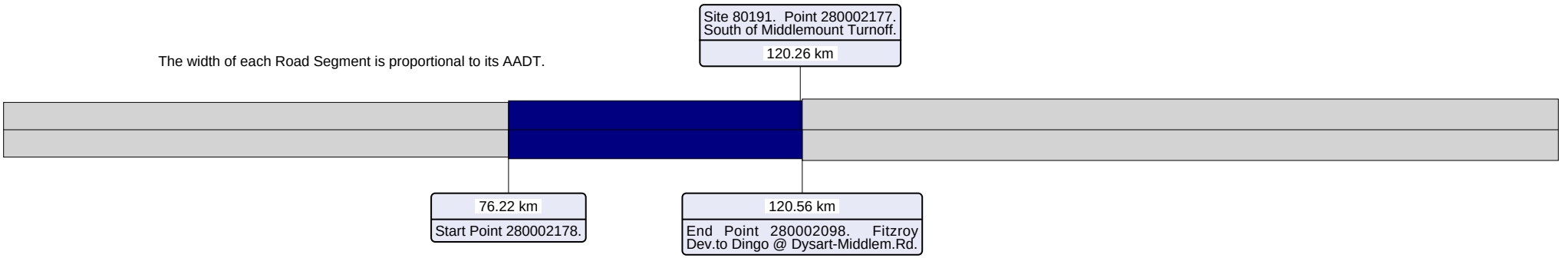
AADT Segment Analysis Report (Complete)

Area 405 - Mackay/Whitsunday District Road Section 85C - FITZROY DEV ROAD (DINGO - MT. FLORA)

Traffic Year 2016 - Data Collection Year 2016

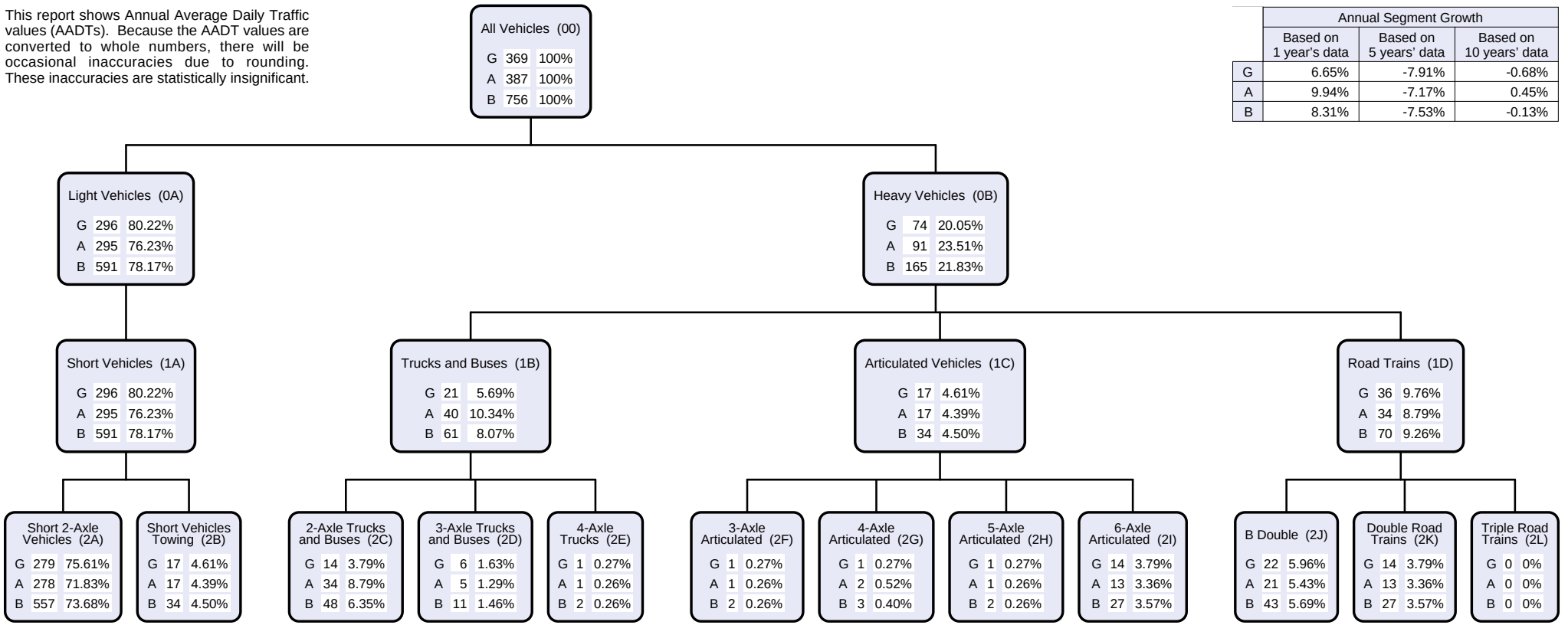


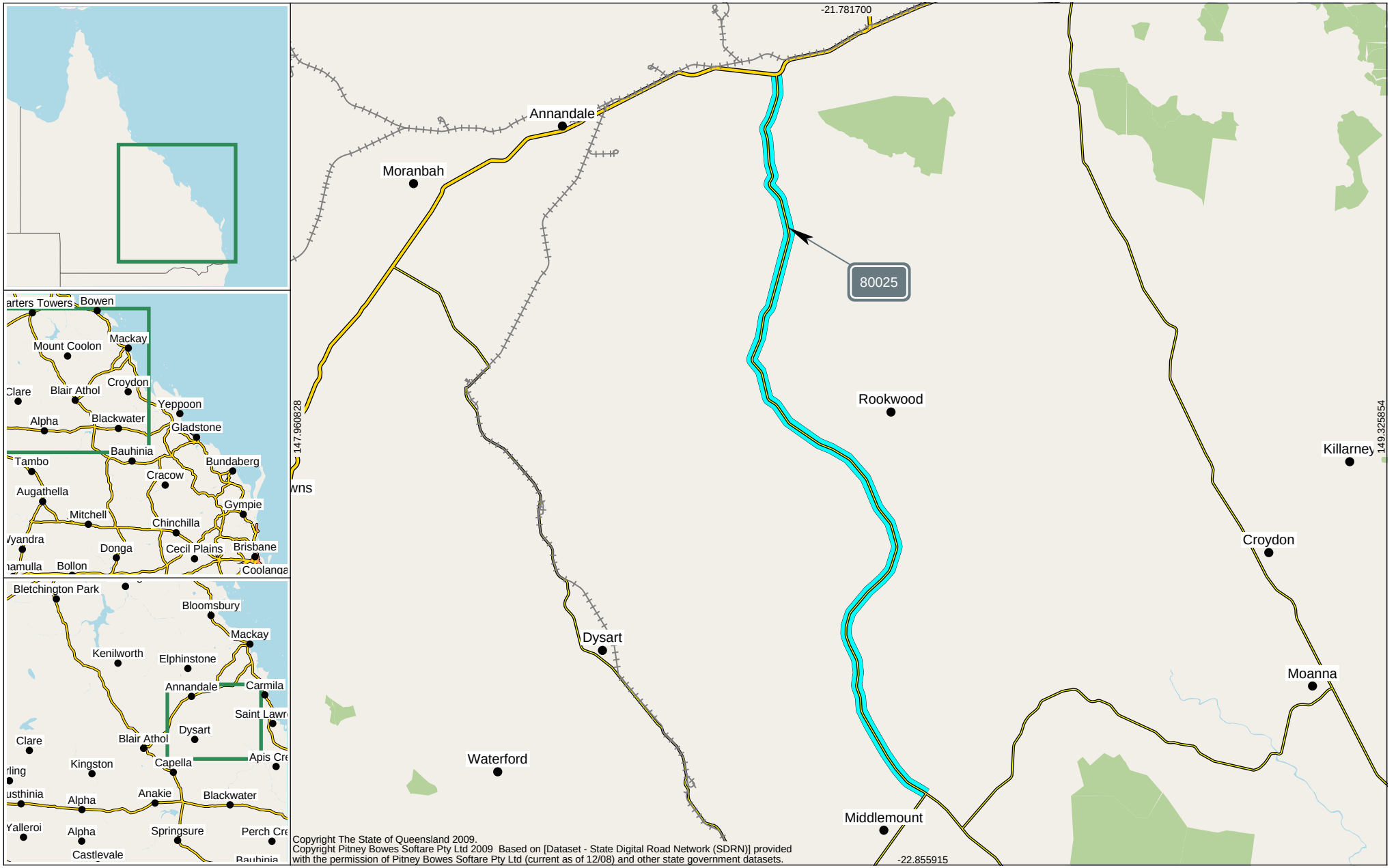
The width of each Road Segment is proportional to its AADT.



This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	6.65%	-7.91%	-0.68%
A	9.94%	-7.17%	0.45%
B	8.31%	-7.53%	-0.13%





Traffic Analysis and Reporting System

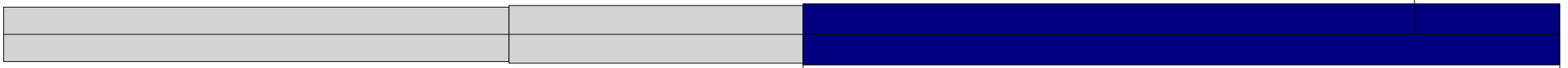
AADT Segment Analysis Report (Complete)

Area 405 - Mackay/Whitsunday District Road Section 85C - FITZROY DEV ROAD (DINGO - MT. FLORA)

Traffic Year 2016 - Data Collection Year 2016

Site 80025. Point 280002097. Valkyrie Permanent Counter.
212.76 km

The width of each Road Segment is proportional to its AADT.



120.56 km
Start Point 280002098. Fitzroy Dev.to Dingo @ Dysart-Middlem.Rd.

234.68 km
End Point 280002099. Fitzroy Dev.Rd to Middle.@ Peak Dwns Hwy.

This report shows Annual Average Daily Traffic values (AADTs). Because the AADT values are converted to whole numbers, there will be occasional inaccuracies due to rounding. These inaccuracies are statistically insignificant.

	Annual Segment Growth		
	Based on 1 year's data	Based on 5 years' data	Based on 10 years' data
G	-3.18%	-6.88%	-2.02%
A	-4.03%	-6.29%	-1.98%
B	-3.61%	-6.58%	-2.00%

All Vehicles (00)

G	396	100%
A	405	100%
B	801	100%

Light Vehicles (0A)

G	296	74.75%
A	293	72.35%
B	589	73.53%

Heavy Vehicles (0B)

G	100	25.25%
A	111	27.41%
B	211	26.34%

Short Vehicles (1A)

G	296	74.75%
A	293	72.35%
B	589	73.53%

Trucks and Buses (1B)

G	43	10.86%
A	53	13.09%
B	96	11.99%

Articulated Vehicles (1C)

G	19	4.80%
A	19	4.69%
B	38	4.74%

Road Trains (1D)

G	38	9.60%
A	39	9.63%
B	77	9.61%

Short 2-Axle Vehicles (2A)

G	277	69.95%
A	275	67.90%
B	552	68.91%

Short Vehicles Towing (2B)

G	19	4.80%
A	18	4.44%
B	37	4.62%

2-Axle Trucks and Buses (2C)

G	37	9.34%
A	44	10.86%
B	81	10.11%

3-Axle Trucks and Buses (2D)

G	5	1.26%
A	7	1.73%
B	12	1.50%

4-Axle Trucks (2E)

G	1	0.25%
A	2	0.49%
B	3	0.37%

3-Axle Articulated (2F)

G	2	0.51%
A	1	0.25%
B	3	0.37%

4-Axle Articulated (2G)

G	2	0.51%
A	3	0.74%
B	5	0.62%

5-Axle Articulated (2H)

G	1	0.25%
A	1	0.25%
B	2	0.25%

6-Axle Articulated (2I)

G	14	3.54%
A	14	3.46%
B	28	3.50%

B Double (2J)

G	29	7.32%
A	30	7.41%
B	59	7.37%

Double Road Trains (2K)

G	9	2.27%
A	9	2.22%
B	18	2.25%

Triple Road Trains (2L)

G	0	0%
A	0	0%
B	0	0%

Report Notes for AADT Segment Analysis Report (Complete)

AADT Segment Report

Provides AADT Segment details for a Road Section together with the traffic flow data collected at the related Site. Traffic data is reported by the start and end Through Distance of the AADT Segments on each section of road. The road segments are represented diagrammatically with AADT data including:

AADT	by direction of traffic flow
VKT	Vehicle Kilometres Travelled
%VC	Percentage Vehicle Class as per the Austroads vehicle classification scheme

Annual Average Daily Traffic (AADT)

Annual Average Daily Traffic (AADT) is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

AADT Segment

Is a subdivision of a Road Section. The boundaries of an AADT Segment are it's Start Point and End Point (or Start and End Through Distance (TDist)) within the Road Section. These distances are measured in kilometres from the begining of the Road Section in Gazettal Direction. AADT Segments are determined by the traffic volume, collected at a count Site, located within the limits of each AADT Segment.

Annual Segment Growth (when displayed)

A percentage that represents the increase or decrease in AADT for the AADT Segment,using an exponential fit, calculated over a 1, 5 or 10 year period.

Area

For administration purposes the Department of Transport and Main Roads has divided Queensland into 12 Districts. The Area field in TSDM reports displays the District Name and Number.

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Metropolitian District	406
North Coast District	407
North West District	409
Northern District	408
South Coast District	410
South West District	411
Wide Bay/Burnett District	412

Data Year

The most recent year the traffic data was collected for this AADT Segment.

Gazettal Direction

The Gazettal Direction is the direction of the traffic flow. It can be easily recognised by referring to the name of the road eg. Road Section: 10A Brisbane - Gympie denotes that the gazettal direction is from Brisbane to Gympie.

G	Traffic flowing in Gazettal Direction
A	Traffic flowing against Gazettal Direction
B	The combined traffic flow in both Directions

Road Section

Is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in Gazettal Direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Site

The physical location of a traffic counting device. Sites are located at a specified Through Distance along a Road Section.

Site TDist

The Through Distance in gazettal direction from the start of the Road Section at which the site is located.

Site Description

The description of the physical location of the traffic counting device.

Start and End Point

The unique identifier for the Through Distance along a Road Section.

Through Distance

The distance, in kilometres, from the beginning of the Road Section in Gazettal Direction.

Traffic Class

Is the 12 Austroads vehicle categories or classes into which vehicles are placed or binned. Traffic classes are formed in a hierarchical format.

Volume or All Vehicles

00 = 0A + 0B

Light Vehicles

0A = 1A
1A = 2A + 2B

Heavy Vehicles

0B = 1B + 1C + 1D
1B = 2C + 2D + 2E
1C = 2F + 2G + 2H + 2I
1D = 2J + 2K + 2L

The following classes are the categories for which data can be captured:

Volume

00 All vehicles.

2-Bin

0A Light vehicles
0B Heavy vehicles

4-Bin

1A Short vehicles
1B Truck or bus
1C Articulated vehicles
1D Road train

12-Bin

2A Short 2 axle vehicles
2B Short vehicles towing
2C 2 axle truck or bus
2D 3 axle truck or bus
2E 4 axle truck
2F 3 axle articulated vehicle
2G 4 axle articulated vehicle
2H 5 axle articulated vehicle
2I 6 axle articulated vehicle
2J B double
2K Double road train
2L Triple road train

Vehicle Kilometres Travelled (VKT)

Daily VKT is a measure of the traffic demand. It is calculated by the length of an AADT Segment in kilometres multiplied by its AADT. The yearly VKT is the daily VKT multiplied by 365 days.

AADT Segment Summary - All Vehicles

The Total VKT can be used to gauge the demand on an entire Road Section.

AADT Segment Summary - Heavy Vehicles only

A blank field indicates that vehicle classification data was not collected for this AADT Segment.

Appendix B

Project Traffic Generation

Table 1: Workforce numbers by method of travel and OD

Travel Method	Origin	2020		2027		2028		2048	
		Destination		Destination		Destination		Destination	
		Olive Downs	Willunga	Olive Downs	Willunga	Olive Downs	Willunga	Olive Downs	Willunga
Bus	Coppabella	142	0	115	24	120	43	120	43
	Moranbah	148	0	120	25	120	43	120	43
	Dysart	0	0	0	0	0	0	0	0
	Middlemount	0	0	0	0	0	0	0	0
	Nebo	0	0	0	0	0	0	0	0
Carpooling	Coppabella	0	0	0	0	0	0	0	0
	Moranbah	59	0	48	10	48	17	48	17
	Dysart	22	0	18	4	18	6	18	6
	Middlemount	13	0	11	2	11	4	11	4
	Nebo	9	0	8	2	7	3	7	3
DIDO	Coppabella	0	0	0	0	0	0	0	0
	Moranbah	384	0	312	65	312	111	312	111
	Dysart	202	0	164	34	162	57	162	57
	Middlemount	117	0	95	20	98	35	98	35
	Nebo	85	0	69	14	65	23	65	23
Total workforce per day		1180	0	960	200	962	341	962	341

Table 2: Workforce numbers by method of travel and OD for AM/PM shift

Travel Method	Origin	2020		2027		2028		2048	
		Destination		Destination		Destination		Destination	
		Olive Downs	Willunga	Olive Downs	Willunga	Olive Downs	Willunga	Olive Downs	Willunga
Bus	Coppabella	71	0	58	12	60	21	60	21
	Moranbah	74	0	60	13	60	21	60	21
	Dysart	0	0	0	0	0	0	0	0
	Middlemount	0	0	0	0	0	0	0	0
	Nebo	0	0	0	0	0	0	0	0
Carpooling	Coppabella	0	0	0	0	0	0	0	0
	Moranbah	30	0	24	5	24	9	24	9
	Dysart	11	0	9	2	9	3	9	3
	Middlemount	6	0	5	1	5	2	5	2
	Nebo	5	0	4	1	4	1	4	1
DIDO	Coppabella	0	0	0	0	0	0	0	0
	Moranbah	192	0	156	33	156	55	156	55
	Dysart	101	0	82	17	81	29	81	29
	Middlemount	58	0	48	10	49	17	49	17
	Nebo	42	0	35	7	33	12	33	12
Total workforce per day		590	0	480	100	481	170	481	170

Table 3: Hourly Vehicle Trips by Method of travel and OD

Travel Method	Orgin	2020 (hourly)				2027 (hourly)				2028 (hourly)				2048 (hourly)			
		Destination				Destination				Destination				Destination			
		Olive Downs		Willunga		Olive Downs		Willunga		Olive Downs		Willunga		Olive Downs		Willunga	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Bus	Coppabella	4	4	0	0	4	4	2	2	4	4	2	2	4	4	2	2
	Moranbah	4	4	0	0	4	4	2	2	4	4	2	2	4	4	2	2
	Dysart	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Middlemount	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nebo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carpooling	Coppabella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Moranbah	59	59	0	0	48	48	10	10	48	48	17	17	48	48	17	17
	Dysart	22	22	0	0	18	18	4	4	18	18	6	6	18	18	6	6
	Middlemount	13	13	0	0	11	11	2	2	11	11	4	4	11	11	4	4
	Nebo	9	9	0	0	8	8	2	2	7	7	3	3	7	7	3	3
DIDO	Coppabella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Moranbah	384	384	0	0	312	312	65	65	312	312	111	111	312	312	111	111
	Dysart	202	202	0	0	164	164	34	34	162	162	57	57	162	162	57	57
	Middlemount	117	117	0	0	95	95	20	20	98	98	35	35	98	98	35	35
	Nebo	85	85	0	0	69	69	14	14	65	65	23	23	65	65	23	23
Total vehicle movements per hour		899	899	0	0	733	733	155	155	730	730	260	260	730	730	260	260

Table 4: Hourly in/out Vehicle Trips by Method of travel and OD

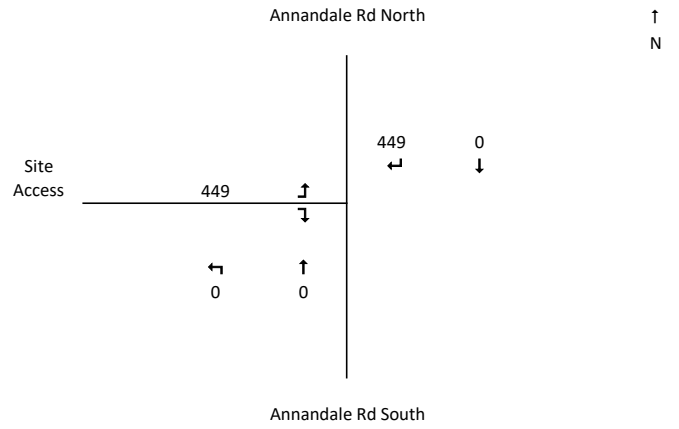
Travel Method	Orgin	2020 (hourly)								2027 (hourly)								2028 (hourly)								2048 (hourly)							
		Destination								Destination								Destination								Destination							
		Olive Downs				Willunga				Olive Downs				Willunga				Olive Downs				Willunga				Olive Downs				Willunga			
		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
		IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Bus	Coppabella	2	2	2	2	0	0	0	0	2	2	2	2	1	1	1	1	2	2	2	2	1	1	1	1	2	2	2	2	1	1	1	1
	Moranbah	2	2	2	2	0	0	0	0	2	2	2	2	1	1	1	1	2	2	2	2	1	1	1	1	2	2	2	2	1	1	1	1
	Dysart	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Middlemount	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nebo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Carpooling	Coppabella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Moranbah	30	30	30	30	0	0	0	0	24	24	24	24	5	5	5	5	24	24	24	24	9	9	9	9	24	24	24	24	9	9	9	9
	Dysart	11	11	11	11	0	0	0	0	9	9	9	9	2	2	2	2	9	9	9	9	3	3	3	3	9	9	9	9	3	3	3	3
	Middlemount	6	6	6	6	0	0	0	0	5	5	5	5	1	1	1	1	5	5	5	5	2	2	2	2	5	5	5	5	2	2	2	2
	Nebo	5	5	5	5	0	0	0	0	4	4	4	4	1	1	1	1	4	4	4	4	1	1	1	1	4	4	4	4	1	1	1	1
DIDO	Coppabella	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Moranbah	192	192	192	192	0	0	0	0	156	156	156	156	33	33	33	33	156	156	156	156	55	55	55	55	156	156	156	156	55	55	55	55
	Dysart	101	101	101	101	0	0	0	0	82	82	82	82	17	17	17	17	81	81	81	81	29	29	29	29	81	81	81	81	29	29	29	29
	Middlemount	58	58	58	58	0	0	0	0	48	48	48	48	10	10	10	10	49	49	49	49	17	17	17	17	49	49	49	49	17	17	17	17
	Nebo	42	42	42	42	0	0	0	0	35	35	35	35	7	7	7	7	33	33	33	33	12	12	12	12	33	33	33	33	12	12	12	12
Total vehicle trips per hour		449	449	449	449	0	0	0	0	366	366	366	366	78	78	78	78	365	365	365	365	130	130	130	130	365	365	365	365	130	130	130	130

Appendix C

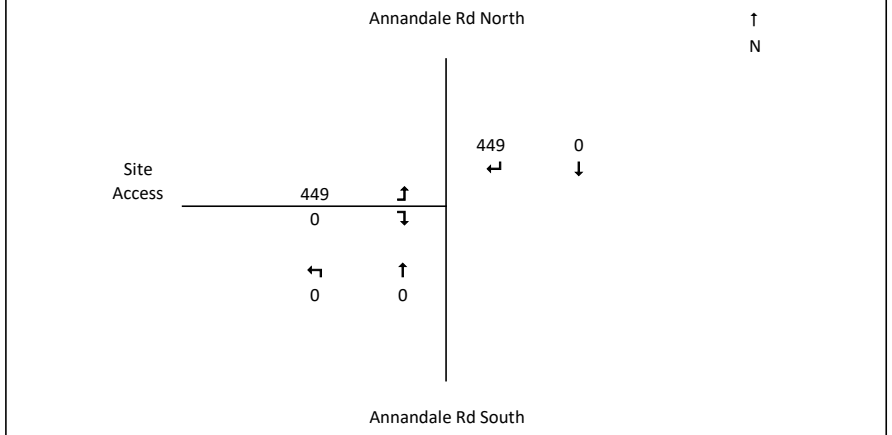
Traffic Flow Diagrams (Access Points)

Project Generated Traffic Flow Diagrams - Olive Downs Domain Access Location

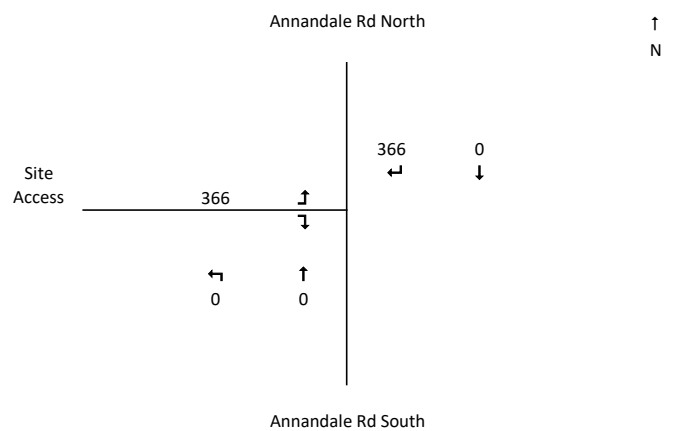
2020 AM (All Vehicles)



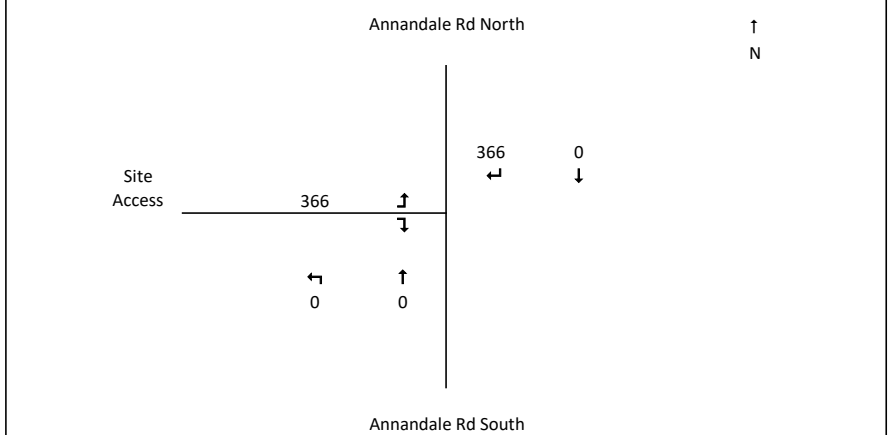
2020 PM (All Vehicles)



2027 AM (All Vehicles)

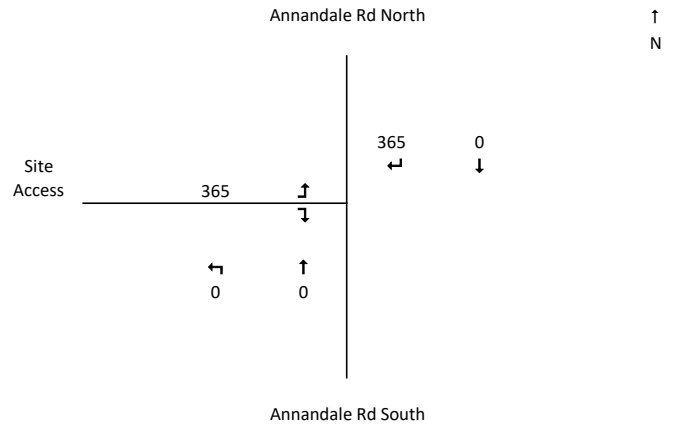


2027 PM (All Vehicles)

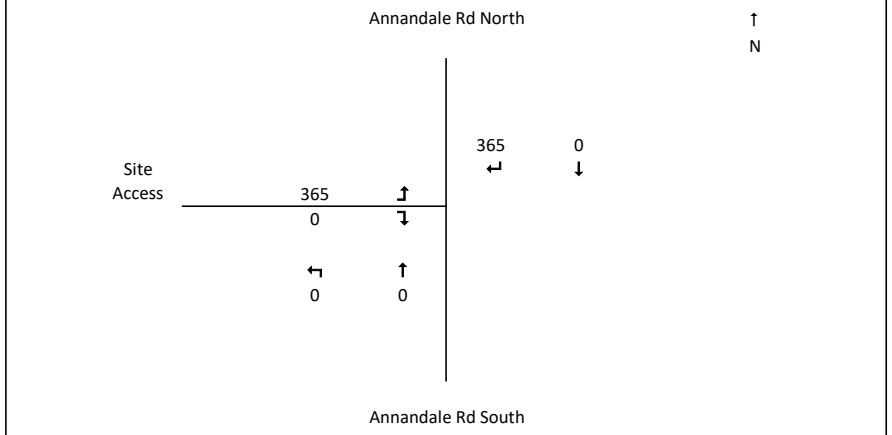


Project Generated Traffic Flow Diagrams - Olive Downs Domain Access Location

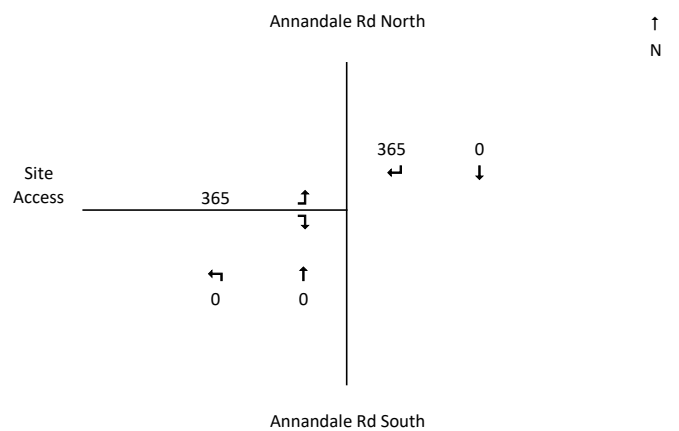
2028 AM (All Vehicles)



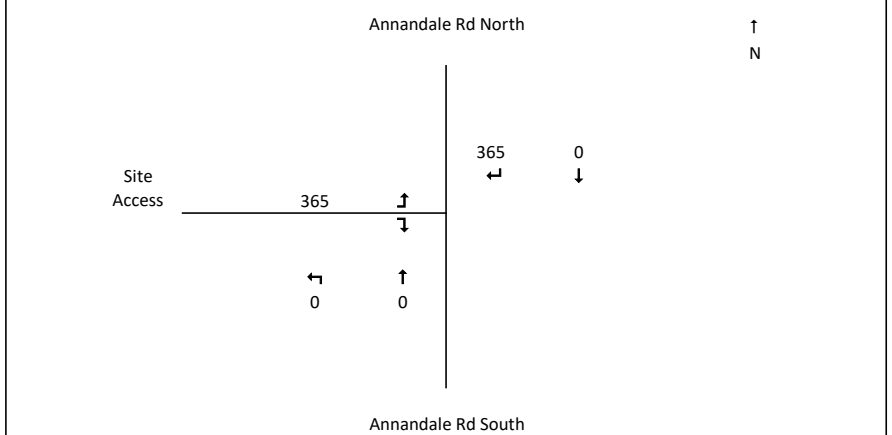
2028 PM (All Vehicles)



2048 AM (All Vehicles)

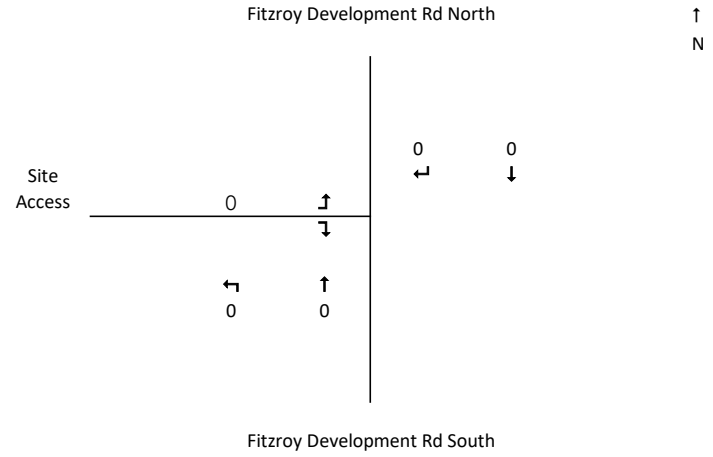


2048 PM (All Vehicles)

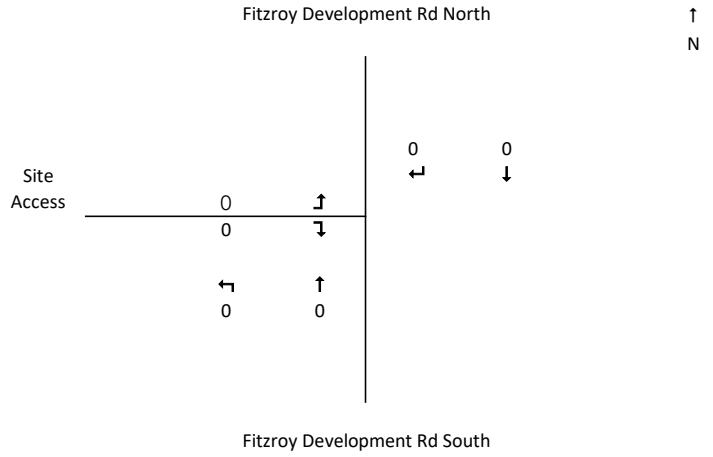


Project Generated Traffic Flow Diagrams - Willunga Domain Access Location

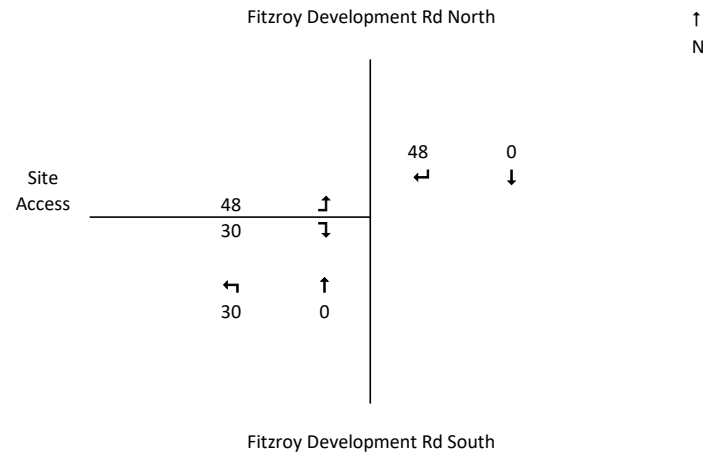
2020 AM (All Vehicles)



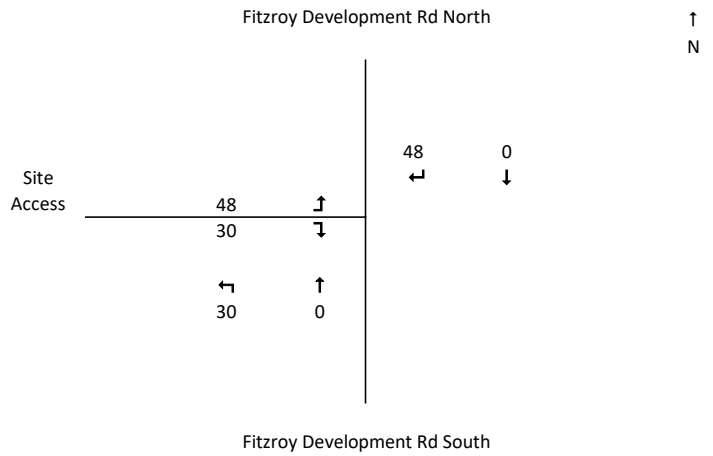
2020 PM (All Vehicles)



2027 AM (All Vehicles)

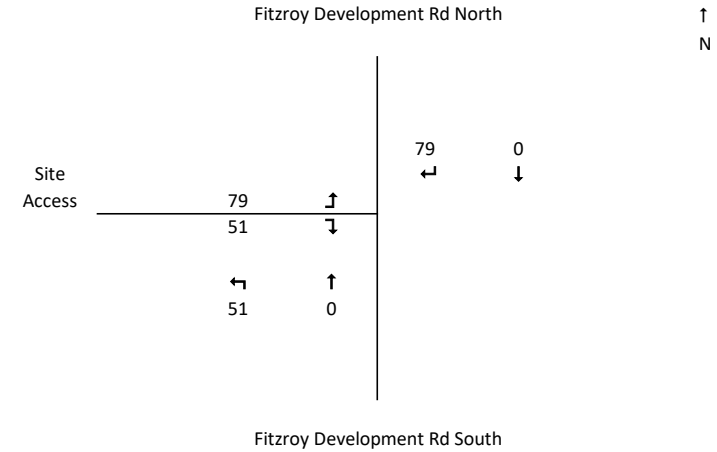


2027 PM (All Vehicles)

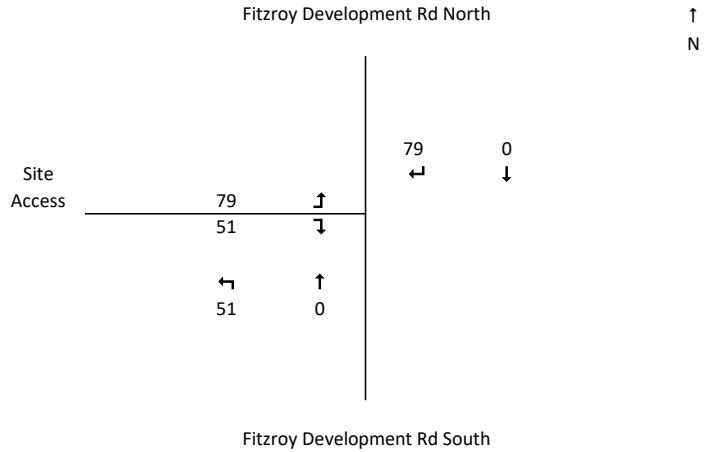


Project Generated Traffic Flow Diagrams - Willunga Domain Access Location

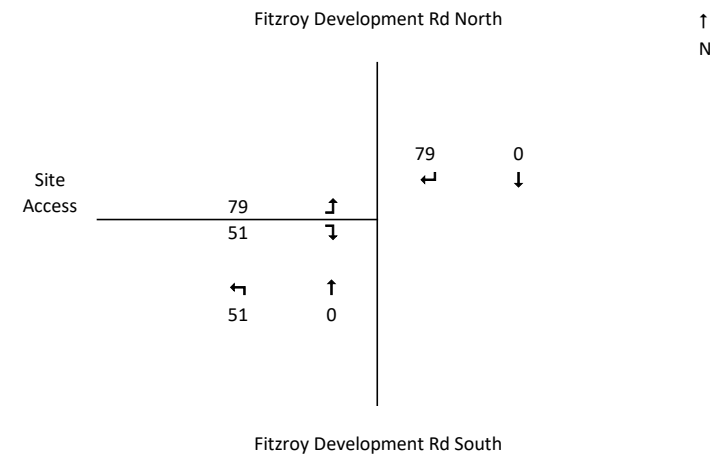
2028 AM (All Vehicles)



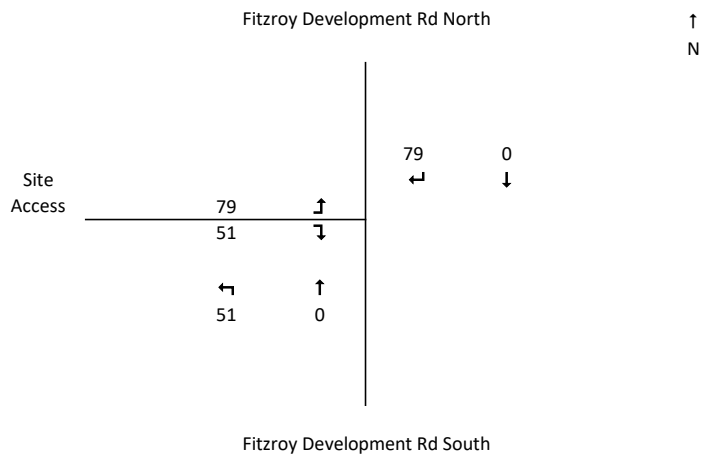
2028 PM (All Vehicles)



2048 AM (All Vehicles)



2048 PM (All Vehicles)



Appendix D

Link Capacity Results

Table 1: Baseline Link Capacity

Road Section	Region	Segement Start Distance (km)	Segment End Distance (km)	Site	Description	2020		2027		2028	
						Total PCU/hr	LOS	Total PCU/hr	LOS	Total PCU/hr	LOS
33A: Clermont - Nebo	405	89.050	90.37	159613	33A Between Moranbah T/O & Dysart T/O	499	B	564	B	573	A
	405	90.370	101.77	150012	Peak Downs Hwy 150m West of Isaac River	483	A	546	B	554	A
	405	101.770	127.993	80147	West of Coppabella	636	B	718	B	730	A
	405	127.993	149.366	80146	East of Coppabella	579	B	654	B	665	A
	405	149.366	163.631	80197	East of Bee Creek	700	B	790	C	803	C
	405	163.631	178.197	82884	North of Braeside Road	665	B	751	B	763	A
33B: Nebo - Mackay	405	0.000	44.824	80009	Retreat Hotel Permanent Counter	725	B	818	C	832	C
85C: Dingo - Mt. Flora	405	120.560	234.680	80025	Valkyrie Permanent Counter	183	A	207	A	210	A

Table 2: Project Generated Traffic Link Capacity

Road Section	Region	Segement Start Distance (km)	Segment End Distance (km)	Site	Description	2020		2027		2028	
						Total PCU/hr	LOS	Total PCU/hr	LOS	Total PCU/hr	LOS
33A: Clermont - Nebo	405	89.050	90.37	159613	33A Between Moranbah T/O & Dysart T/O	224	-	182	-	180	-
	405	90.370	101.77	150012	Peak Downs Hwy 150m West of Isaac River	336	-	586	-	609	-
	405	101.770	127.993	80147	West of Coppabella	447	-	664	-	696	-
	405	127.993	149.366	80146	East of Coppabella	108	-	41	-	222	-
	405	149.366	163.631	80197	East of Bee Creek	108	-	149	-	134	-
	405	163.631	178.197	82884	North of Braeside Road	108	-	149	-	134	-
33B: Nebo - Mackay	405	0.000	44.824	80009	Retreat Hotel Permanent Counter	-	-	61	-	18	-
85C: Dingo - Mt. Flora	405	120.560	234.680	80025	Valkyrie Permanent Counter	65	-	302	-	386	-

Table 3: Combined Link Capacity

Road Section	Region	Segement Start Distance (km)	Segment End Distance (km)	Site	Description	2020		2027		2028	
						Total PCU/hr	LOS	Total PCU/hr	LOS	Total PCU/hr	LOS
33A: Clermont - Nebo	405	89.050	90.37	159613	33A Between Moranbah T/O & Dysart T/O	723	B	746	B	753	B
	405	90.370	101.77	150012	Peak Downs Hwy 150m West of Isaac River	819	C	1132	C	1163	C
	405	101.770	127.993	80147	West of Coppabella	1083	C	1383	C	1427	C
	405	127.993	149.366	80146	East of Coppabella	687	B	695	B	887	B
	405	149.366	163.631	80197	East of Bee Creek	808	C	940	C	937	C
	405	163.631	178.197	82884	North of Braeside Road	773	C	900	C	897	C
33B: Nebo - Mackay	405	0.000	44.824	80009	Retreat Hotel Permanent Counter	725	B	880	C	850	C
85C: Dingo - Mt. Flora	405	120.560	234.680	80025	Valkyrie Permanent Counter	248	A	509	B	596	B

Appendix E

Surveyed Traffic Data

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine

Location: Peak Downs Highway/Daunia Road, Coppabella

Day/Date: 18 April 2018

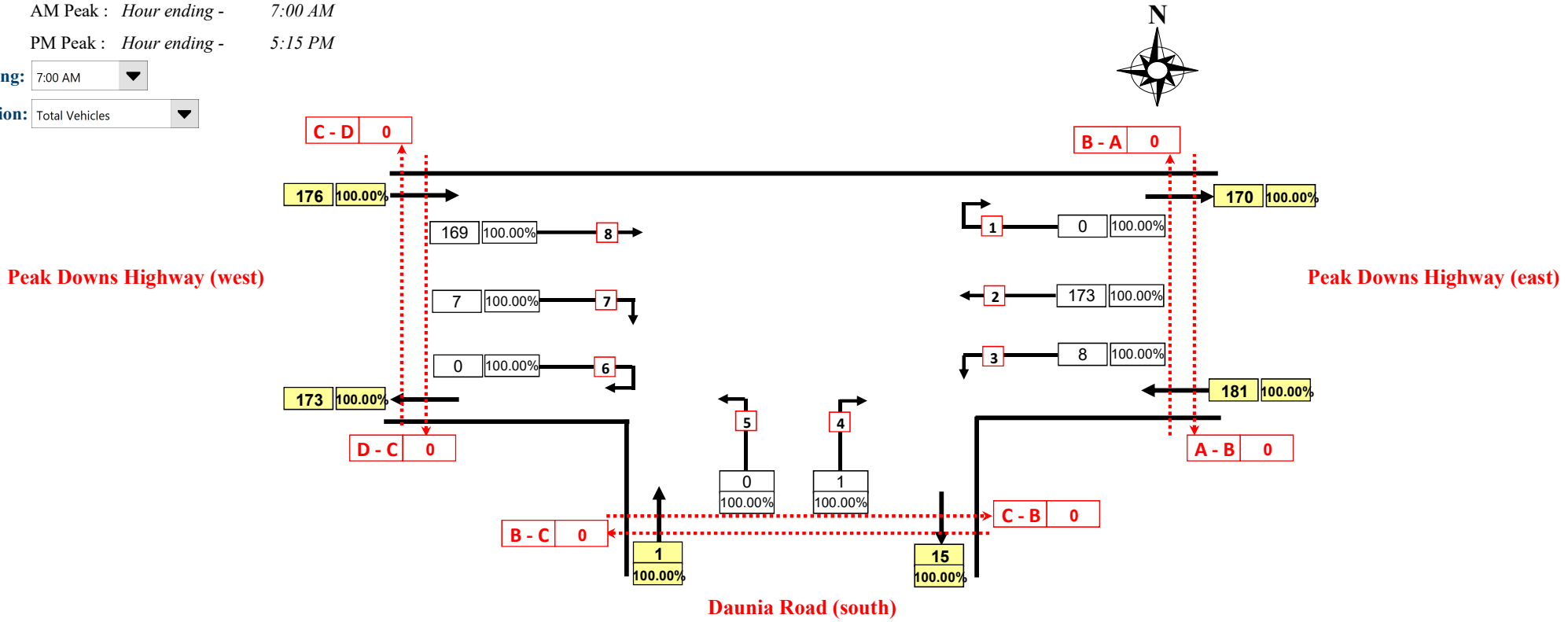
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:00 AM*

PM Peak : *Hour ending - 5:15 PM*

Hour Ending: 7:00 AM

Classification: Total Vehicles



AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine

Location: Peak Downs Highway/Daunia Road, Coppabella

Day/Date: 18 April 2018

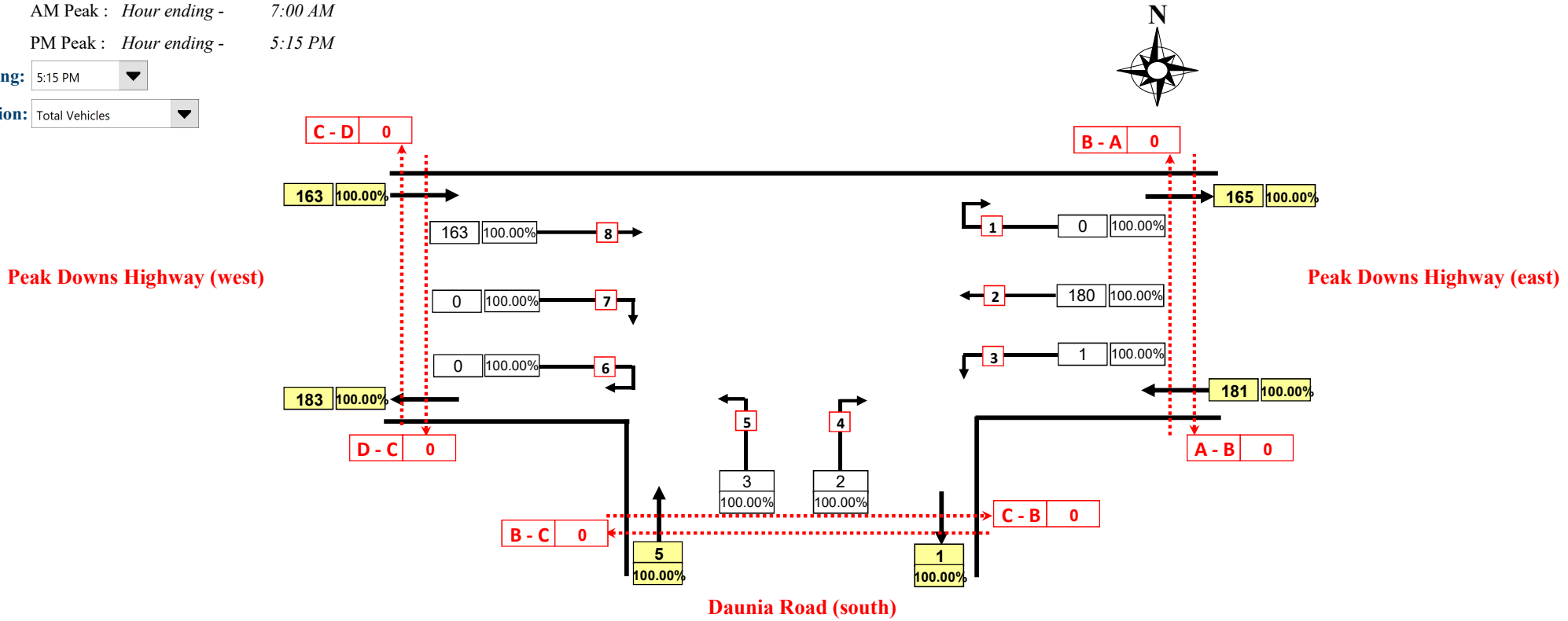
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:00 AM*

PM Peak : *Hour ending - 5:15 PM*

Hour Ending: 5:15 PM

Classification: Total Vehicles



AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 2 **Weather:** Fine

Location: Peak Downs Highway/Fitzroy Development Road, Strathfield

Day/Date: 18 April 2018

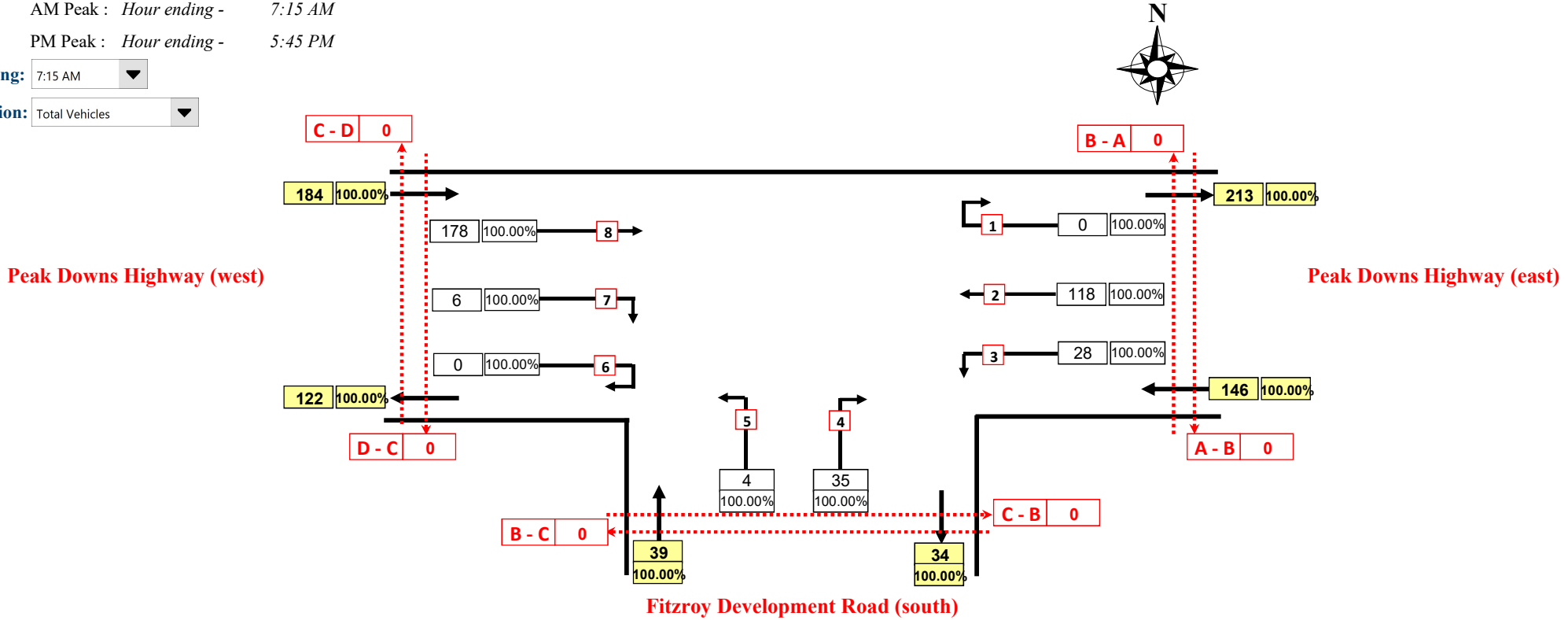
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:15 AM*

PM Peak : *Hour ending - 5:45 PM*

Hour Ending: 7:15 AM

Classification: Total Vehicles



AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 2 **Weather:** Fine

Location: Peak Downs Highway/Fitzroy Development Road, Strathfield

Day/Date: 18 April 2018

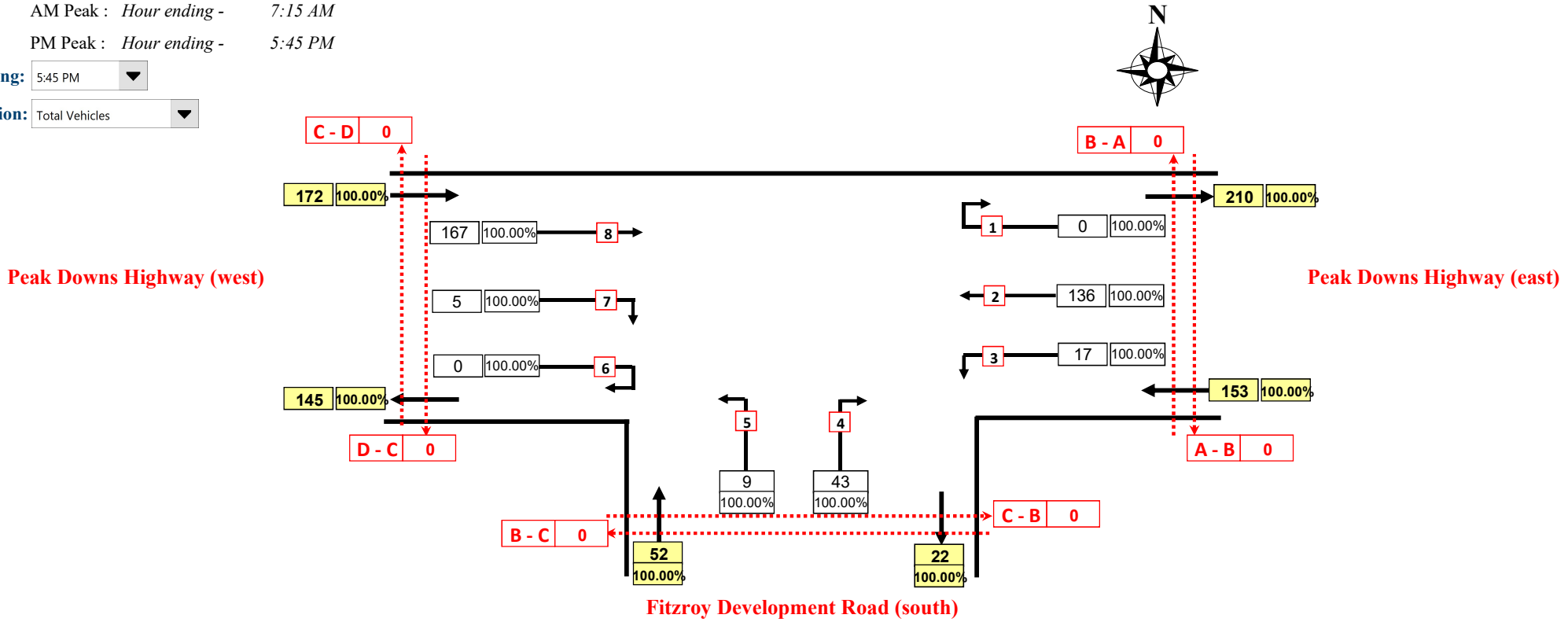
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:15 AM*

PM Peak : *Hour ending - 5:45 PM*

Hour Ending: 5:45 PM

Classification: Total Vehicles



AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine

Location: Peak Downs Highway/Moranbah Access, Moranbah

Day/Date: 18 April 2018

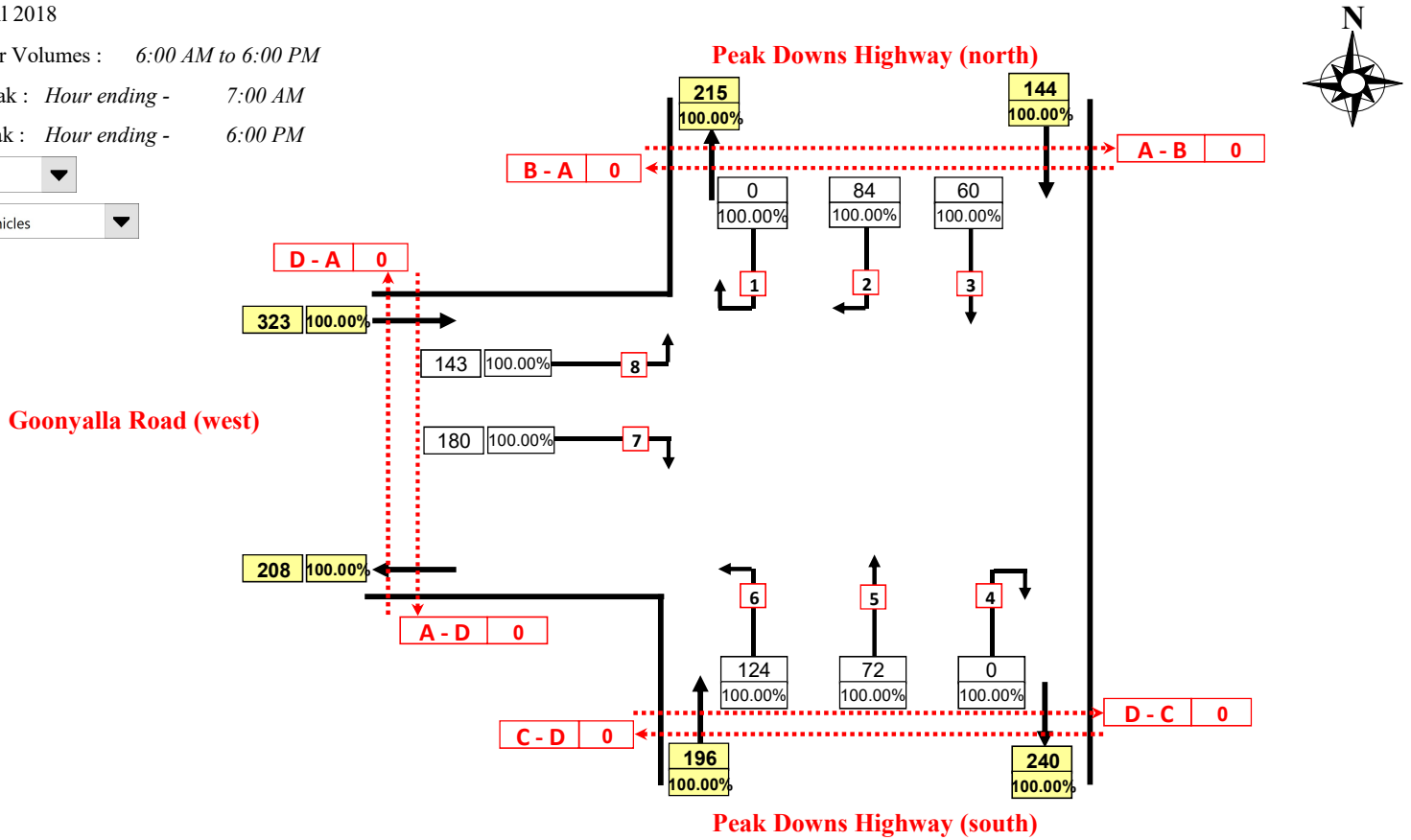
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:00 AM*

PM Peak : *Hour ending - 6:00 PM*

Hour Ending: 7:00 AM

Classification: Total Vehicles



AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine

Location: Peak Downs Highway/Moranbah Access, Moranbah

Day/Date: 18 April 2018

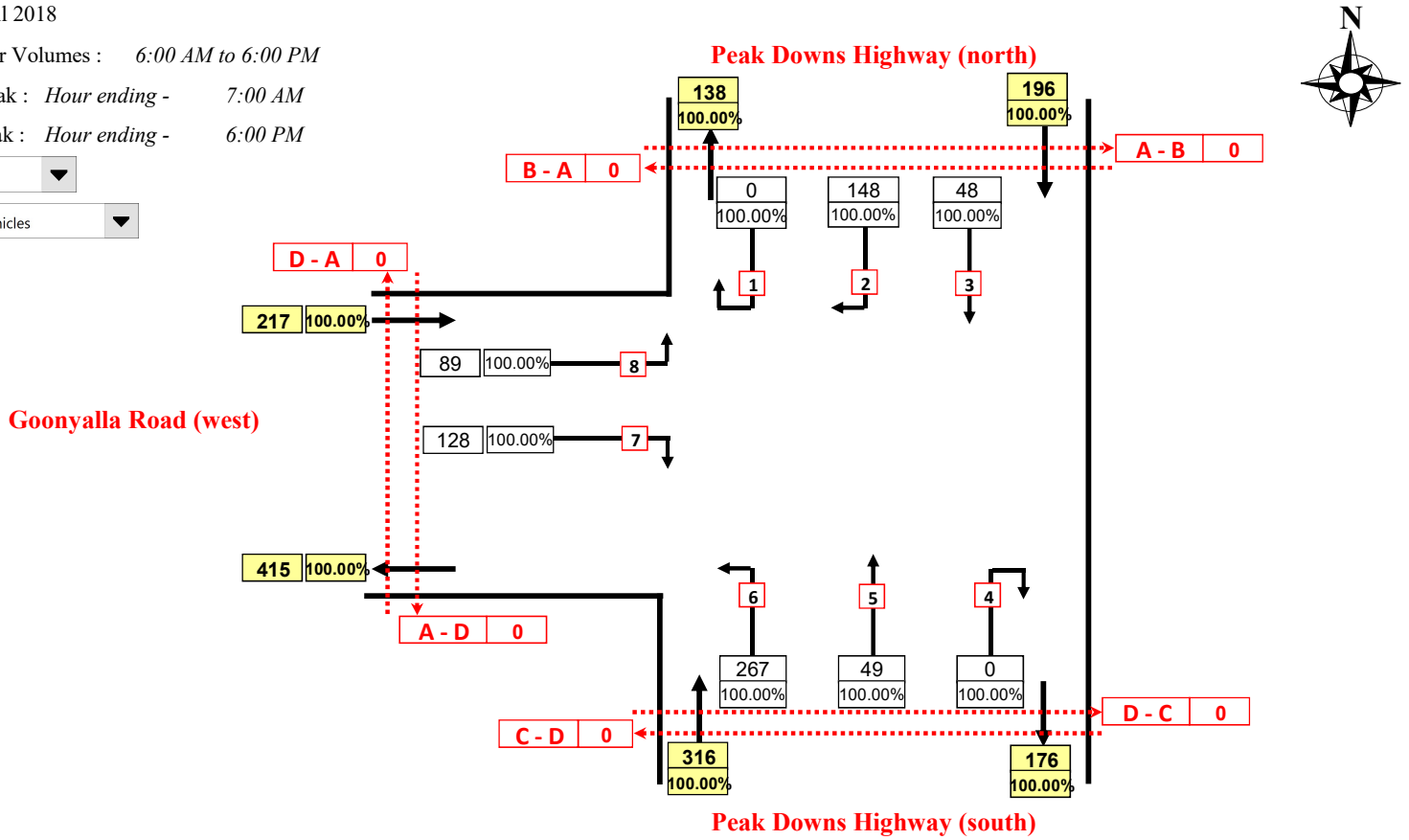
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:00 AM*

PM Peak : *Hour ending - 6:00 PM*

Hour Ending: 6:00 PM

Classification: Total Vehicles



AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 4 **Weather:** Fine

Location: Peak Downs Highway/Maloney Street, Coppabella

Day/Date: 18 April 2018

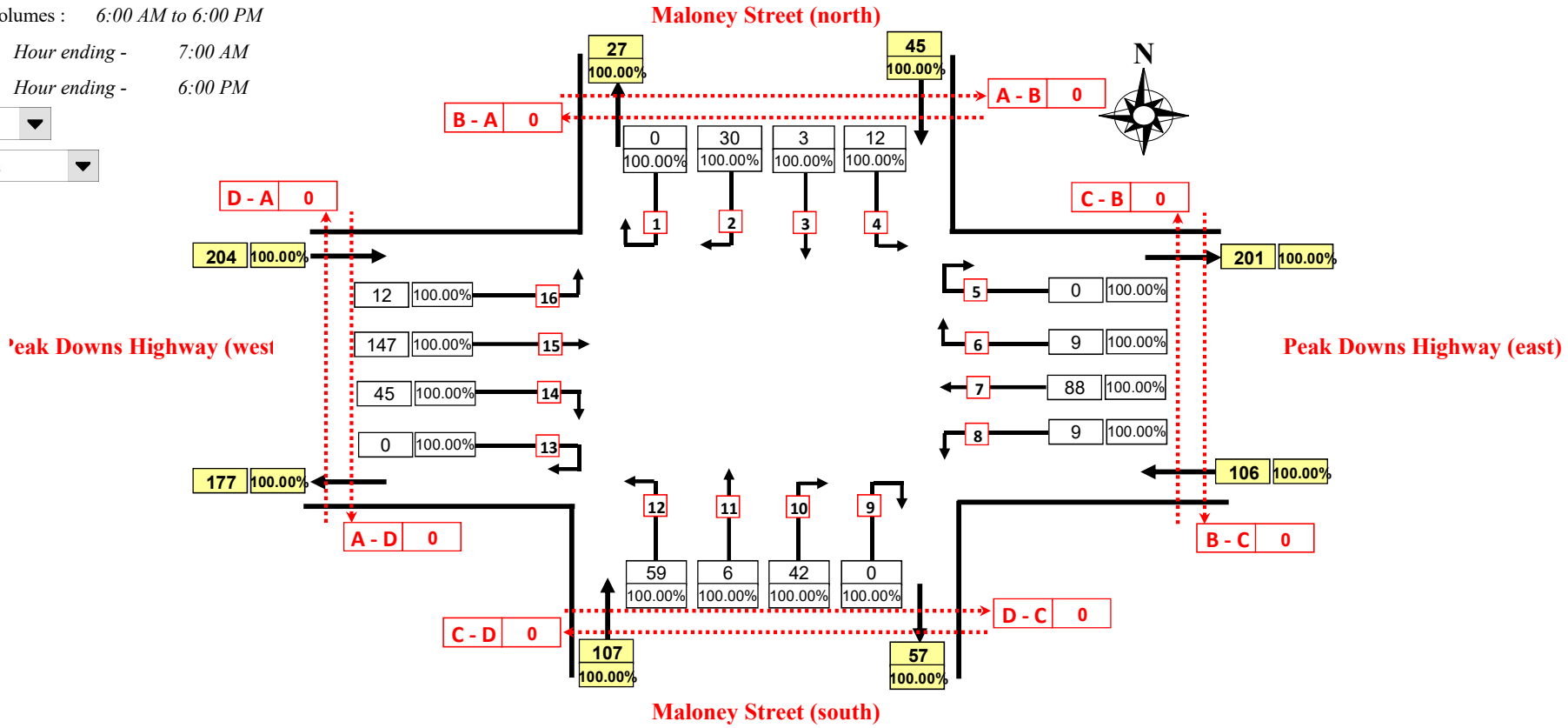
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:00 AM*

PM Peak : *Hour ending - 6:00 PM*

Hour Ending: 7:00 AM

Classification: Total Vehicles



AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 4 **Weather:** Fine

Location: Peak Downs Highway/Maloney Street, Coppabella

Day/Date: 18 April 2018

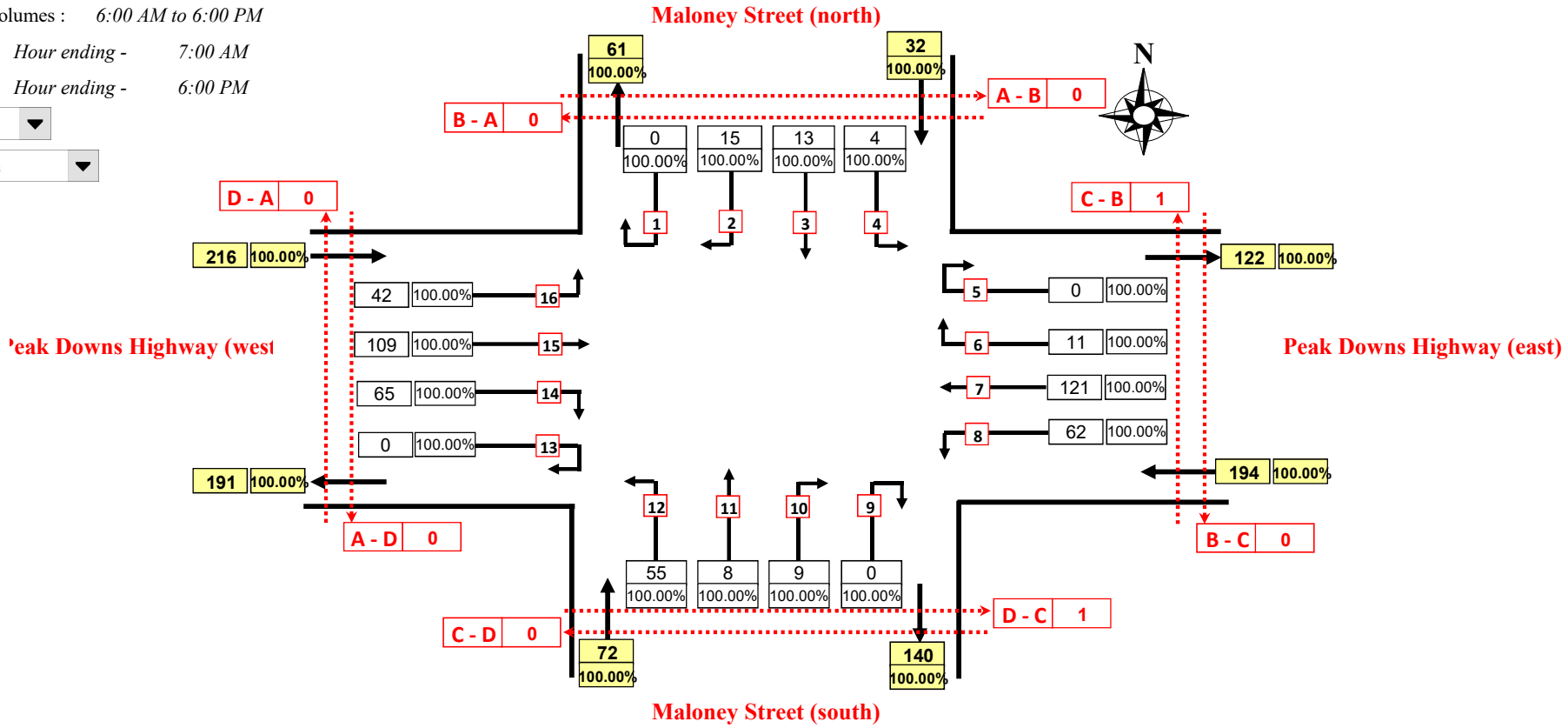
Summary: 12 Hour Volumes : *6:00 AM to 6:00 PM*

AM Peak : *Hour ending - 7:00 AM*

PM Peak : *Hour ending - 6:00 PM*

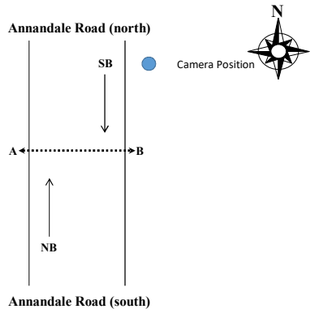
Hour Ending: 6:00 PM

Classification: Total Vehicles



AUSTRAFFIC VIDEO TRAFFIC COUNT

Site No.: 5 **Weather:** Fine
Location: Annandale Road (google coordinates: -22.149741, 148.409888)
Day/Date: Wednesday, 18 April 2018
AM Peak: *Hour ending - 7:00 AM*
PM Peak: *Hour ending - 1:00 PM*



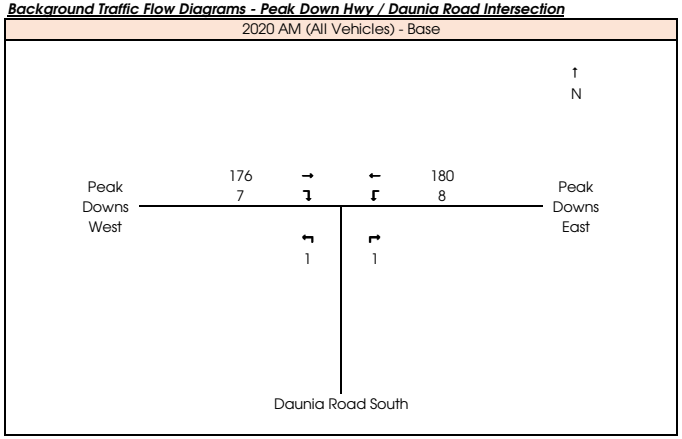
TIME (1/4 hr end)	Northbound Traffic				Southbound Traffic				Two-Way Totals				Pedestrian Movements								
													A - B			B - A			Grand Total		
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	***Total***	*Pedestrians*	*Cyclists*	***Total***	*Pedestrians*	*Cyclists*	*Total*
6:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
6:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
6:45 AM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
7:00 AM	1	0	**1**	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**	0	0	**0**	0	0	**0**
7:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
7:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
7:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
8:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
8:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
8:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
8:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
9:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
9:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
9:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
9:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
10:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
10:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
10:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
10:45 AM	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
11:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
11:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
11:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
11:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
12:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
12:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
12:30 PM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
12:45 PM	1	0	**1**	0	1	0	**1**	0	2	0	**2**	0	0	0	**0**	0	0	**0**	0	0	**0**
1:00 PM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
1:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
1:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
1:45 PM	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
2:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
2:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
2:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
2:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
3:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
3:15 PM	0	1	**1**	0	0	0	**0**	0	0	1	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
3:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
3:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
4:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
4:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
4:30 PM	1	0	**1**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
4:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
5:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
5:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
5:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
5:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	0	**0**
6:00 PM	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	0	**0**	0	0	**0**
12 hr Total	**5**	**1**	**6**	**0**	**6**	**0**	**6**	**0**	**11**	**1**	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
AM Peak	**1**	**0**	**1**	**0**	**2**	**0**	**2**	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PM Peak	**1**	**0**	**1**	**0**	**3**	**0**	**3**	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Appendix F

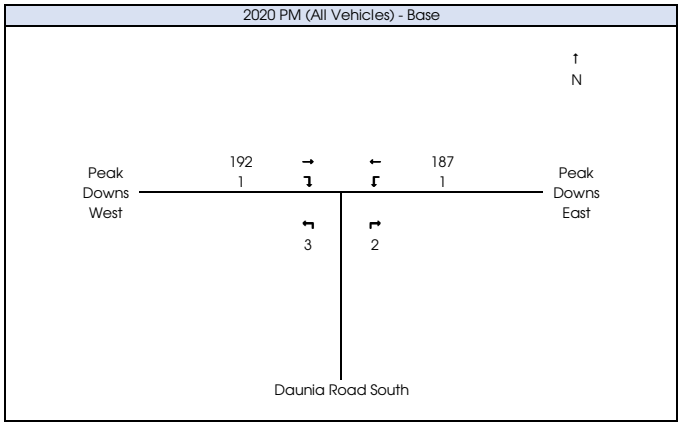
Traffic Flow Diagrams (Proximate Intersections)

Background Traffic Flow Diagrams - Peak Down Hwy / Daunia Road Intersection

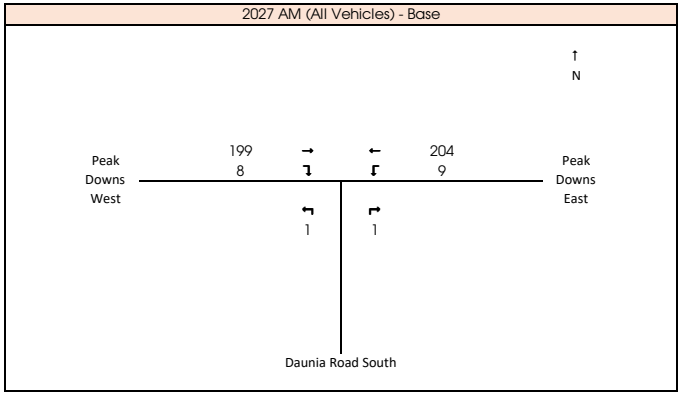
2020 AM (All Vehicles) - Base



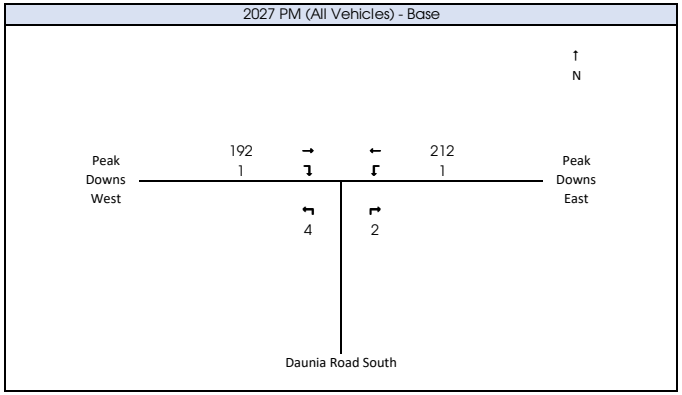
2020 PM (All Vehicles) - Base



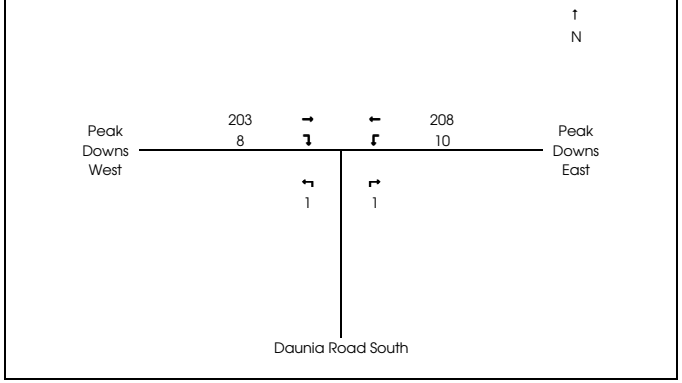
2027 AM (All Vehicles) - Base



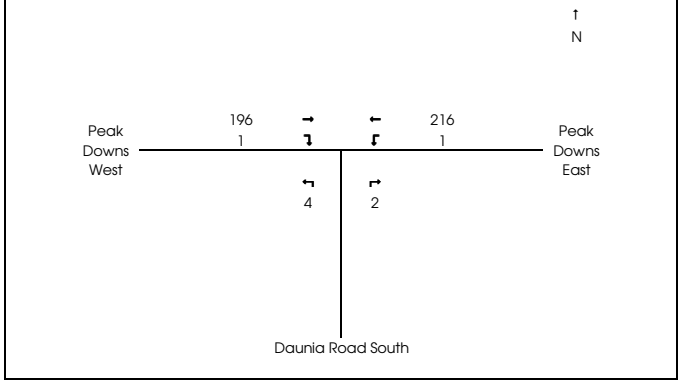
2027 PM (All Vehicles) - Base



2028 AM (All Vehicles) - Base

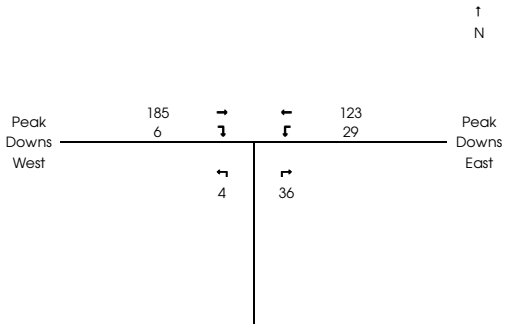


2028 PM (All Vehicles) - Base

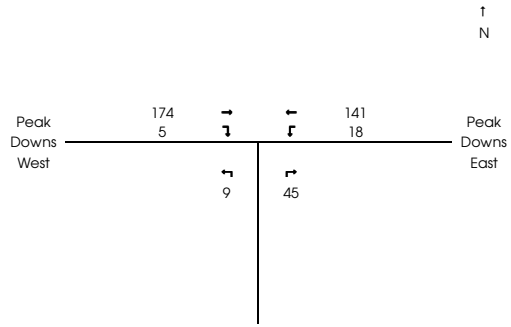


Background Traffic Flow Diagrams - Peak Down Hwy / Fitzroy Developmental Road Intersection

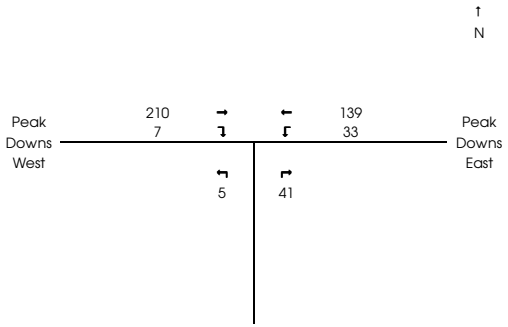
2020 AM (All Vehicles) - Base



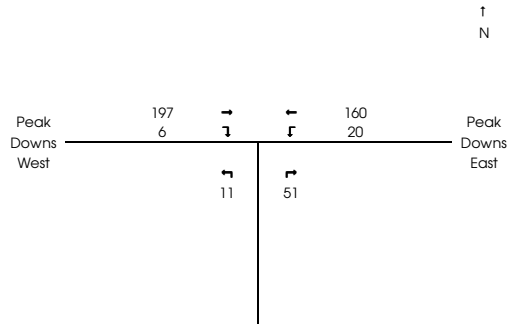
2020 PM (All Vehicles) - Base



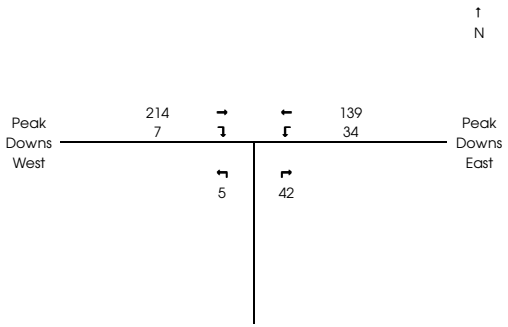
2027 AM (All Vehicles) - Base



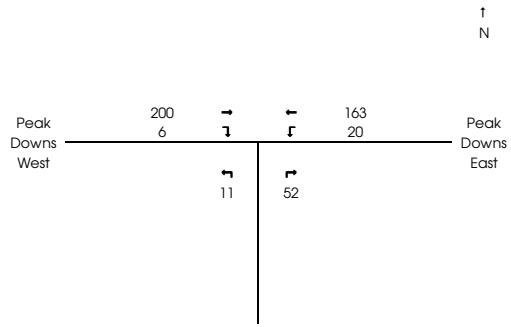
2027 PM (All Vehicles) - Base



2028 AM (All Vehicles) - Base

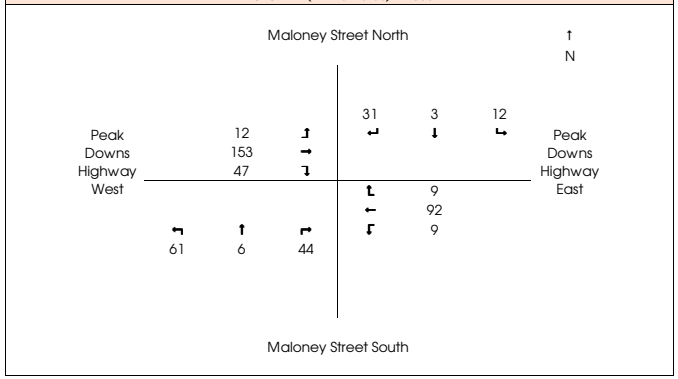


2028 PM (All Vehicles) - Base

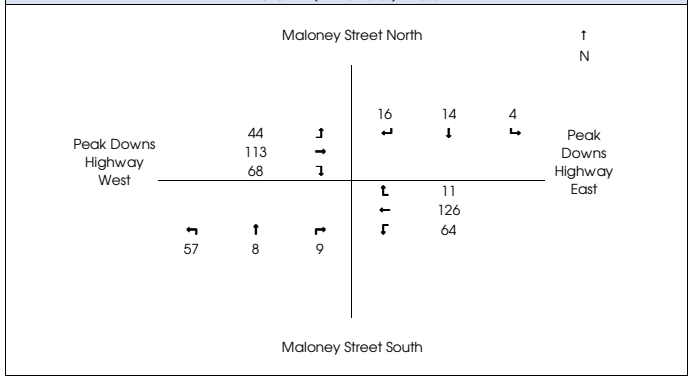


Background Traffic Flow Diagrams - Peak Down Hwy / Maloney Road Intersection

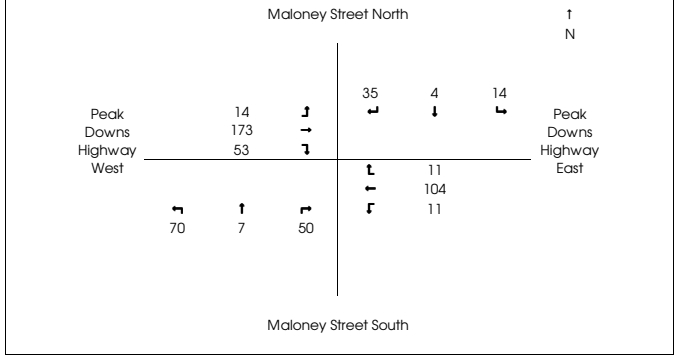
2020 AM (All Vehicles) - Base



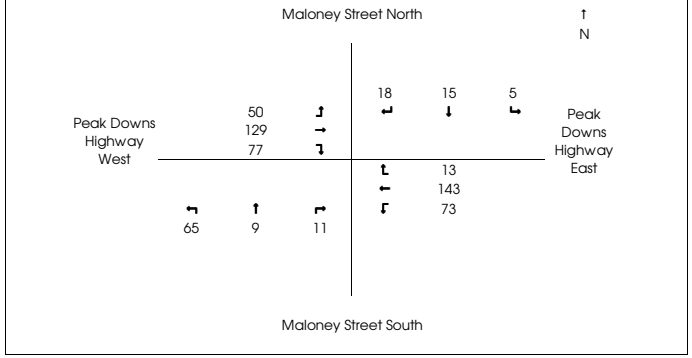
2020 PM (All Vehicles) - Base



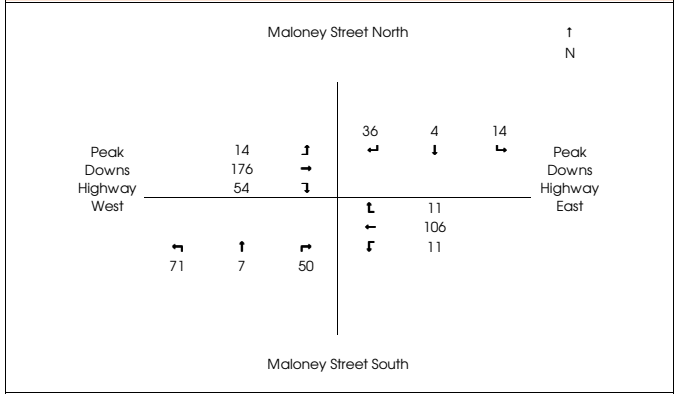
2027 AM (All Vehicles) - Base



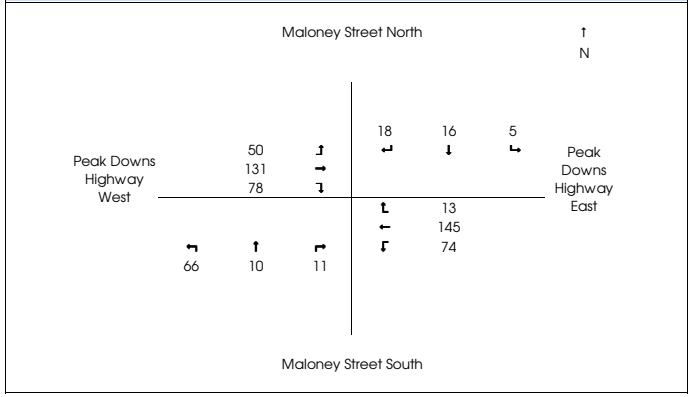
2027 PM (All Vehicles) - Base



2028 AM (All Vehicles) - Base

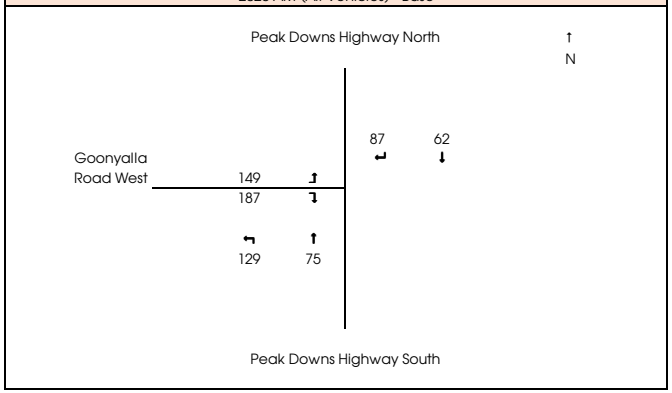


2028 PM (All Vehicles) - Base

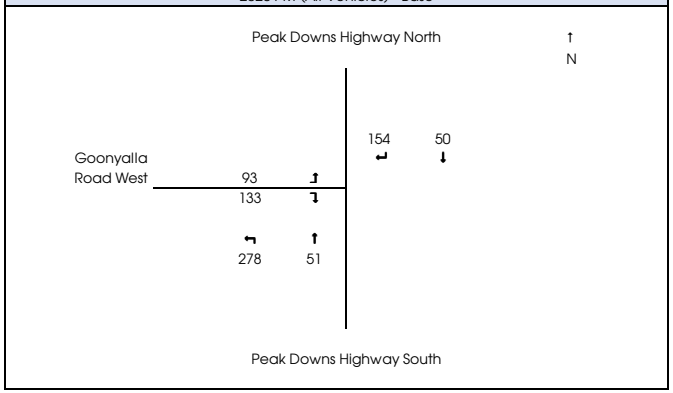


Background Traffic Flow Diagrams - Peak Down Hwy / Moranbah Access Road Intersection

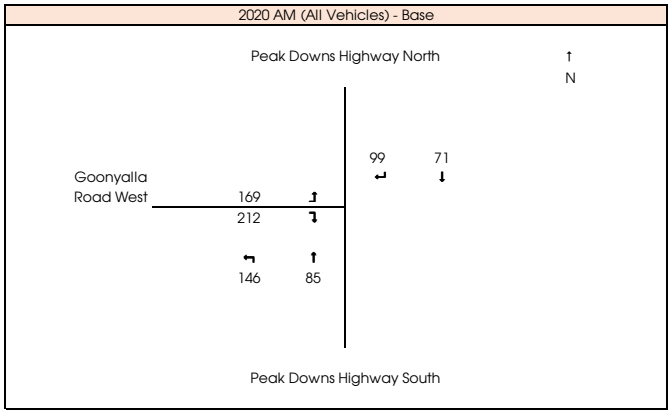
2020 AM (All Vehicles) - Base



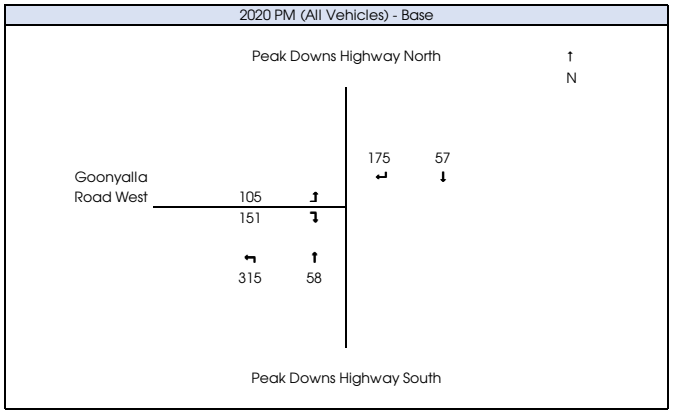
2020 PM (All Vehicles) - Base



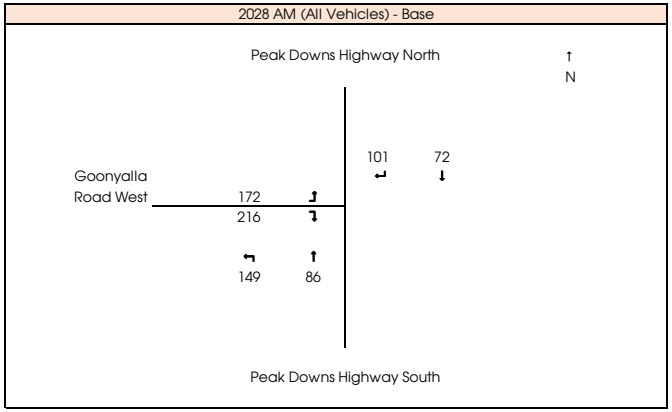
2020 AM (All Vehicles) - Base



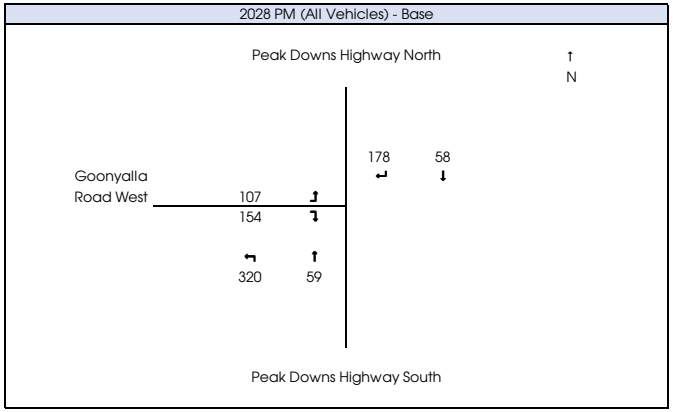
2020 PM (All Vehicles) - Base



2028 AM (All Vehicles) - Base

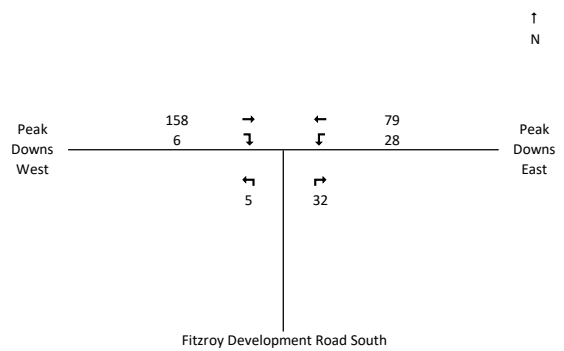


2028 PM (All Vehicles) - Base

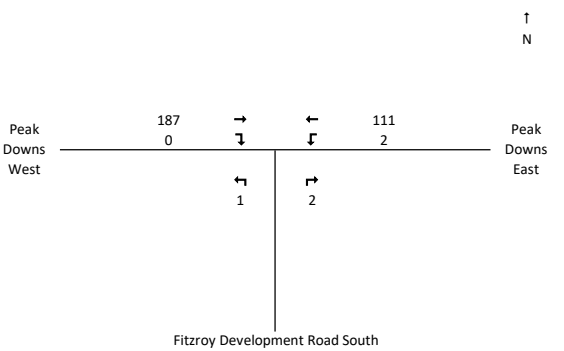


Project Generated Traffic Flow Diagrams - Peak Down Hwy / Fitzroy Developmental Road Intersection

2020 AM (All Vehicles)

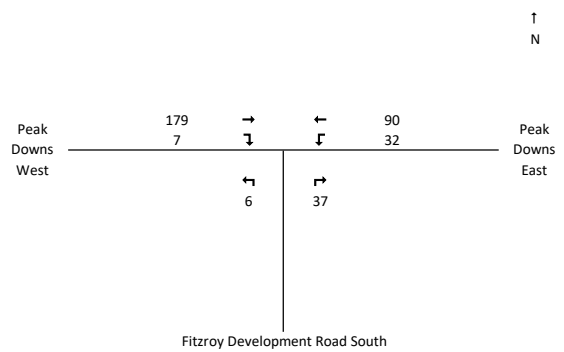


2020 PM (All Vehicles)

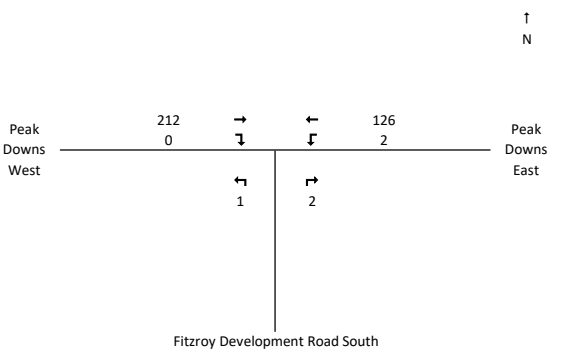


Date 2027

2027 AM (All Vehicles)

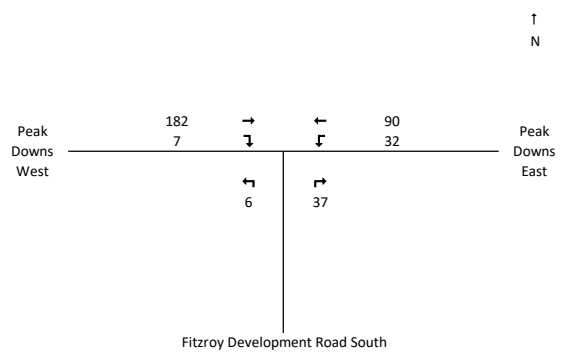


2027 PM (All Vehicles)

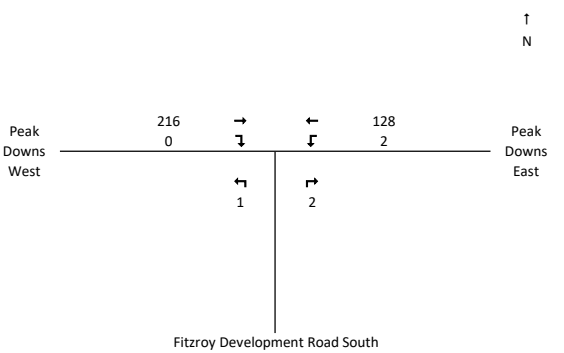


Date 2028

2028 AM (All Vehicles)

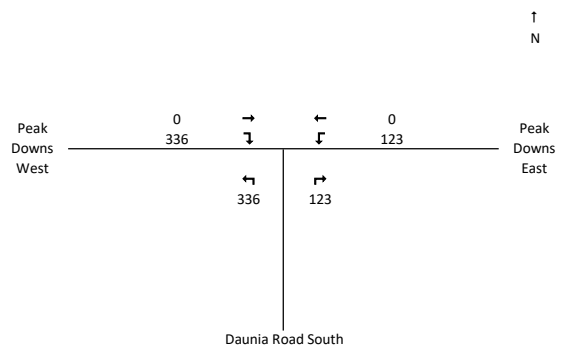


2028 PM (All Vehicles)

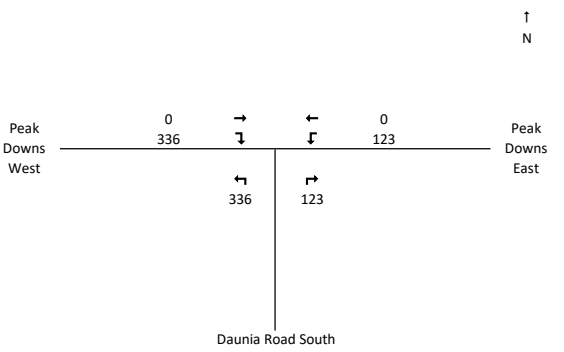


Project Generated Traffic Flow Diagrams - Peak Down Hwy / Daunia Road Intersection

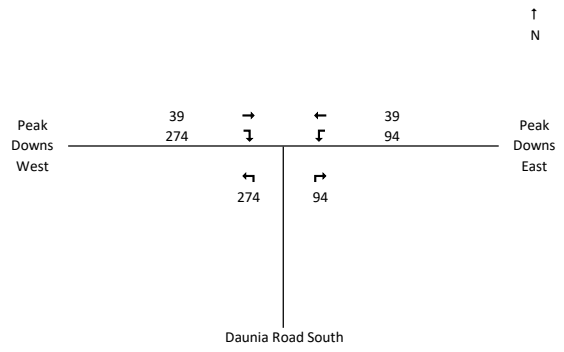
2020 AM (All Vehicles)



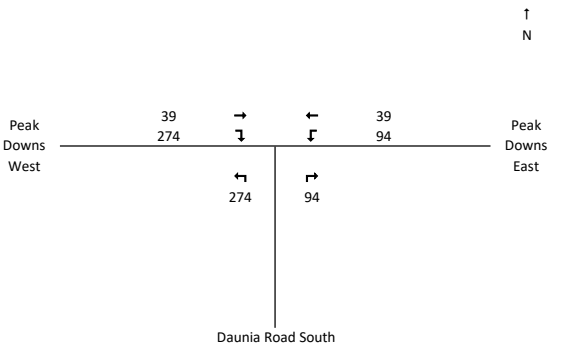
2020 PM (All Vehicles)



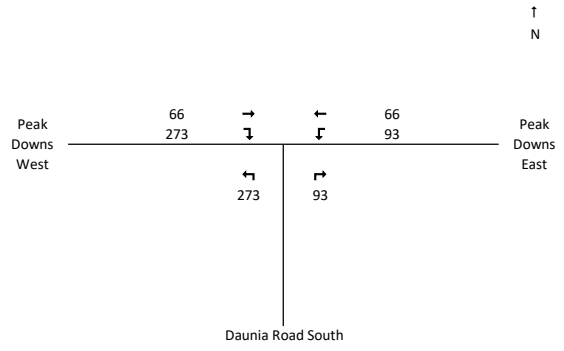
2027 AM (All Vehicles)



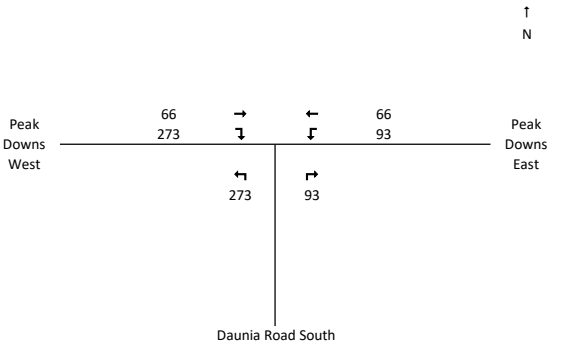
2027 PM (All Vehicles)



2028 AM (All Vehicles)

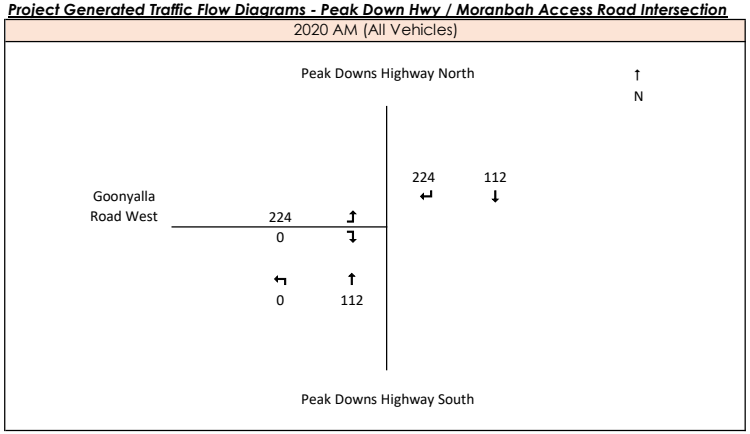


2028 PM (All Vehicles)

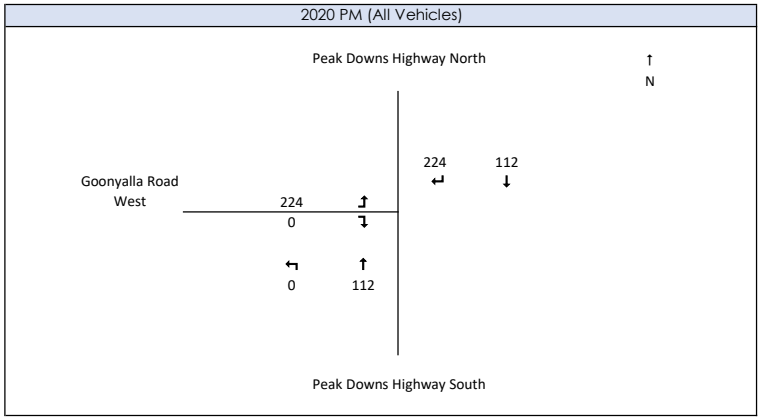


Project Generated Traffic Flow Diagrams - Peak Down Hwy / Moranbah Access Road Intersection

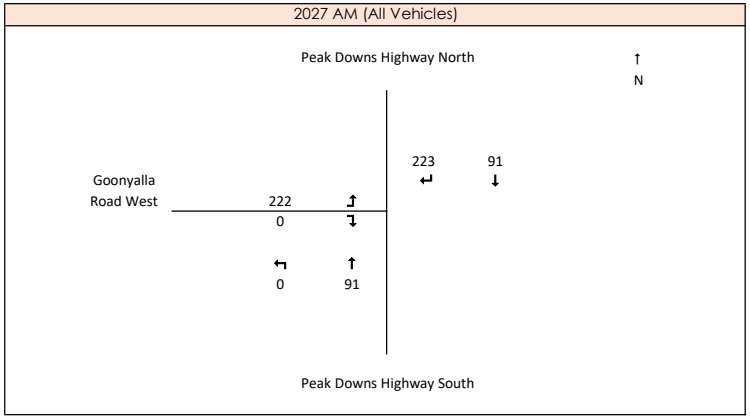
2020 AM (All Vehicles)



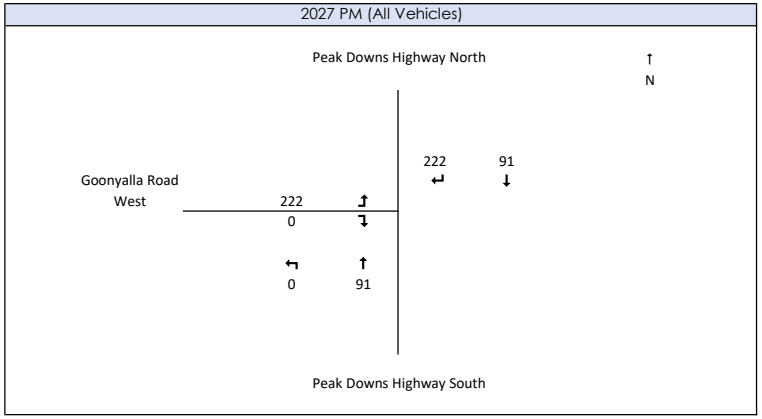
2020 PM (All Vehicles)



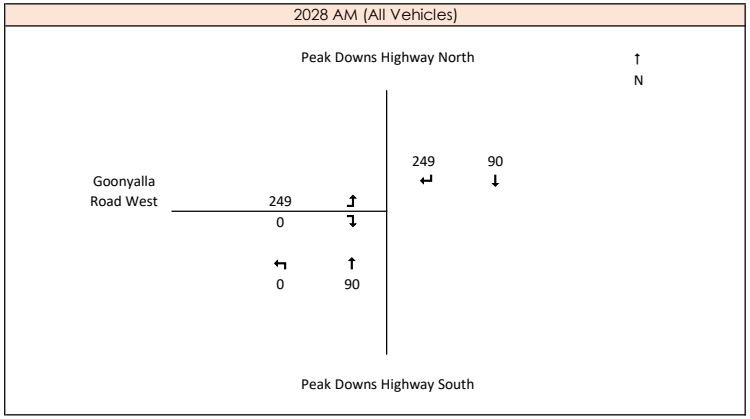
2027 AM (All Vehicles)



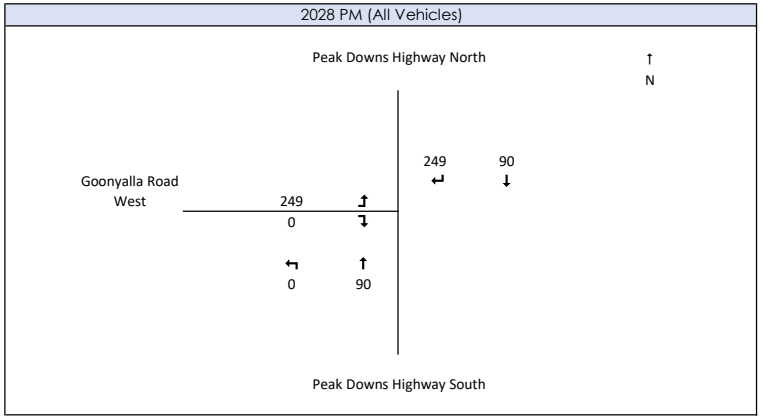
2027 PM (All Vehicles)



2028 AM (All Vehicles)

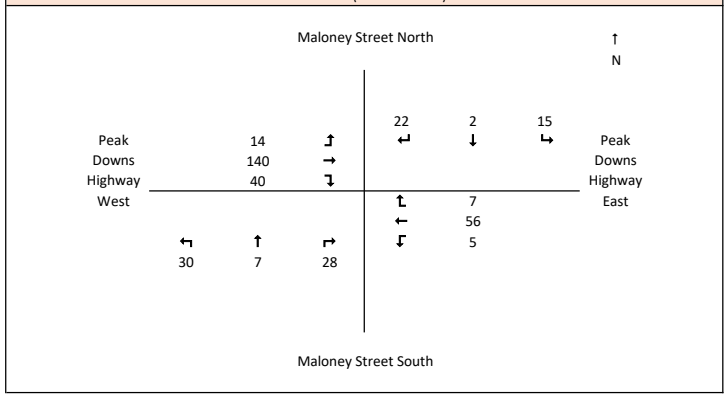


2028 PM (All Vehicles)

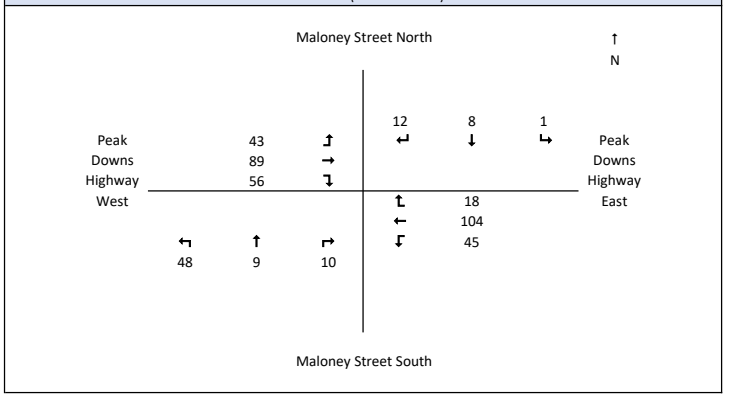


Project Generated Traffic Flow Diagrams - Peak Down Hwy / Maloney Road Intersection

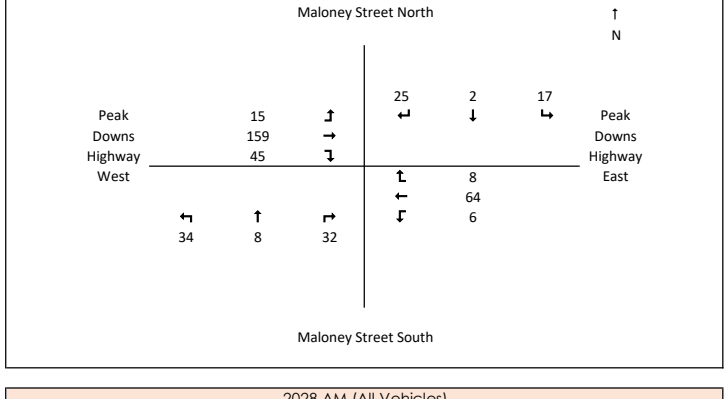
2020 AM (All Vehicles)



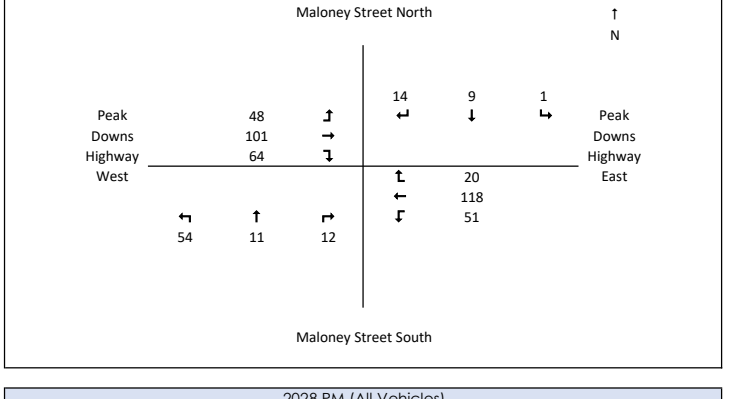
2020 PM (All Vehicles)



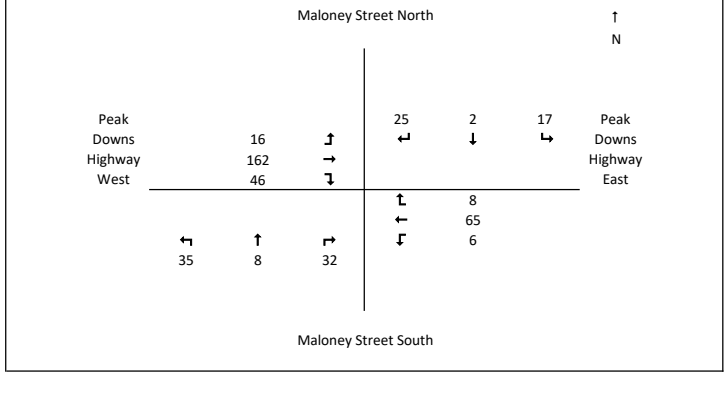
2027 AM (All Vehicles)



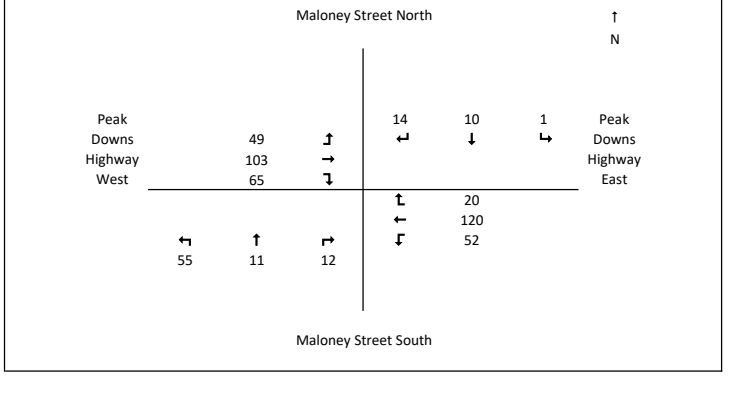
2027 PM (All Vehicles)



2028 AM (All Vehicles)



2028 PM (All Vehicles)

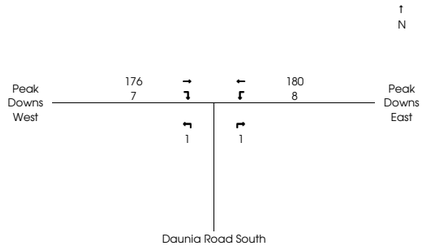


Appendix G

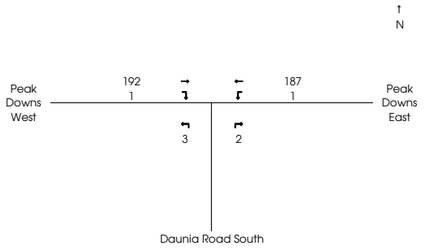
Turn Warrant Assessment Results (Proximate Intersections)

Background Traffic Turn Warrant Assessment - Peak Downs Highway / Daunia Road Intersection

2020 AM (All Vehicles) - Base

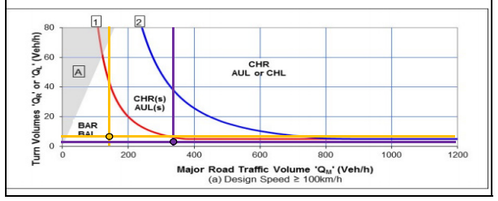


2020 PM (All Vehicles) - Base



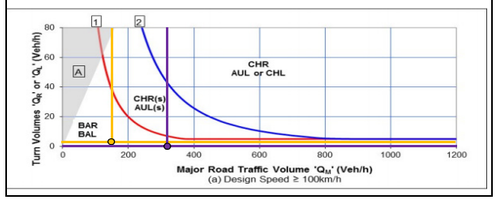
2020 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	8	7			
Qm	180	364			
Turn Treatment	BAL	BAR			

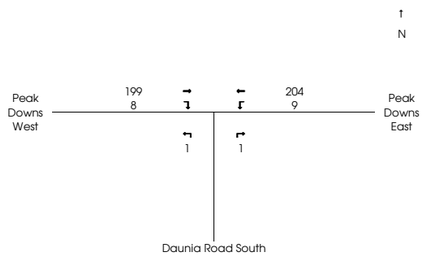


2020 PM (All Vehicles)

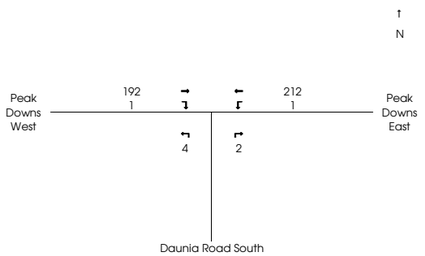
	Left Turn From PD East	Right Turn from PD West			
Ql/r	1	1			
Qm	187	381			
Turn Treatment	BAL	BAR			



2027 AM (All Vehicles) - Base

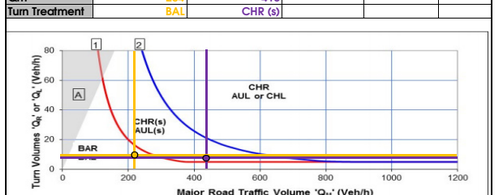


2027 PM (All Vehicles) - Base



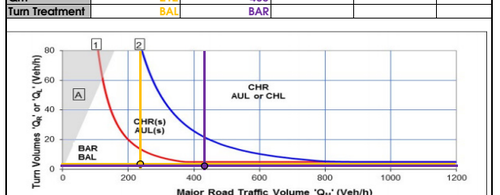
2027 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	9	8			
Qm	204	413			
Turn Treatment	BAL	CHR (s)			

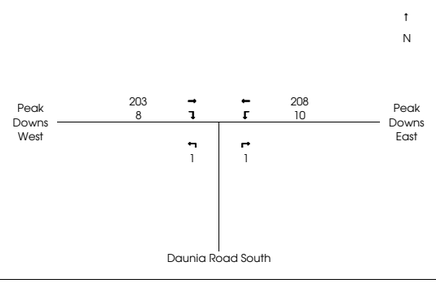


2027 PM (All Vehicles)

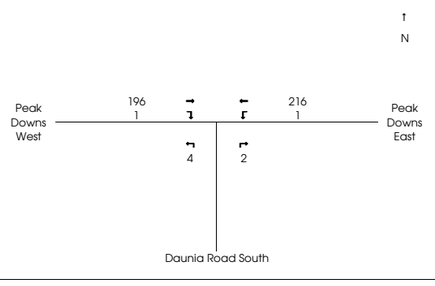
	Left Turn From PD East	Right Turn from PD West			
Ql/r	1	1			
Qm	212	406			
Turn Treatment	BAL	BAR			



2028 AM (All Vehicles) - Base

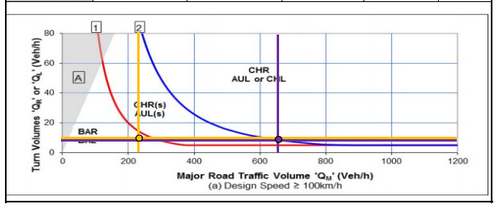


2028 PM (All Vehicles) - Base



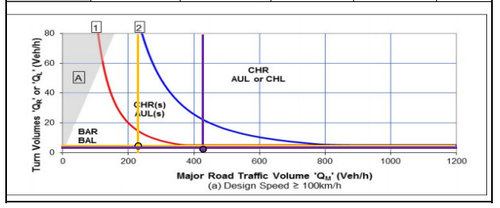
2028 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	10	8			
Qm	208	420			
Turn Treatment	AUL (s)	CHR			



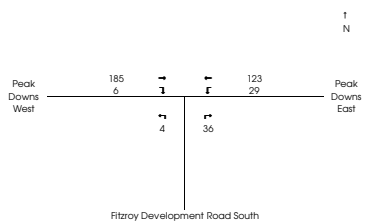
2028 PM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	1	1			
Qm	216	413			
Turn Treatment	BAL	CHR (s)			

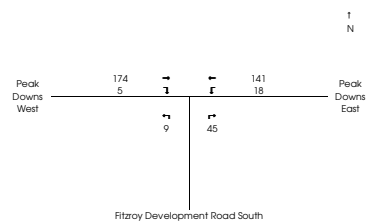


Background Traffic Turn Warrant Assessment - Peak Downs Highway / Fitzroy Developmental Road Intersection

2020 AM (All Vehicles) - Base

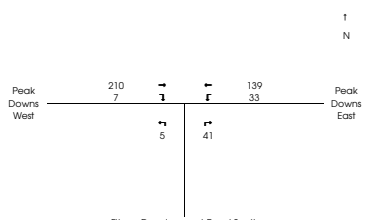


2020 PM (All Vehicles) - Base

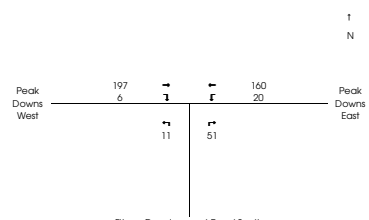


Date 2027

2027 AM (All Vehicles) - Base

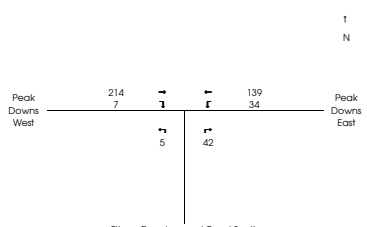


2027 PM (All Vehicles) - Base

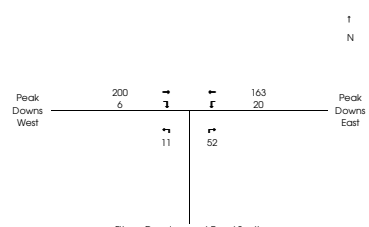


Date 2028

2028 AM (All Vehicles) - Base

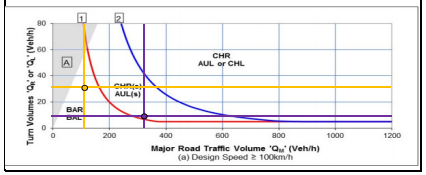


2028 PM (All Vehicles) - Base



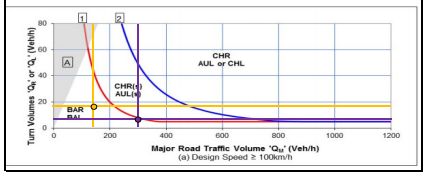
2020 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West
Ql/r	29	6
Qm	123	337
Turn Treatment	BAL	CHR (s)



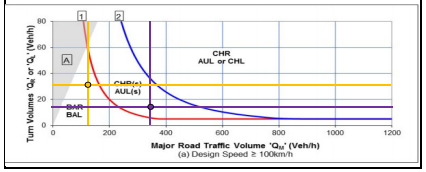
2020 PM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West
Ql/r	18	5
Qm	141	333
Turn Treatment	BAL	CHR (s)



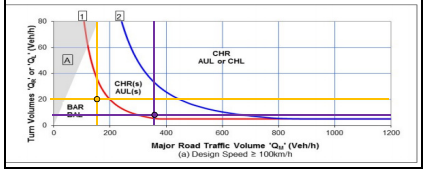
2027 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West
Ql/r	33	7
Qm	139	382
Turn Treatment	BAL	CHR (s)



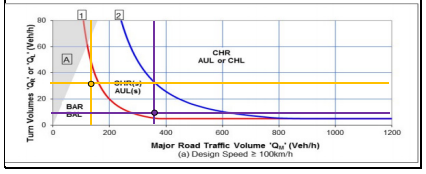
2027 PM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West
Ql/r	20	6
Qm	160	378
Turn Treatment	BAL	CHR (s)



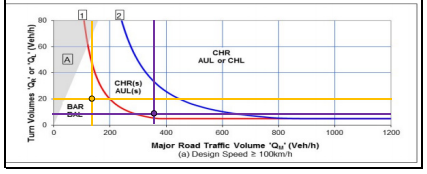
2028 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West
Ql/r	34	7
Qm	139	386
Turn Treatment	BAL	CHR (s)



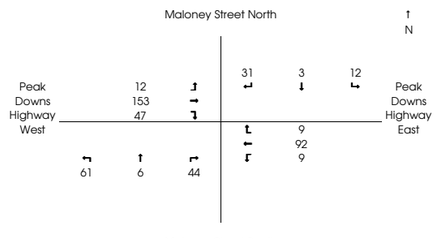
2028 PM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West
Ql/r	20	6
Qm	163	384
Turn Treatment	BAL	CHR (s)

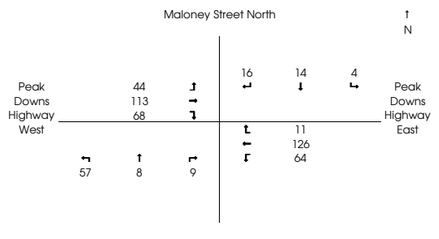


Background Traffic Turn Warrant Assessment - Peak Downs Highway / Maloney Street Intersection

2020 AM (All Vehicles) - Base

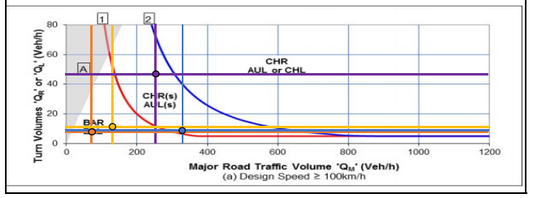


2020 PM (All Vehicles) - Base



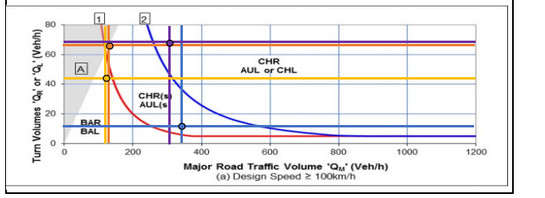
2020 AM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	12	47	9	9
Qm	153	263	92	304
Turn Treatment	BAL	CHR (s)	BAL	CHR (s)



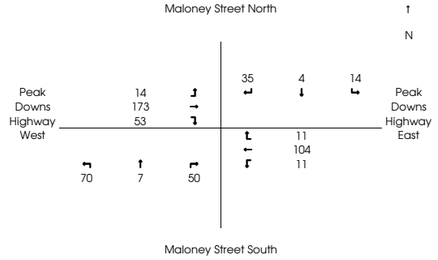
2020 PM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	44	68	64	11
Qm	113	315	126	350
Turn Treatment	BAL	CHR	AUL (s)	CHR (s)

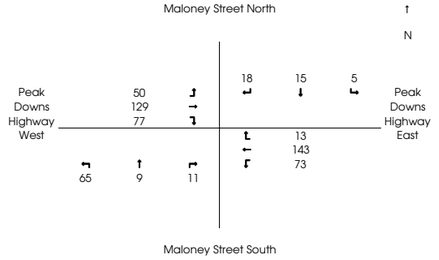


Date 2027

2027 AM (All Vehicles) - Base

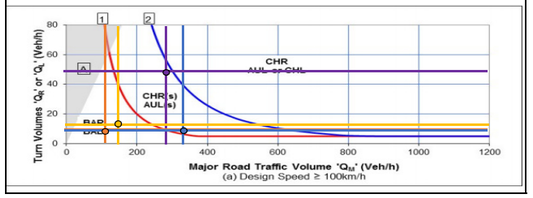


2027 PM (All Vehicles) - Base



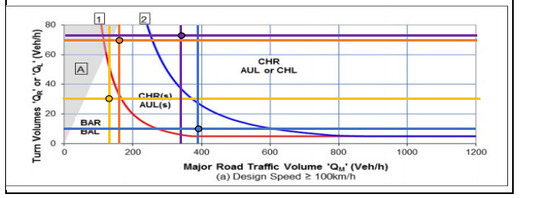
2027 AM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	14	53	11	11
Qm	173	299	104	345
Turn Treatment	BAL	CHR (s)	BAL	CHR (s)



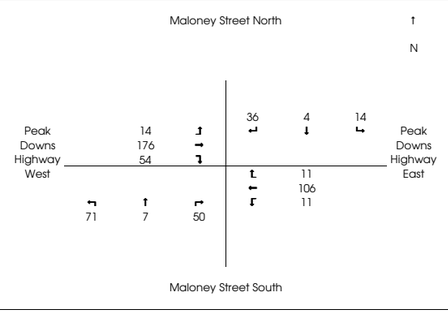
2027 PM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	50	77	73	13
Qm	129	358	143	398
Turn Treatment	BAL	CHR	AUL (s)	CHR (s)

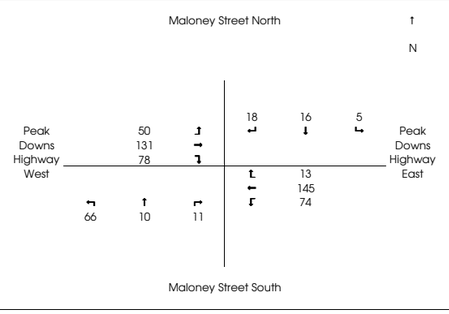


Date 2028

2028 AM (All Vehicles) - Base

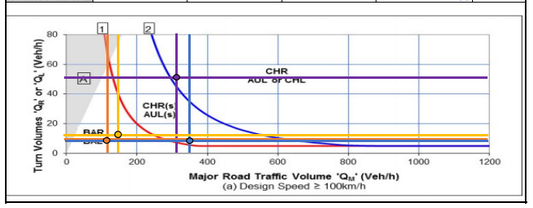


2028 PM (All Vehicles) - Base



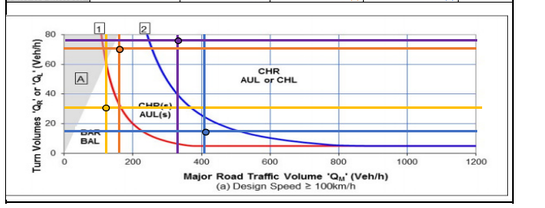
2028 AM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	14	54	11	11
Qm	176	304	106	350
Turn Treatment	BAL	CHR	BAL	CHR (s)



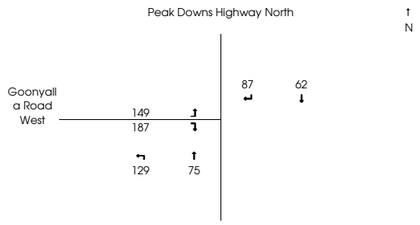
2028 PM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	50	78	74	13
Qm	131	364	145	404
Turn Treatment	BAL	CHR	AUL (s)	CHR (s)

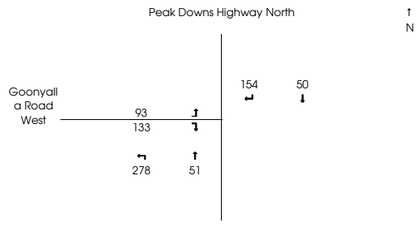


Background Traffic Turn Warrant Assessment - Peak Downs Highway / Moranbah Access Road Intersection

2020 AM (All Vehicles) - Base

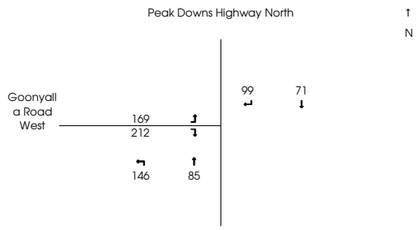


2020 PM (All Vehicles) - Base

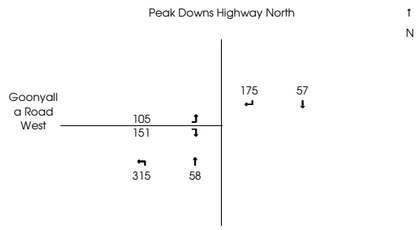


Date 2027

2020 AM (All Vehicles) - Base

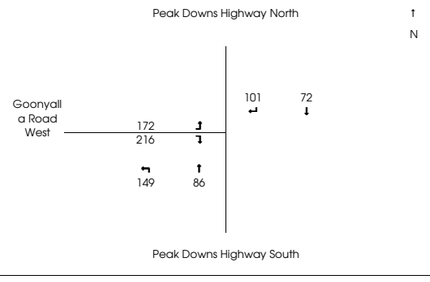


2020 PM (All Vehicles) - Base

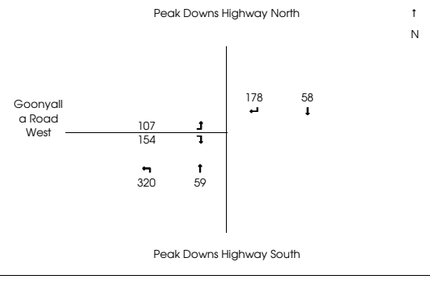


Date 2028

2028 AM (All Vehicles) - Base

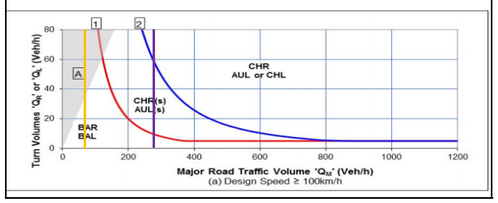


2028 PM (All Vehicles) - Base



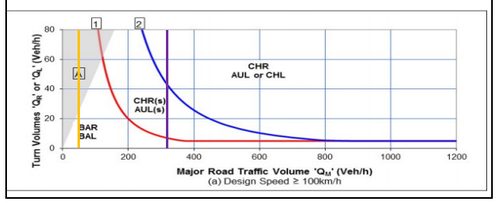
2020 AM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	129	87			
Qm	75	266			
Turn Treatment	AUL (s)	CHR			



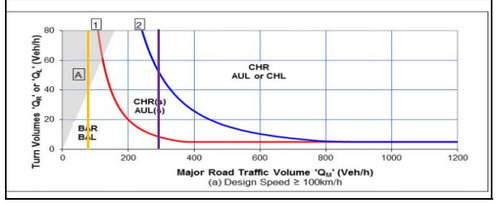
2020 PM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	278	154			
Qm	51	379			
Turn Treatment	AUL (s)	CHR			



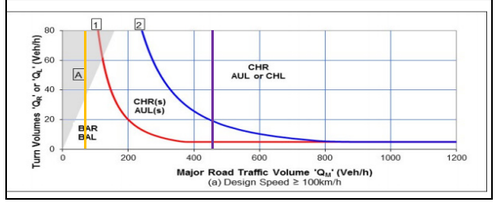
2027 AM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	146	99			
Qm	85	302			
Turn Treatment	AUL (s)	CHR			



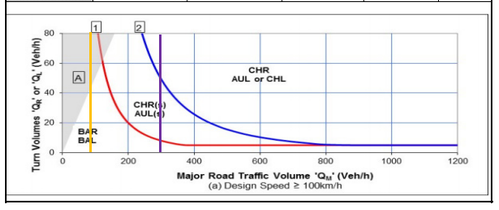
2027 PM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	315	175			
Qm	58	430			
Turn Treatment	AUL (s)	CHR			



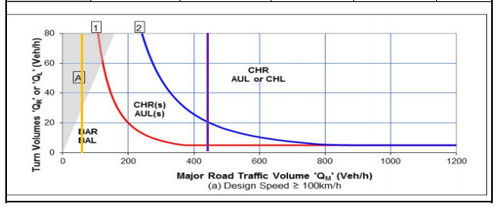
2028 AM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	149	101			
Qm	86	307			
Turn Treatment	AUL (s)	CHR			



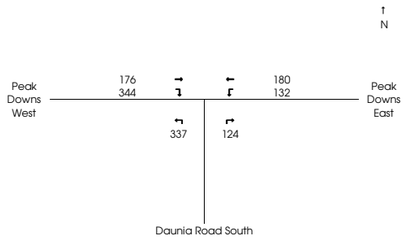
2028 PM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	320	178			
Qm	59	437			
Turn Treatment	AUL (s)	CHR			

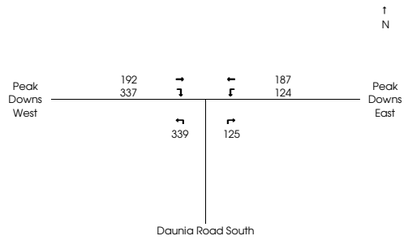


Background Traffic + Project Generated Traffic Turn Warrant Assessment - Peak Downs Highway / Daunia Road Intersection

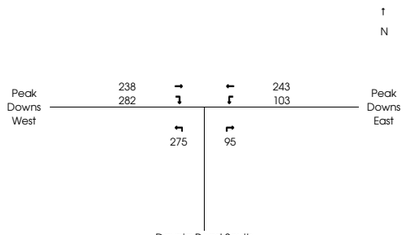
2020 AM (All Vehicles)



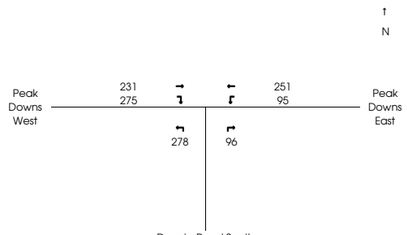
2020 PM (All Vehicles)



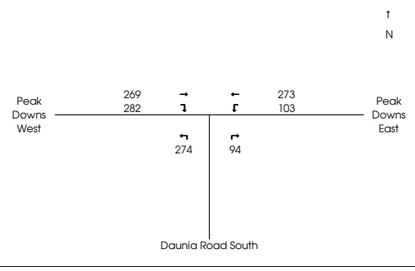
2027 AM (All Vehicles)



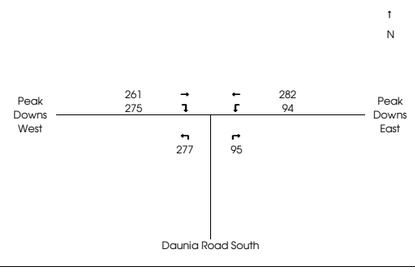
2027 PM (All Vehicles)



2028 AM (All Vehicles)

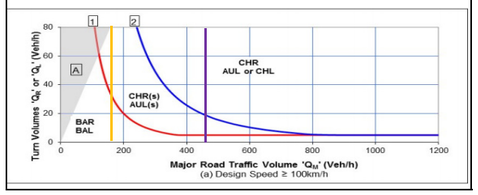


2028 PM (All Vehicles)



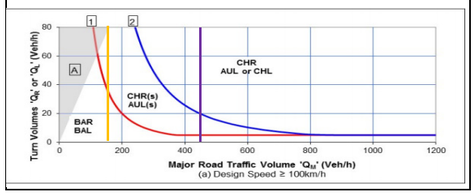
2020 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	132	344			
Qm	180	487			
Turn Treatment	AUL (s)	CHR			



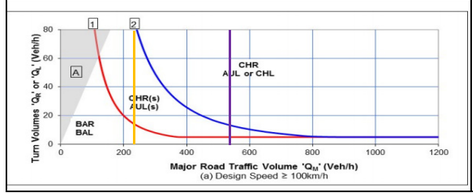
2020 PM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	124	337			
Qm	187	504			
Turn Treatment	AUL (s)	CHR			



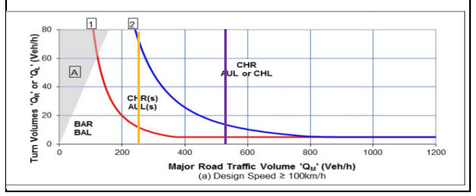
2027 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	103	282			
Qm	243	584			
Turn Treatment	AUL	CHR			



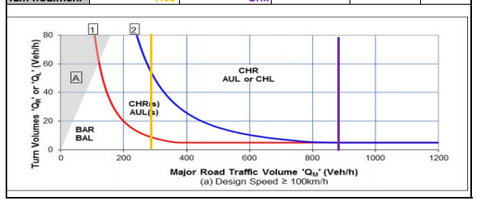
2027 PM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	95	275			
Qm	251	577			
Turn Treatment	AUL	CHR			



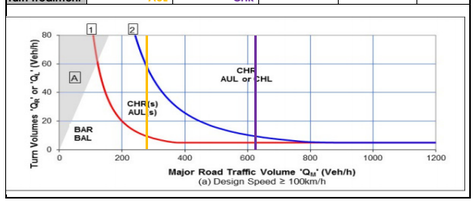
2028 AM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	103	282			
Qm	273	645			
Turn Treatment	AUL	CHR			



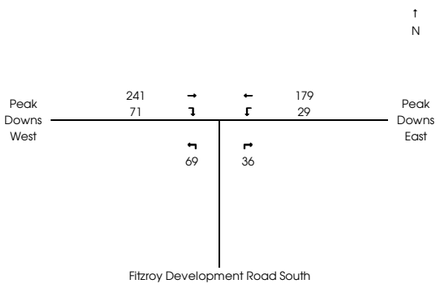
2028 PM (All Vehicles)

	Left Turn From PD East	Right Turn from PD West			
Ql/r	94	275			
Qm	282	638			
Turn Treatment	AUL	CHR			



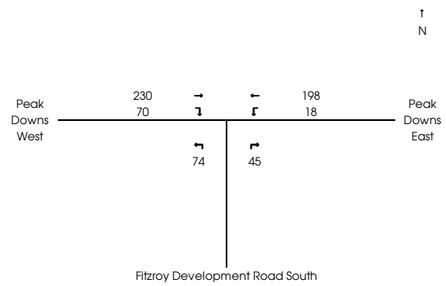
Background Traffic + Project Generated Traffic Turn Warrant Assessment - Peak Downs Highway / Fitzroy Developmental Road Intersection

2020 AM (All Vehicles)

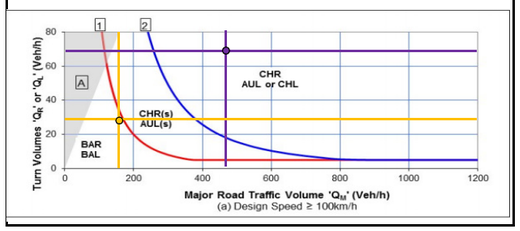


Date 2027

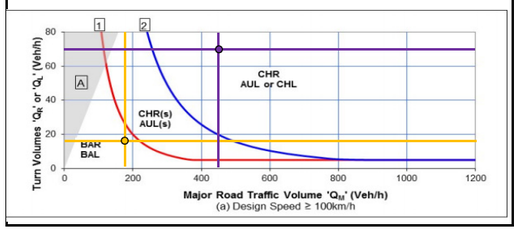
2020 PM (All Vehicles)



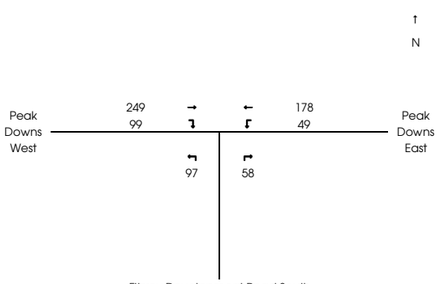
2020 AM (All Vehicles)	Left Turn From PD East	Right Turn from PD West			
Ql/r	29	71			
Qm	179	450			
Turn Treatment	AUL (s)	CHR			



2020 PM (All Vehicles)	Left Turn From PD East	Right Turn from PD West			
Ql/r	18	70			
Qm	198	446			
Turn Treatment	BAL	CHR			

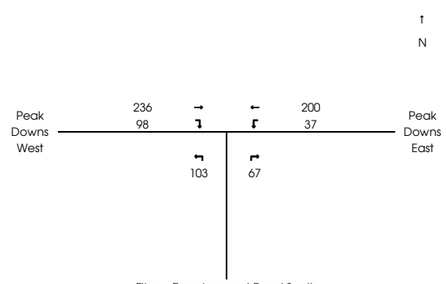


2027 AM (All Vehicles)

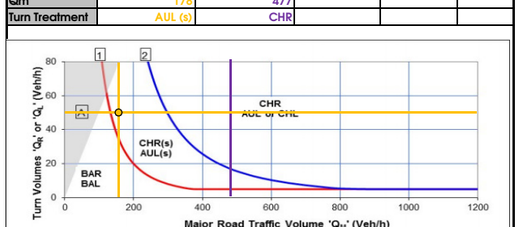


Date 2028

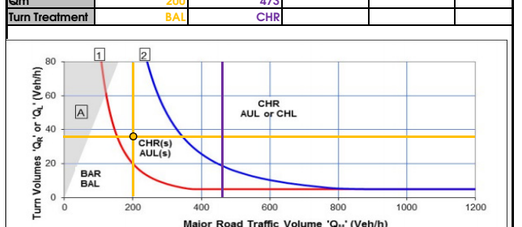
2027 PM (All Vehicles)



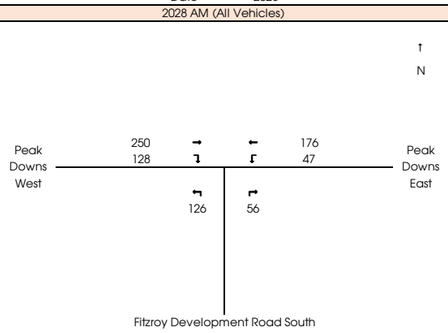
2027 AM (All Vehicles)	Left Turn From PD East	Right Turn from PD West			
Ql/r	49	99			
Qm	178	477			
Turn Treatment	AUL (s)	CHR			



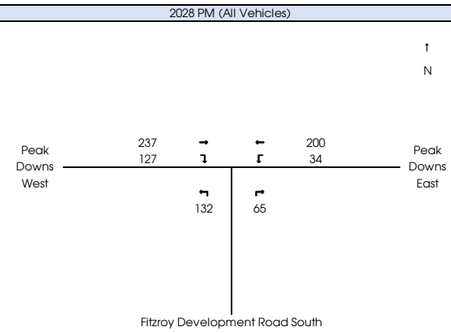
2027 PM (All Vehicles)	Left Turn From PD East	Right Turn from PD West			
Ql/r	37	98			
Qm	200	473			
Turn Treatment	BAL	CHR			



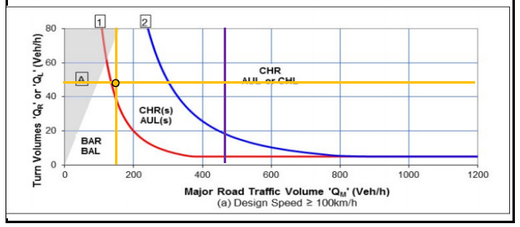
2028 AM (All Vehicles)



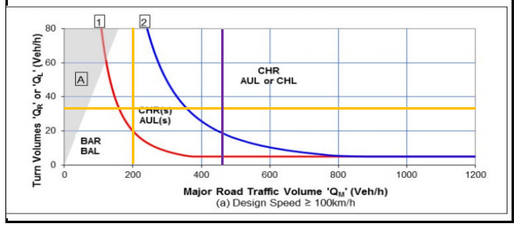
2028 PM (All Vehicles)



2028 AM (All Vehicles)	Left Turn From PD East	Right Turn from PD West			
Ql/r	47	128			
Qm	176	474			
Turn Treatment	AUL (s)	CHR			

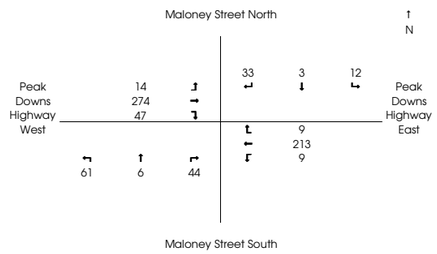


2028 PM (All Vehicles)	Left Turn From PD East	Right Turn from PD West			
Ql/r	34	127			
Qm	200	471			
Turn Treatment	AUL (s)	CHR			

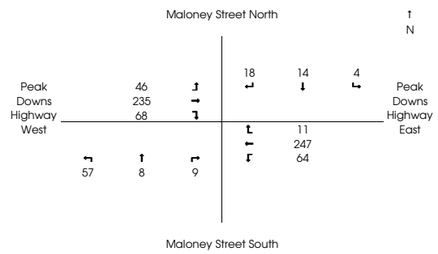


Background Traffic + Project Generated Traffic Turn Warrant Assessment - Peak Downs Highway / Maloney Street Intersection

2020 AM (All Vehicles)

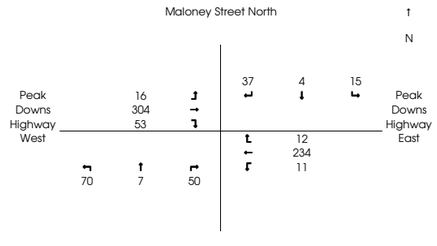


2020 PM (All Vehicles)

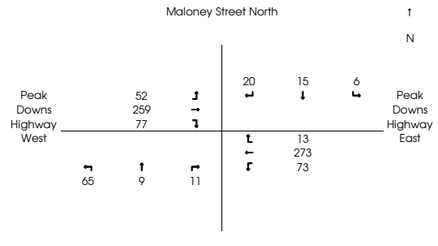


Date 2027

2027 AM (All Vehicles)

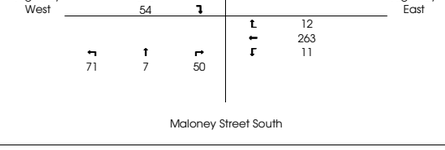


2027 PM (All Vehicles)

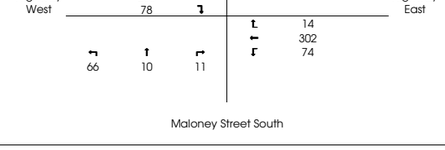


Date 2028

2028 AM (All Vehicles)

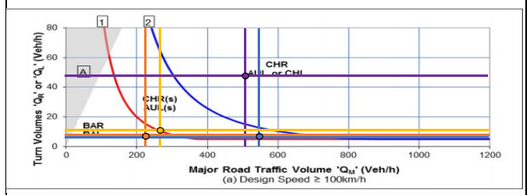


2028 PM (All Vehicles)



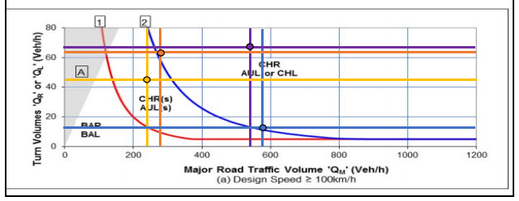
2020 AM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	14	47	9	9
Qm	274	506	213	548
Turn Treatment	AUL (s)	CHR	BAL	CHR (s)



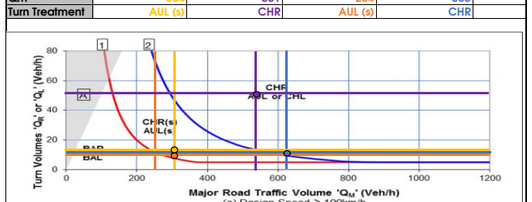
2020 PM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	46	68	64	11
Qm	235	558	247	595
Turn Treatment	AUL (s)	CHR	AUL	CHR



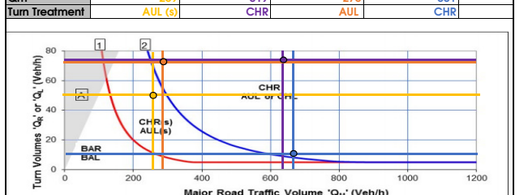
2027 AM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	16	53	11	12
Qm	304	561	234	608
Turn Treatment	AUL (s)	CHR	AUL (s)	CHR



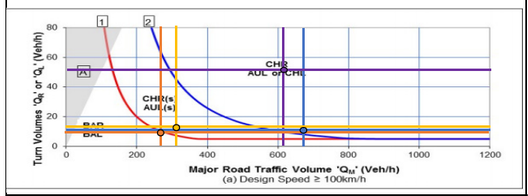
2027 PM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	52	77	73	13
Qm	259	619	273	661
Turn Treatment	AUL (s)	CHR	AUL	CHR



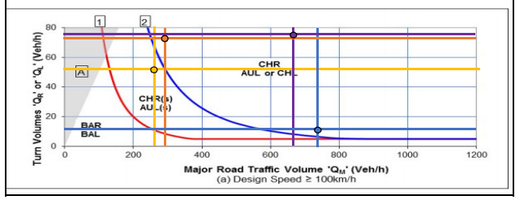
2028 AM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	16	54	11	12
Qm	333	618	263	666
Turn Treatment	AUL (s)	CHR	AUL (s)	CHR



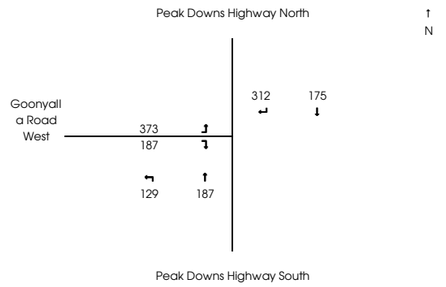
2028 PM (All Vehicles)

	Left Turn From PD West to Maloney North	Right Turn from PD West to Maloney South	Left From PD East to Maloney South	Right from PD East to Maloney North
Ql/r	52	78	74	14
Qm	288	678	302	720
Turn Treatment	AUL (s)	CHR	AUL	CHR



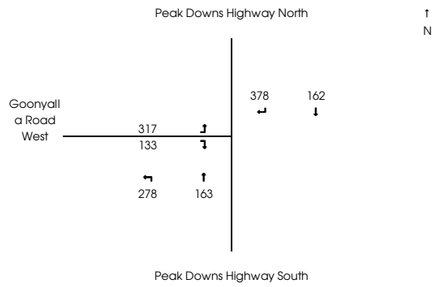
Background Traffic + Project Generated Traffic Turn Warrant Assessment - Peak Downs Highway / Moranbah Access Road Intersection

2020 AM (All Vehicles)

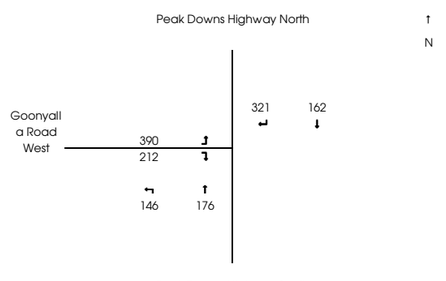


Date 2027

2020 PM (All Vehicles)

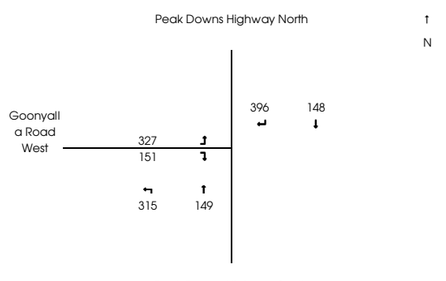


2027 AM (All Vehicles)

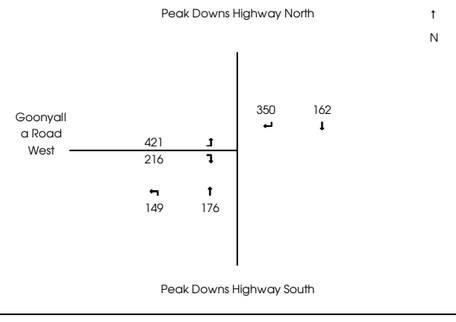


Date 2028

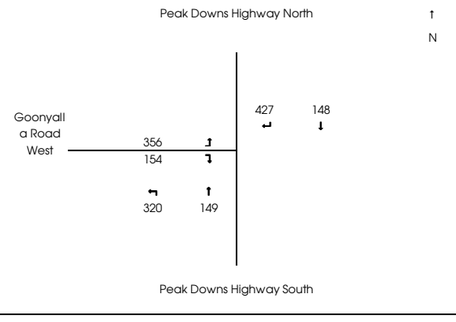
2027 PM (All Vehicles)



2028 AM (All Vehicles)

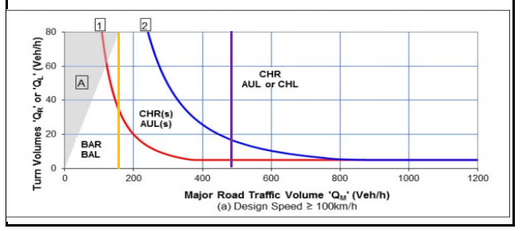


2028 PM (All Vehicles)



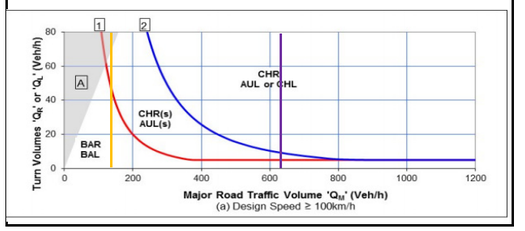
2020 AM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	129	312			
Qm	187	490			
Turn Treatment	AUL (s)	CHR			



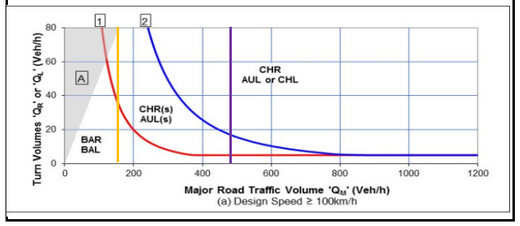
2020 PM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	278	378			
Qm	163	603			
Turn Treatment	AUL (s)	CHR			



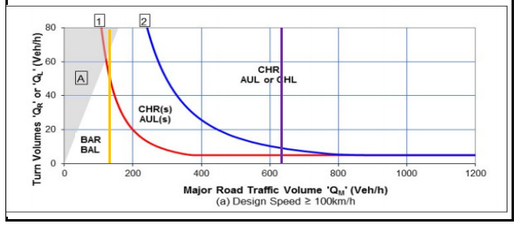
2027 AM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	146	321			
Qm	176	484			
Turn Treatment	AUL (s)	CHR			



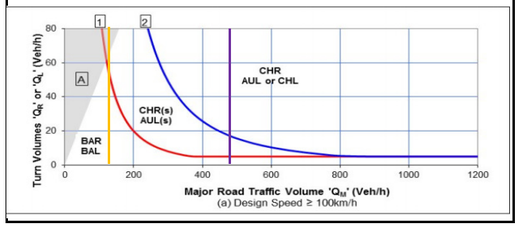
2027 PM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	315	396			
Qm	149	612			
Turn Treatment	AUL (s)	CHR			



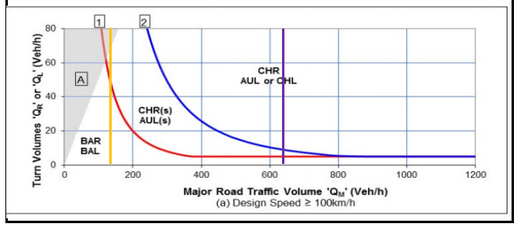
2028 AM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	149	350			
Qm	176	487			
Turn Treatment	AUL (s)	CHR			



2028 PM (All Vehicles)

	Left Turn From PD South	Right Turn from PD North			
Ql/r	320	427			
Qm	149	617			
Turn Treatment	AUL (s)	CHR			

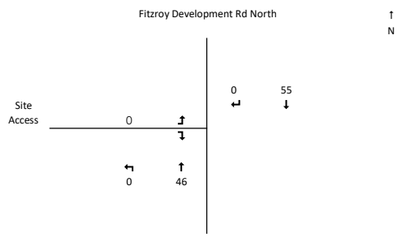


Appendix H

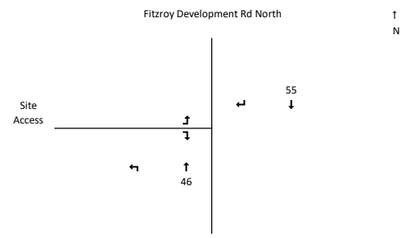
Turn Warrant Assessment Results (Access Points)

Site Access Location Turn Warrant Assessment - Willunga Domain

2020 AM (All Vehicles)

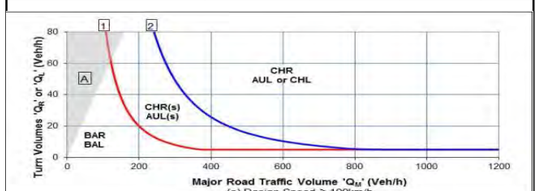


2020 PM (All Vehicles)



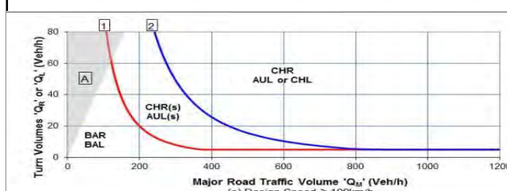
2020 AM (All Vehicles)

	Left Turn onto Fitzroy North	Right Turn onto Fitzroy South	Left from Fitzroy South	Right from Fitzroy North	
Ql/r					
Qm					
Turn Treatment					

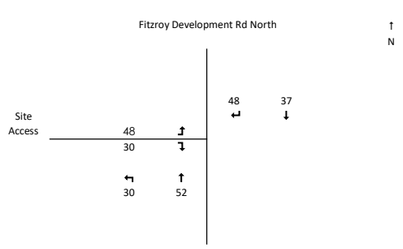


2020 PM (All Vehicles)

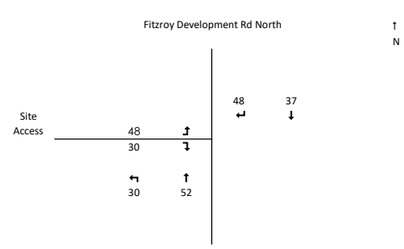
	Left Turn onto Fitzroy North	Right Turn onto Fitzroy South	Left from Fitzroy South	Right from Fitzroy North	
Ql/r					
Qm					
Turn Treatment					



2027 AM (All Vehicles)

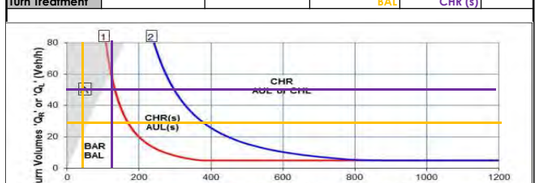


2027 PM (All Vehicles)



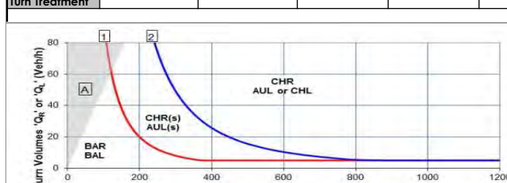
2027 AM (All Vehicles)

	Left Turn onto Fitzroy North	Right Turn onto Fitzroy South	Left from Fitzroy South	Right from Fitzroy North	
Ql/r			30	48	
Qm			52	119	
Turn Treatment			BAL	CHR (s)	

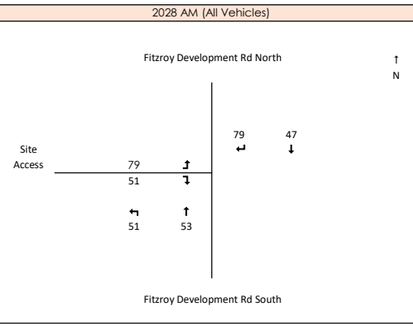


2027 PM (All Vehicles)

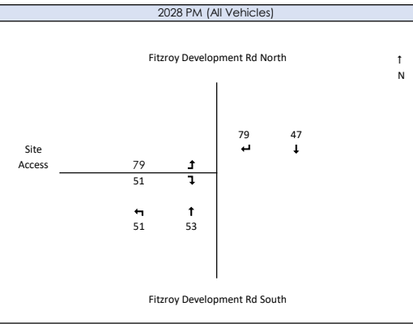
	Left Turn onto Fitzroy North	Right Turn onto Fitzroy South	Left from Fitzroy South	Right from Fitzroy North	
Ql/r					
Qm					
Turn Treatment					



2028 AM (All Vehicles)

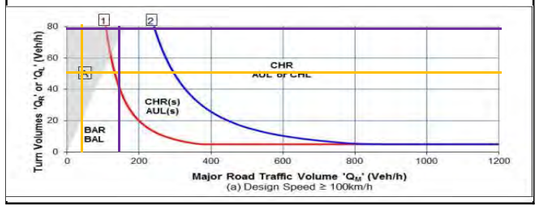


2028 PM (All Vehicles)



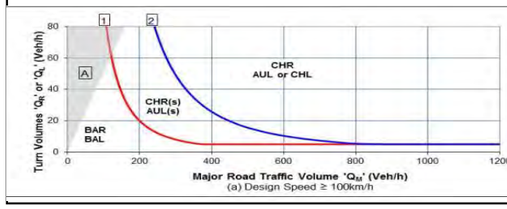
2028 AM (All Vehicles)

	Left Turn onto Fitzroy North	Right Turn onto Fitzroy South	Left from Fitzroy South	Right from Fitzroy North	
Ql/r			51	79	
Qm			53	151	
Turn Treatment			BAL	CHR(s)	



2028 PM (All Vehicles)

	Left Turn onto Fitzroy North	Right Turn onto Fitzroy South	Left from Fitzroy South	Right from Fitzroy North	
Ql/r					
Qm					
Turn Treatment					



Appendix I

Pavement Impact Assessment (PIA)

Background Traffic SAR - Gazetted

Section ID	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	Cumulative SAR
150013	1.91E+08	2.02E+08	2.02E+08	2.53E+08	2.53E+08	2.70E+08	3.16E+08	3.33E+08	3.33E+08	4.39E+08	7.76E+10	8.46E+10	9.22E+10	5.24E+08	5.25E+08	6.31E+08	6.31E+08	6.60E+08	7.54E+08	7.95E+08	7.96E+08	9.43E+08	9.43E+08	9.83E+08	1.16E+09	1.16E+09	1.22E+09	4.66E+08	1.42E+09	1.42E+09	2.72E+11
159613	3.40E+10	3.74E+10	4.08E+10	4.43E+10	4.80E+10	5.27E+10	7.40E+11	3.86E+13	6.65E+10	6.34E+10	9.47E+12	1.01E+13	1.12E+13	9.77E+10	1.05E+11	1.12E+11	1.20E+11	1.30E+11	1.38E+11	1.48E+11	1.58E+11	1.70E+11	1.81E+11	2.02E+11	2.17E+11	2.30E+11	2.44E+11	4.22E+10	2.77E+11	2.92E+11	7.34E+13
150012	7.14E+10	7.81E+10	8.36E+10	9.12E+10	9.94E+10	1.13E+11	4.67E+10	8.19E+10	1.42E+11	1.88E+11	6.39E+14	6.87E+14	7.47E+14	2.12E+11	2.28E+11	2.45E+11	2.63E+11	2.77E+11	2.97E+11	3.30E+11	3.52E+11	3.76E+11	3.95E+11	4.22E+11	4.49E+11	4.78E+11	5.26E+11	2.17E+11	5.85E+11	6.21E+11	2.08E+15
80147	9.06E+10	9.89E+10	1.08E+11	1.21E+11	1.31E+11	1.43E+11	1.20E+11	3.77E+10	1.81E+11	3.32E+11	7.27E+14	7.90E+14	8.46E+14	2.69E+11	2.96E+11	3.18E+11	3.40E+11	3.64E+11	3.89E+11	4.16E+11	4.54E+11	4.84E+11	5.15E+11	5.48E+11	5.83E+11	6.33E+11	6.72E+11	5.53E+11	7.56E+11	8.01E+11	2.37E+15
80146	4.87E+11	5.31E+11	5.78E+11	6.37E+11	6.92E+11	7.60E+11	6.29E+11	2.06E+11	9.73E+11	1.75E+12	2.41E+12	2.63E+12	2.87E+12	1.44E+12	1.54E+12	1.65E+12	1.78E+12	1.91E+12	2.04E+12	2.20E+12	2.34E+12	2.52E+12	2.69E+12	2.90E+12	3.12E+12	3.31E+12	3.55E+12	2.91E+12	3.98E+12	4.26E+12	5.93E+13
80197	1.70E+11	1.81E+11	2.11E+11	2.18E+11	2.46E+11	2.60E+11	1.68E+10	2.91E+11	3.46E+11	2.54E+11	2.58E+13	2.80E+13	3.03E+13	5.01E+11	5.52E+11	5.82E+11	6.40E+11	6.74E+11	7.39E+11	7.77E+11	8.50E+11	8.92E+11	9.33E+11	1.02E+12	1.07E+12	1.16E+12	1.21E+12	1.14E+11	1.38E+12	1.49E+12	1.01E+14
82884	4.11E+12	4.53E+12	4.97E+12	5.45E+12	5.97E+12	6.51E+12	6.59E+12	4.32E+11	8.30E+12	1.68E+13	2.10E+14	2.26E+14	2.47E+14	1.24E+13	1.32E+13	1.42E+13	1.54E+13	1.65E+13	1.78E+13	1.91E+13	2.05E+13	2.19E+13	2.32E+13	2.48E+13	2.66E+13	2.83E+13	3.03E+13	3.05E+13	3.44E+13	3.66E+13	1.13E+15
80009	1.04E+12	1.14E+12	1.24E+12	1.35E+12	1.46E+12	1.65E+12	6.70E+10	1.86E+12	2.09E+12	1.50E+12	6.38E+13	6.83E+13	7.47E+13	3.13E+12	3.35E+12	3.59E+12	3.84E+12	4.11E+12	4.40E+12	4.84E+12	5.16E+12	5.50E+12	5.86E+12	6.23E+12	6.63E+12	7.04E+12	7.69E+12	5.64E+11	8.64E+12	9.15E+12	3.10E+14
83159	3.76E+12	4.08E+12	4.48E+12	4.93E+12	5.41E+12	5.84E+12	5.73E+12	7.00E+11	7.59E+12	1.50E+13	3.46E+14	3.75E+14	4.06E+14	1.11E+13	1.20E+13	1.30E+13	1.40E+13	1.50E+13	1.61E+13	1.73E+13	1.86E+13	1.97E+13	2.11E+13	2.27E+13	2.40E+13	2.57E+13	2.75E+13	2.65E+13	3.09E+13	3.30E+13	1.53E+15
80020	2.11E+13	2.32E+13	2.55E+13	2.76E+13	3.02E+13	3.31E+13	3.54E+13	7.67E+11	4.28E+13	8.88E+13	4.26E+14	4.60E+14	4.97E+14	6.33E+13	6.77E+13	7.30E+13	7.87E+13	8.47E+13	9.11E+13	9.78E+13	1.04E+14	1.12E+14	1.19E+14	1.28E+14	1.37E+14	1.45E+14	1.54E+14	1.62E+14	1.76E+14	1.87E+14	3.69E+15
82777	1.99E+13	5.49E+13	6.03E+13	6.58E+13	7.21E+13	7.84E+13	8.21E+13	4.30E+13	1.01E+14	1.25E+14	2.45E+15	2.65E+15	2.86E+15	1.50E+14	1.61E+14	1.73E+14	1.87E+14	2.01E+14	2.16E+14	2.31E+14	2.47E+14	2.65E+14	2.83E+14	3.02E+14	3.23E+14	3.44E+14	3.67E+14	3.73E+14	4.16E+14	4.44E+14	1.33E+16
82778	6.59E+14	7.25E+14	7.96E+14	8.68E+14	9.50E+14	1.03E+15	1.12E+15	1.08E+13	1.33E+15	2.78E+15	2.37E+14	2.59E+14	2.77E+14	1.97E+15	2.13E+15	2.30E+15	2.46E+15	2.65E+15	2.85E+15	3.05E+15	3.27E+15	3.49E+15	3.74E+15	4.01E+15	4.26E+15	4.56E+15	4.84E+15	5.12E+15	5.50E+15	5.84E+15	7.31E+16
82838	1.43E+15	1.57E+15	1.72E+15	1.88E+15	2.06E+15	2.25E+15	2.40E+15	3.50E+13	2.88E+15	6.01E+15	2.75E+14	2.99E+14	3.20E+14	4.28E+15	4.60E+15	4.95E+15	5.33E+15	5.73E+15	6.16E+15	6.60E+15	7.08E+15	7.58E+15	8.08E+15	8.64E+15	9.22E+15	9.84E+15	1.05E+16	1.10E+16	1.19E+16	1.27E+16	1.57E+17
82839	5.47E+13	6.03E+13	6.58E+13	7.23E+13	7.93E+13	8.62E+13	6.07E+13	3.58E+13	1.11E+14	1.77E+14	5.58E+14	6.00E+14	6.46E+14	1.64E+14	1.77E+14	1.90E+14	2.05E+14	2.19E+14	2.36E+14	2.54E+14	2.71E+14	2.91E+14	3.11E+14	3.31E+14	3.54E+14	3.77E+14	4.03E+14	2.84E+14	4.57E+14	4.87E+14	7.62E+15
150009	1.32E+10	1.34E+10	1.50E+10	1.70E+10	1.93E+10	1.93E+10	5.73E+07	2.40E+10	2.45E+10	2.91E+10	1.05E+11	1.13E+11	1.21E+11	3.76E+10	4.12E+10	4.19E+10	4.64E+10	5.06E+10	5.60E+10	5.60E+10	6.17E+10	6.70E+10	6.80E+10	7.47E+10	8.08E+10	8.85E+10	8.85E+10	1.74E+09	1.04E+11	1.14E+11	1.59E+12
80191	4.10E+08	4.39E+08	4.83E+08	5.33E+08	5.87E+08	6.24E+08	5.49E+08	1.35E+08	8.20E+08	9.79E+07	2.13E+10	2.38E+10	2.38E+10	1.18E+09	1.28E+09	1.39E+09	1.51E+09	1.58E+09	1.71E+09	1.85E+09	1.99E+09	2.09E+09	2.24E+09	2.41E+09	2.53E+09	2.71E+09	2.90E+09	2.59E+09	3.25E+09	3.47E+09	1.10E+11
80025	1.85E+09	2.11E+09	2.15E+09	2.50E+09	2.88E+09	2.88E+09	5.49E+08	2.76E+09	3.86E+09	3.57E+09	7.82E+10	8.52E+10	9.28E+10	5.68E+09	5.80E+09	6.54E+09	7.36E+09	7.36E+09	8.26E+09	8.40E+09	9.42E+09	9.42E+09	1.05E+10	1.17E+10	1.17E+10	1.30E+10	1.32E+10	2.99E+09	1.47E+10	1.62E+10	4.44E+11

Background Traffic SAR - Against

Section ID	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	Cumulative SAR
150013	8.97E+08	9.81E+08	1.07E+09	1.21E+09	1.32E+09	1.44E+09	1.49E+09	1.61E+09	1.75E+09	4.39E+08	7.76E+10	8.46E+10	9.22E+10	2.73E+09	2.73E+09	3.02E+09	3.24E+09	3.48E+09	3.82E+09	4.10E+09	4.39E+09	4.81E+09	5.13E+09	2.31E+10	5.61E+09	5.98E+09	6.37E+09	6.93E+09	7.37E+09	7.83E+09	3.67E+11
159613	1.23E+11	1.38E+11	1.50E+11	1.62E+11	1.80E+11	1.94E+11	8.92E+11	8.00E+12	2.50E+11	6.34E+10	9.47E+12	1.01E+13	1.12E+13	3.72E+11	3.98E+11	4.24E+11	4.63E+11	4.94E+11	5.26E+11	5.73E+11	6.08E+11	6.46E+11	6.85E+11	3.45E+12	7.98E+11	8.45E+11	9.13E+11	9.65E+11	1.02E+12	1.10E+12	5.52E+13
150012	6.52E+12	7.11E+12	7.74E+12	8.55E+12	9.28E+12	1.02E+13	1.10E+13	8.19E+10	1.31E+13	1.88E+11	6.39E+14	6.87E+14	7.47E+14	1.94E+13	2.08E+13	2.26E+13	2.42E+13	2.58E+13	2.80E+13	2.98E+13	3.22E+13	3.43E+13	3.65E+13	1.51E+14	4.17E+13	4.48E+13	4.75E+13	5.04E+13	5.40E+13	5.71E+13	2.87E+15
80147	7.33E+12	8.11E+12	8.80E+12	9.70E+12	1.05E+13	1.15E+13	1.24E+13	3.77E+10	1.47E+13	3.32E+11	7.27E+14	7.90E+14	8.46E+14	2.19E+13	2.38E+13	2.54E+13	2.75E+13	2.93E+13	3.17E+13	3.37E+13	3.63E+13	3.86E+13	4.16E+13	1.72E+14	4.74E+13	5.08E+13	5.38E+13	5.76E+13	6.09E+13	6.51E+13	3.26E+15
80146	1.40E+11	1.51E+11	1.61E+11	1.83E+11	1.96E+11	2.21E+11	4.06E+10	2.06E+11	2.81E+11	1.75E+12	2.41E+12	2.63E+12	2.87E+12	4.18E+11	4.40E+11	4.67E+11	5.16E+11	5.46E+11	5.74E+11	6.33E+11	6.68E+11	7.34E+11	7.69E+11	1.27E+13	8.88E+11	9.35E+11	1.02E+12	1.07E+12	1.12E+12	1.22E+12	3.60E+13
80197	4.23E+11	4.60E+11	5.12E+11	5.56E+11	6.04E+11	6.54E+11	4.47E+11	2.91E+11	8.58E+11	2.54E+11	2.58E+13	2.80E+13	3.03E+13	1.26E+12	1.37E+12	1.47E+12	1.57E+12	1.68E+12	1.82E+12	1.94E+12	2.10E+12	2.24E+12	2.34E+12	1.26E+13	2.69E+12	2.90E+12	3.07E+12	3.30E+12	3.49E+12	3.70E+12	1.39E+14
82884	2.33E+12	2.60E+12	2.82E+12	3.07E+12	3.41E+12	3.68E+12	3.59E+12	4.32E+11	4.75E+12	1.68E+13	2.10E+14	2.26E+14	2.47E+14	7.07E+12	7.60E+12	8.12E+12	8.84E+12	9.43E+12	1.01E+13	1.09E+13	1.16E+13	1.24E+13	1.32E+13	1.39E+14	1.52E+13	1.61E+13	1.73E+13	1.83E+13	1.94E+13	2.09E+13	1.07E+15
80009	1.65E+12	1.80E+12	1.95E+12	2.14E+12	2.32E+12	2.60E+12	1.09E+12	1.86E+12	3.31E+12	1.50E+12	6.38E+13	6.83E+13	7.47E+13	4.93E+12	5.28E+12	5.69E+12	6.08E+12	6.50E+12	6.99E+12	7.60E+12	8.16E+12	8.68E+12	9.22E+12	5.55E+13	1.05E+13	1.12E+13	1.21E+13	1.28E+13	1.36E+13	1.44E+13	4.26E+14
83159	4.90E+12	5.40E+12	5.83E+12	6.39E+12	7.00E+12	7.72E+12	6.04E+12	2.56E+12	9.84E+12	1.61E+13	4.09E+14	4.43E+14	4.81E+14	1.46E+13	1.58E+13	1.70E+13	1.81E+13	1.95E+13	2.09E+13	2.26E+13	2.41E+13	2.58E+13	2.76E+13	2.06E+14	3.16E+13	3.34E+13	3.59E+13	3.82E+13	4.07E+13	4.29E+13	2.04E+15
80020	4.69E+12	5.16E+12	5.63E+12	6.17E+12	6.75E+12	7.37E+12	7.31E+12	7.67E+11	9.48E+12	8.88E+13	4.26E+14	4.60E+14	4.97E+14	1.41E+13	1.52E+13	1.64E+13	1.76E+13	1.89E+13	2.03E+13	2.18E+13	2.33E+13	2.50E+13	2.67E+13	5.43E+14	3.05E+13	3.25E+13	3.47E+13	3.69E+13	3.93E+13	4.18E+13	2.48E+15
82777	2.49E+13	2.73E+13	3.00E+13	3.28E+13	3.58E+13	3.90E+13	4.14E+13	1.10E+12	5.01E+13	8.31E+13	2.40E+15	2.60E+15	2.80E+15	7.40E+13	7.98E+13	8.59E+13	9.24E+13	9.92E+13	1.06E+14	1.14E+14	1.22E+14	1.31E+14	1.40E+14	9.83E+14	1.61E+14	1.71E+14	1.83E+14	1.94E+14	2.07E+14	2.20E+14	1.13E+16
82778	8.25E+12	9.03E+12	9.92E+12	1.08E+13	1.18E+13	1.29E+13	4.05E+12	1.08E+13	1.65E+13	2.78E+15	2.37E+14	2.59E+14	2.77E+14	2.43E+13	2.63E+13	2.82E+13	3.03E+13	3.26E+13	3.49E+13	3.75E+13	4.01E+13	4.30E+13	4.58E+13	1.38E+16	5.30E+13	5.64E+13	6.02E+13	6.40E+13	6.82E+13	7.23E+13	1.82E+16
82838	2.16E+13	2.38E+13	2.61E+13	2.87E+13	3.14E+13	3.37E+13	4.60E+12	3.50E+13	4.36E+13	6.01E+15	2.75E+14	2.99E+14	3.20E+14	6.43E+13	6.96E+13	7.50E+13	8.09E+13	8.71E+13	9.37E+13	9.90E+13	1.06E+14	1.14E+14	1.22E+14	3.00E+16	1.40E+14	1.50E+14	1.57E+14	1.68E+14	1.79E+14	1.91E+14	3.90E+16
82839	2.49E+13	2.73E+13	3.01E+13	3.30E+13	3.61E+13	3.94E+13	9.55E+12	3.58E+13	5.01E+13	1.77E+14	5.58E+14	6.00E+14	6.46E+14	7.49E+13	7.99E+13	8.61E+13	9.28E+13	9.98E+13	1.08E+14	1.15E+14	1.24E+14	1.33E+14	1.40E+14	1.64E+15	1.60E+14	1.71E+14	1.83E+14	1.95E+14	2.08E+14	2.21E+14	6.10E+15
150009	1.41E+10	1.44E+10	1.61E+10	1.82E+10	2.06E+10	2.07E+10	1.67E+09	2.40E+10	2.64E+10	2.91E+10	1.05E+11	1.13E+11	1.21E+11	4.04E+10	4.42E+10	4.51E+10	4.99E+10	5.44E+10	6.00E+10	6.03E+10	6.64E+10	7.21E+10	7.30E+10	5.24E+11	8.66E+10	9.47E+10	9.52E+10	1.04E+11	1.12E+11	1.22E+11	2.23E+12
80191	7.19E+08	7.49E+08	8.76E+08	9.12E+08	1.02E+09	1.10E+09	3.85E+08	8.90E+08	1.33E+09	7.76E+08	2.16E+10	2.41E+10	2.42E+10	2.14E+09	2.21E+09	2.29E+09	2.52E+09	2.68E+09	3.02E+09	3.03E+09	3.42E+09	3.62E+09	3.62E+09	2.36E+10	4.31E+09	4.82E+09	4.82E+09	5.38E+09	5.68E+09	6.14E+09	1.62E+11
80025	2.27E+09	2.61E+09	2.71E+09	3.10E+09	3.54E+09	3.66E+09	1.27E+09	2.76E+09	4.71E+09	3.57E+09	7.82E+10	8.52E+10	9.28E+10	7.12E+09	7.14E+09	7.98E+09	8.91E+09	9.15E+09	1.02E+10	1.04E+10	1.16E+10	1.19E+10	1.32E+10	8.60E+10	1.45E+10	1.61E+10	1.64E+10	1.81E+10	1.85E+10	2.03E+10	5.74E+11

Project Generated Traffic SAR - Gazetted

Section ID	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	Cumulative SAR
150013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
159613	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
150012	0.00E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	3.85E+03
80147	1.85E+08	3.05E+08	3.05E+08	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.94E+08
80146	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
80197	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82884	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
80009	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
83159	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
80020	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82777	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82778	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82838	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82839	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
150009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80191	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E+08	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	1.85E+08

Project Generated SAR - Against

Section ID	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	Cumulative SAR
150013	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
159613	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
150012	0.00E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	5.66E+00	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	1.81E+02	3.85E+03
80147	1.85E+08	3.05E+08	3.05E+08	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.47E+03	7.94E+08
80146	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
80197	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82884	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
80009	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
83159	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
80020	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82777	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82778	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82838	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
82839	1.85E+08	2.98E+08	2.98E+08	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	1.85E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	7.80E+08
150009	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80191	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
80025	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.85E+08	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	3.05E+03	1.85E+08

Project Generated Percentage Change in SAR - Gazetted

Section ID	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
150013	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
159613	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
150012	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80147	0.2%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80146	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80197	0.1%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82884	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
83159	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80020	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82777	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82778	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82838	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82839	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
150009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80191	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80025	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Project Generated Percentage Change in SAR - Against

Section ID	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
150013	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
159613	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
150012	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80147	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80146	0.1%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80197	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82884	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
83159	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80020	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82777	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82778	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82838	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
82839	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
150009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80191	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
80025	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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