

University of Southern Queensland

Faculty of Engineering & Surveying

# **Prioritisation of Guard Rail Remediation Works**

A dissertation submitted by

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in fulfilment of the requirements of

**Courses ENG4111 and ENG4112 Research Project**

towards the degree of

**Bachelor of Engineering (Civil)**

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## **Abstract**

Road Safety Barrier Systems standards have changed over time. Consequently most road authorities have a variety of barrier systems within their jurisdiction and difficulties may be experienced in determining which sub-standard barriers create the greatest risk. This project, conducted in association with the Southern District of the Department of Main Roads, Queensland, sought to determine a method for prioritising remedial works on sub-standard barriers.

The project is focused upon the local authority areas of Esk, Gatton and Laidley. A review of design standards and strategies employed and proposed by other state and overseas road authorities was performed. Further work developed a prioritisation method by which remedial works can be programmed upon federal, state and local government controlled roads.

The developed prioritisation method uses an assessment tool to evaluate individual guardrail sections against 3 specified criteria: traffic volume, traffic composition and guardrail standard. It is imperative to bear in mind that the developed procedure is a tool and that results must be executed in conjunction with good engineering judgement.

Key findings of the project were:

- It is advantageous to have crash barrier data held by the road authority in a single, regularly updated database;
- Significant variations in traffic volume and/or composition along a length of road need to be discerned if an accurate assessment of variations in risk are to be calculated;
- The study has found a high priority should be given to locations where guard rail is no longer required or a roadside hazard can be removed or reduced; and

- The financial implications of retrofitting all non compliant guardrail in the Southern District of the Department of Main Roads are significant.

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I further certify that the work is original and has not been previously submitted for assessment in any other course or institution, except where specifically stated.

**Troy Dennis Anderson**

**Student Number: 0050002599**

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Signature

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Date

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Troy Anderson

# Table of Contents

Abstract.....	i
Disclaimer. ....	ii
Certification .....	iv
Acknowledgements.....	v
Table of Contents.....	vi
List of Figures .....	xiii
List of Tables.....	xv
 1.0 Introduction .....	 1
1.1 Background .....	1
1.1.1 Esk Shire.....	3
1.1.2 Gatton Shire .....	3
1.1.3 Laidley Shire .....	3
1.2 Study Aims .....	5
1.3 Data .....	6
 2.0 Literature Review .....	 7
2.1 Definitions .....	7
2.2 Use of Roadside Safety Barriers .....	8
2.3 Accidents / Risk / Roadside Safety .....	9
2.4 End Treatments.....	11
2.5 Standards.....	14
2.6 Maintenance Procedures and Prioritisations Strategies .....	16
2.6.1 Commonwealth of Virginia – Department of Transportation	17
2.6.2 U.S. Department of Transportation .....	17
2.6.3 Iowa Department of Transport.....	17
2.6.4 Virginia Transport Research Council.....	18
2.6.5 Road and Traffic Authority (RTA) - New South Wales, Australia .....	18
2.6.6 Transport SA – South Australia.....	19
2.6.7 VicRoads – Victoria, Australia .....	19

2.6.8	Main Roads Western Australia (Main Roads WA).....	19
2.6.9	Queensland Department of Main Roads (DMR) – Queensland, Australia .....	20
2.7	Summary .....	21
3.0	Methodology.....	22
3.1	Introduction .....	22
3.2	Data Collection .....	22
3.3	Data Analysis .....	23
3.4	Review of Existing Methods .....	23
3.5	Formulation of Prioritisation Tool and Procedure .....	23
3.6	Trial of Prioritisation Tool and Procedure .....	24
3.7	Results .....	24
3.8	Conclusion .....	24
4.0	Data.....	25
4.1	Introduction .....	25
4.2	Local Authority Identification .....	25
4.3	Road Information.....	26
4.3	Crash Barrier Data .....	27
4.4	Traffic Data.....	28
4.5	Fatal Traffic Accident Data .....	29
4.6	Data Validation.....	29
4.6.1	Road Inspections .....	29
4.6.1.1	Conduct of Inspections .....	30
4.6.1.2	Inspection Safety .....	33
4.6.1.3	Weather.....	34
4.6.1.4	Recording of Inspection Data .....	34
4.7	Accuracy of Provided Data.....	34
4.8	Conclusion .....	35
5.0	Review of Existing Methods .....	37
5.1	Introduction .....	37
5.2	Iowa Department of Transportation .....	37



5.2.1	Suitability.....	39
5.2.1.1	Crashes.....	39
5.2.1.2	Average Daily Traffic - ADT .....	40
5.2.1.3	Rail Type.....	41
5.2.1.4	Length .....	41
5.2.1.5	Width .....	41
5.2.1.6	Summary.....	41
5.3	Virginia Transportation Research Council.....	42
5.3.1	Suitability.....	42
5.3.1.1	Guardrail Coverage.....	42
5.3.1.2	Accident History.....	43
5.3.1.3	Daily Traffic.....	43
5.3.1.4	Citizen Complaints .....	43
5.3.1.5	Corridor Length.....	44
5.3.1.6	Summary.....	44
5.4	Conclusion .....	44
6.0	Formulation of Prioritisation Tool.....	45
6.1	Introduction .....	45
6.2	Prioritisation of Remedial Works .....	45
6.3	Components.....	46
6.3.1	Annual Average Daily Traffic (AADT).....	46
6.3.2	Traffic Composition .....	47
6.3.3	Rail Standard .....	48
6.4	Use of Prioritisation Tool .....	51
6.4.1	Preliminary Information .....	51
6.4.2	Allocation of Scores .....	51
6.4.2.1	AADT .....	52
6.4.2.2	Traffic Composition .....	52
6.4.2.3	Rail Standard .....	52
6.4.2.4	Total.....	53
6.4.3	Guide of Works .....	53
6.4.4	Completion.....	54

6.5	Future Components .....	54
6.6	Conclusion .....	54
7.0	Procedure for Prioritisation.....	57
7.1	Introduction .....	57
7.2	Procedure.....	57
7.2.1	Identification of Guardrail .....	57
7.2.2	Requirement for Barrier.....	58
7.2.3	Hazard Reduction / Removal .....	61
7.2.3.1	Severely Damaged Guardrail .....	62
7.2.4	Current Standards.....	64
7.2.5	Identification of Components not in Compliance with Standards.....	64
7.2.6	Cost Estimate of Corrective Works .....	64
7.2.7	Prioritisation of Remedial Works Using Prioritisation Tool ...	65
7.2.8	Add Output to Database.....	66
7.2.9	Generate Priority Listing.....	66
7.2.10	Budget for Works .....	67
7.2.11	Program Works .....	68
7.3	Conclusion .....	68
8.0	Testing of Prioritisation Tool and Procedure .....	69
8.1	Introduction .....	69
8.2	Selection of Roads for Testing .....	69
8.3	Testing Procedure.....	71
8.3.1	Field Based Assessment.....	71
8.3.2	Photographs.....	72
8.3.3	Prioritisation Tool .....	72
8.3.4	Cost Estimate of Rectification Works .....	72
8.3.5	Ranking of Prioritisation Scores .....	73
8.4	Modification to Prioritisation Tool .....	74
8.4.1	Initial Prioritisation Tool .....	74
8.4.1.1	Fatal Traffic Accident Data.....	75
8.4.1.2	Traffic Composition Data.....	75

8.4.2	Modified Prioritisation Tool .....	76
8.4.2.1	Testing of Modified Prioritisation Method .....	76
8.4.2.2	Adoption of Prioritisation Tool .....	77
8.5	Conclusion .....	77
9.0	Example of Procedure .....	78
9.1	Introduction .....	78
9.2	Road Information .....	78
9.3	Assessment Using Prioritisation Method .....	79
9.3.1	Campbell Bridge – Through Distance 0.8 .....	79
9.3.1.1	Procedure – Campbell Bridge .....	81
9.3.2	Coopers Bridge – Through Distance 2.518 .....	84
9.3.2.1	Procedure – Coopers Bridge .....	85
9.3.3	Through Distance 12.2 .....	88
9.3.3.1	Procedure – Through Distance 12.2 .....	89
9.3.4	Peacock Bridge – Through Distance 25.175 .....	91
9.3.4.1	Procedure – Peacock Bridge .....	92
9.4	Prioritisation .....	95
9.4.1	Crash Barrier Database – Mulgowie Road .....	95
9.4.2	Prioritisation Database – Mulgowie Road .....	95
9.5	Conclusion .....	95
10.0	Results .....	97
10.1	Introduction .....	97
10.2	Results of Prioritisation Procedure .....	97
10.2.1	Databases Containing Results .....	98
10.2.1.1	Crash Barrier Database .....	98
10.2.1.2	Prioritisation Database .....	99
10.2.2	Results – Individual Roads .....	99
10.2.2.1	Rosewood – Laidley Road – Road Number 308 .....	100
10.2.2.2	Laidley – Plainlands Road – Road Number 311 .....	100
10.2.2.3	Gatton – Laidley Road – Road Number 312 .....	100
10.2.2.4	Gatton Helidon Road – Road Number 314 .....	101
10.2.2.5	Wivenhoe – Somerset Road – Road Number 410 .....	101

10.2.2.6	Forest Hill – Fernvale Road – Road Number 412 .....	103
10.2.2.7	Esk – Hampton Road – Road Number 414.....	103
10.2.2.8	Mulgowie Road – Road Number 3083.....	104
10.3	Estimated Cost of Remedial Works.....	104
10.4	Trend of Results.....	107
10.5	Common Guard Rail Deficiencies .....	107
10.6	Considerations When Undertaking Risk Analyses .....	112
10.7	Comparison of Developed Procedure with Existing Methods.. .....	113
10.7.1	Iowa Department of Transport Method.....	113
10.7.2	Virginia Transportation Research Council Method .....	113
10.7.3	Comparison of Methods .....	114
10.8	Conclusion .....	115
11.0	Conclusion .....	116
11.1	Achievement of Aims and Objectives.....	116
11.2	Findings of Project .....	118
11.3	Suitability and Further Work.....	119
11.3.1	Inclusion of Crash Data .....	120
11.3.2	Development of Severity Indexes.....	120
12.0	References.....	121
13.0	Bibliography .....	125

## Appendices

A	Project Specification	I
B	Crash Barrier Database	IV
C	Original Guardrail databases	X
D	Road Reference Codes	XXVI
E	Traffic Volume & Compilation Data	LII
F	Traffic Accident codes	LXXIII
G	Risk Assessments	XC

H	Photographs	XCIV
I	Prioritisation Database	C
J	Initial Prioritisation Tool	CIII
K	Prioritisation Tool Results	CV

## List of Figures

Figure 1.1	Queensland Department of Main Roads Regional Boundaries .....	1
Figure 1.2	Queensland Department of Main Roads Southern District ..	2
Figure 1.3	Study Area – Esk, Gatton and Laidley Shires.....	4
Figure 2.1	1998 U.S. Highway Crash Death Statistics .....	9
Figure 2.2	Gating Terminal – Modified Eccentric Load Terminal .....	12
Figure 2.3	Gating Terminal – ET 2000 .....	12
Figure 2.4	Guardrail speared through passenger compartment of vehicle. ....	14
Figure 4.2	Substandard Guardrail - Rotten Timber Post causing rail to rotate and collapse. ....	32
Figure 4.3	Substandard Guardrail - Poor condition and non compliant height.....	32
Figure 5.1	Iowa Department of Transportation Model .....	38
Figure 5.2	Fatal Crash Data – Esk, Gatton and Laidley Shires 1992 - 2004 .....	40
Figure 6.1	Prioritisation Tool.....	50
Figure 6.2	Prioritisation tool utilising crash history.....	56
Figure 7.2	Guardrail identified for removal. No hazard within vehicle clear zone.....	61
Figure 7.3	Unprotected hazard due to vehicle collision. ....	63
Figure 7.4	Damaged guardrail due to vehicle collision. ....	63
Figure 9.1	Campbell Bridge – Photograph 1.....	79
Figure 9.2	Campbell Bridge – Photograph 2.....	80
Figure 9.3	Campbell Bridge – Photograph 3.....	80
Figure 9.4 (a)	Prioritisation Tool - Campbell Bridge – Left .....	82
Figure 9.4 (b)	Prioritisation Tool - Campbell Bridge – Right.....	83
Figure 9.5	Coopers Bridge – Photograph 1 .....	84
Figure 9.6	Coopers Bridge – Photograph 2 .....	84
Figure 9.7	Coopers Bridge – Photograph 3 .....	85
Figure 9.8	Coopers Bridge – Prioritisation Tool .....	87

Figure 9.9	Through Distance 12.2 – Photograph 1 .....	88
Figure 9.10	Through Distance 12.2 – Photograph 2 .....	88
Figure 9.11	Through Distance 12.2 – Prioritisation Tool .....	90
Figure 9.12	Peacock Bridge – Photograph 1 .....	91
Figure 9.13	Peacock Bridge – Photograph 2 .....	91
Figure 9.14 (a)	Prioritisation Tool - Peacock Bridge – Left .....	93
Figure 9.14 (b)	Prioritisation Tool - Peacock Bridge – Right .....	94
Figure 9.15	Crash Barrier Database – Mulgowie Road .....	96
Figure 9.16	Prioritisation Database – Mulgowie Road .....	96
Figure 10.1	Typical bridge approach rail Rosewood Laidley Road .....	108
Figure 10.2	Non conforming guardrail Gatton Helidon Road .....	109
Figure 10.3	Non conforming guardrail Wivenhoe Somerset Road .....	110
Figure 10.4	No connection to bridge Forest Hill - Fernvale Road .....	111
Figure 10.5	Typical bridge approach rail Esk Hampton Road	111

## List of Tables

Table 4.1 – Esk Shire state controlled roads .....	26
Table 4.2 – Gatton Shire state controlled roads.....	26
Table 4.3 – Laidley Shire state controlled roads .....	27
Table 4.4 – Inspected roads within study area.....	30
Table 8.1 – Laidley Shire State Controlled Roads .....	70
Table 8.2 – Selected Roads for Assessmen .....	70
Table 9.1 – Mulgowie Road – guardrail locations. ....	78
Table 10.1 – Selected Roads.....	97
Table 10.2 – Rosewood Laidley Road - Required rectification works and cost estimate. ....	100
Table 10.3 – Laidley Plainlands Road - Required rectification works and cost estimate. ....	100
Table 10.4 – Gatton – Laidley Road - Required rectification works and cost estimate. ....	100
Table 10.5 – Gatton – Helidon Road - Required rectification works and cost estimate. ....	101
Table 10.6 – Wivenhoe - Somerset Road - Required rectification works and cost estimate. ....	101
Table 10.7 – Forest Hill – Fernvale Road - Required rectification works and cost estimate. ....	103
Table 10.8 – Esk - Hampton Road - Required rectification works and cost estimate. ....	103
Table 10.9 – Mulgowie Road - Required rectification works and cost estimate. ....	104
Table 10.10 – Cost for repair and rectification works to surveyed roads. .....	106

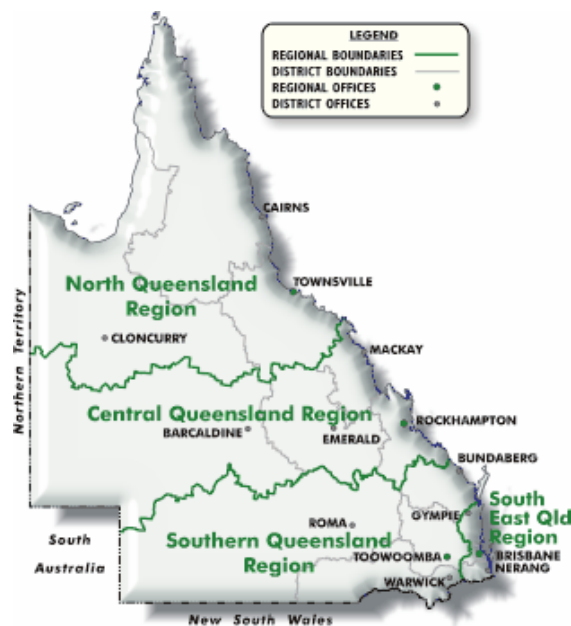


# 1.0 Introduction

## 1.1 Background

Department of Main Roads Queensland manages the State Controlled Road network which comprises approximately 34,000 kilometres of road. A state controlled road is a road that has been designated as one of major importance. It is generally a highway or a major road providing interconnectivity between towns. Eighty percent of Queensland's traffic is carried upon the state controlled road network.

In order to manage the network the state is divided into four regions which are subdivided into districts. Southern District is part of the South Queensland Region and is one of fourteen districts within the state that manage the performance of the State Controlled road network. Southern District head office is located in Toowoomba, Queensland's largest inland city which is approximately 130 kilometres west of the state capital, Brisbane. The state regional map is shown in Figure 1.1.



**Figure 1.1** Queensland Department of Main Roads Regional Boundaries  
<<http://www.mainroads.qld.gov.au>>

Southern District is responsible for the management of 3,341 kilometres of the state controlled network and comprises 18 local government areas. These are: Toowoomba City, Cherbourg Community and the Shires of Crows Nest, Cambooya, Chinchilla, Dalby, Esk, Gatton, Millmerran, Murgon, Jondaryan, Laidley, Pittsworth, Kingaroy, Rosalie, Nanango, Wambo and Wondai. A map of Main Roads Southern District is shown in Figure 1.2.



**Figure 1.2** Queensland Department of Main Roads Southern District  
<http://www.mainroads.qld.gov.au>

Due to the large geographical area that Southern District covers, this project focuses upon three local government areas within the district, these being the Shires of Esk, Gatton and Laidley. Area of Study is shown in Figure 1.3

### **1.1.1 Esk Shire**

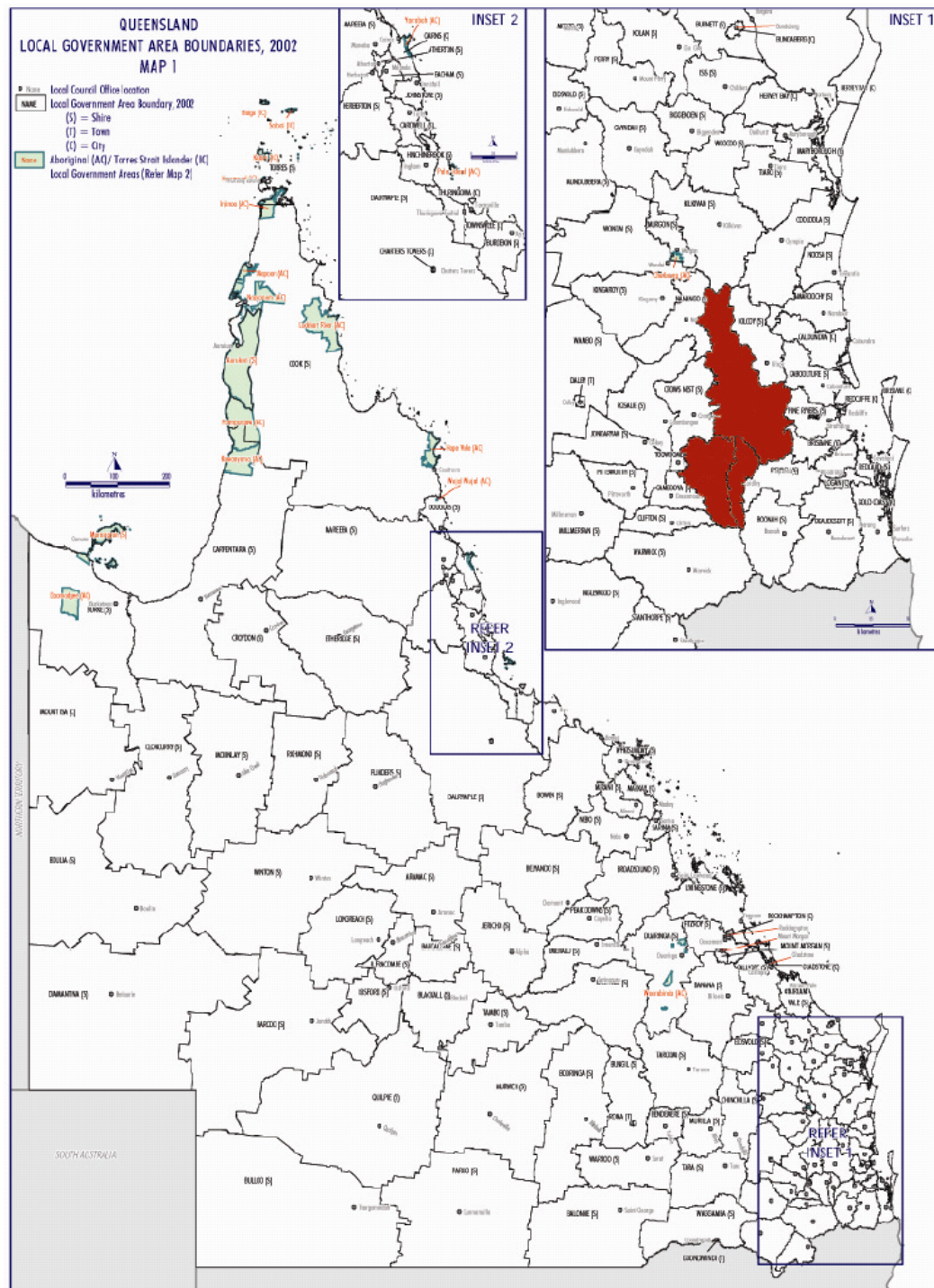
Esk Shire is located in the Brisbane Valley approximately 90 kilometres northwest of Brisbane and 60 kilometres northeast of Toowoomba. Esk Shire has 10 state controlled roads within its shire.

### **1.1.2 Gatton Shire**

Gatton Shire is located in the Lockyer Valley which is referred to as the 'Salad bowl of Australia' due to the large amount of fresh produce that is grown within the valley and distributed throughout Australia. Gatton town is located approximately 95 kilometres west of Brisbane and 50 kilometres east of Toowoomba. Gatton Shire has 7 state controlled roads within its shire.

### **1.1.3 Laidley Shire**

Laidley Shire also resides in the Lockyer Valley and is located 85 kilometres west of Brisbane and approximately 10 kilometres east of Gatton. Laidley Shire has 6 state controlled roads within its shire.



**Figure 1.3** Study Area – Esk, Gatton and Laidley Shires  
<http://www.dlqp.qld.gov.au>

## 1.2 Study Aims

Road Safety Barrier Systems standards have changed over time. Department of Main Roads - Southern District has a variety of barrier systems within their jurisdiction. It is difficult to determine which barriers create greatest risk and therefore determining a priority list for remedial treatments is also difficult.

The aim of this project is to develop a suitable system for prioritising guardrail remediation works throughout Southern District of Queensland Department of Main Roads.

The project will focus on the shires of Esk, Gatton and Laidley.

The following study aims are taken from the Project Specification (Appendix A)

***Develop a database of all road safety barriers on state controlled roads within the shires of Esk, Gatton and Laidley.***

This will involve interrogation of existing Department of Main Roads records to develop a comprehensive data base detailing:

- Location of Barrier;
- Type of Barrier;
- Road information eg traffic data such as AADT, percent heavy vehicles etc; and

***Conduct field inspections of all barrier locations within Laidley Shire and randomly selected roads from within Esk and Gatton Shires and assess against current Australian Standards to enable deficiencies to be recorded.***

The results from these inspections will compliment the data base and detail the following:

- If the barrier is compliant with existing standards; and
- A listing of Defects – tabulated form within data base

***Formulate a strategy for road safety barrier systems remediation works to state controlled roads within the Local Authority areas of Esk, Gatton and Laidley.***

This report will detail the strategy for determining remedial works to road safety barrier systems and in particular to the barriers within the shires of Esk, Gatton and Laidley.

***Develop a priority listing for remedial works upon the inspected roads.***

Using the developed strategy, a priority listing for remedial works upon the inspected roads shall be compiled for all safety barriers that do not comply with the current standards.

### **1.3 Data**

The data for this project was provided by Department of Main Roads Southern District which had been compiled from road audit inspections that had been undertaken over a 4 year period from 2000 to 2004. Due to repair, removal or upgrade works that may have been undertaken or damage that may have occurred during this time period, the data may be inconclusive in some areas. In order to alleviate any anomalies within the data random sampling of the data has been undertaken and the accuracy of the data will be discussed further in this report.

## 2.0 Literature Review

A quantity of existing literature was reviewed with a particular regard to:

- Design standards of Australian State Road Authorities and several overseas authorities;
- Australian Standards for Road Safety Barrier Systems; and
- Previously developed or attempted prioritisation strategies for remedial works by other road authorities.

### 2.1 Definitions

Roadside Safety Barrier – A barrier whose primary function is to prevent penetration and to safely redirect an errant vehicle away from a roadside or median hazard. (Queensland Department of Main Roads, 2000 p.8-2)

Roadside Hazard – Any fixed object by the side of the road that, by virtue of its structure and placement, results in, or is likely to result in, an increased probability of vehicle damage, occupant injury or fatality in the event of a motor vehicle leaving the roadway. (Kloeden. et al., 1999, p.3)

Clear Zone – The total roadside border area, starting at the edge of the travelled way, available for safe use by errant vehicles. .... The desired width is dependent upon traffic volumes and speeds and on the roadside geometry. (Queensland Department of Main Roads, 2000,p.8-21)

Risk Management – Systematic identification, analysis and control of the broad range of risks which have the potential to lead to injury of road users (Giummarra. et al., 2003 p.1)

## 2.2 Use of Roadside Safety Barriers

‘The use of crash barriers is a key means by which roadside hazards are safely managed’ (Roper. et al., 2002)

Protection of roadside hazards is a problem that needs to be treated with significant consideration to ensure that the adequate treatment is provided. Kloeden. et al. (1999) advises that the most common treatment of roadside hazards is to use guardrail. This statement in itself creates large concern and it appears that some road authorities appear to believe that an ‘easy fix’ to the problem is to install guardrail.

In reference to road safety barrier systems the relevant Australian Standard AS/NZS 3845:1999 states:

‘The function of these devices is to improve road safety by reducing the consequences of crashes. However it should be recognised that these devices are themselves a hazard, they have the potential to cause serious injuries. The intention of this standard is that these devices are only installed at locations where the risk **with** the device installed is *significantly* less than the risk **without** the device’.

In order to comply with the requirements of this standard it is obviously a gross breach of the standard to simply install guardrail without considering other options of protection or removal of such hazards. These requirements need to be present in the minds of all parties even when reading existing literature, as statements made by some authors may be taken out of context. For example in Elvik & Vaa (2004) it is stated that ‘obstacles are able to be protected by guardrail.’

Kloeden. et al., (1999) advises that the presence of guardrail creates a higher frequency of crashes due to the small lateral offset within the carriageway however it is believed that the crashes with the guardrail are less severe than those with unprotected hazards. This statement is

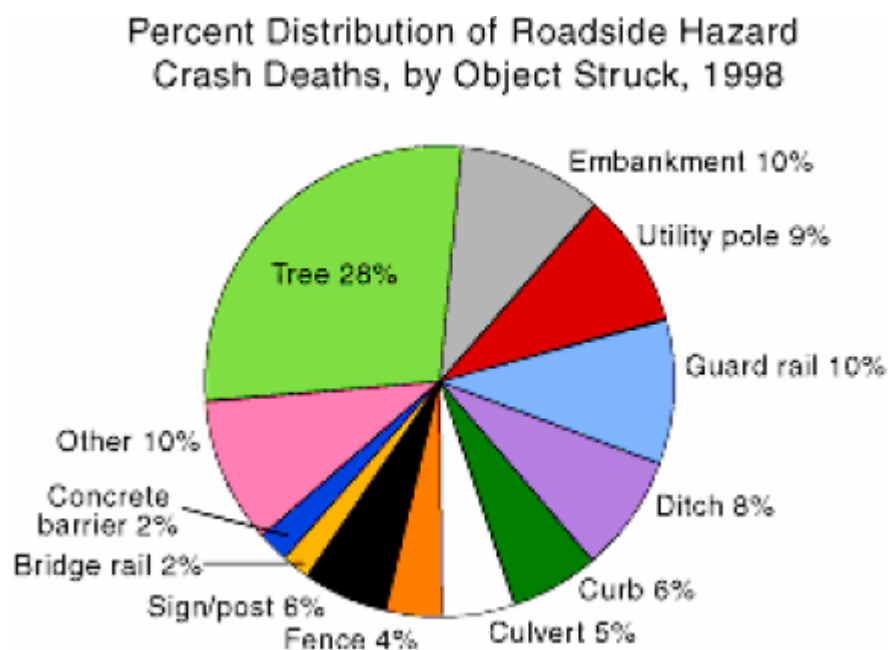


supported by research undertaken by Elvik & Vaa (2004), which reveals the following through the use of median guardrail:

- Fatal Accidents – 40% reduction;
- Injury accidents – 30% reduction; and
- Property damage accidents – 25% increase.

## 2.3 Accidents / Risk / Roadside Safety

‘Notably 3% of fatal and serious injury vehicle crashes are as a result of collisions with guardrail (Wilson. et al. 1999, cited in Roper. et al. 1999). The implication is that guardrail, or safety barrier systems, although installed to protect vehicles from collisions with roadside hazards, are actually roadside hazards themselves’ (Roper. et al., 2002). American statistics show that in 1994, collision with guardrail accounted for 1,126 fatalities from a total of 11,135 collisions with fixed objects. Statistics for 1998 are shown graphically in Figure 1.



**Figure 2.1** 1998 U.S. Highway Crash Death Statistics  
(Citizens for Roadside Safety)

The reoccurring statement that is delivered through the majority of literature, that has been reviewed, is to only provide guardrail or other types of safety barriers when all other avenues for protecting the hazard have been exhausted, as the barrier also becomes a hazard upon installation. It is also reiterated several times with regard to the severity of injuries caused by rail ends and the inappropriate use of end treatments. End treatments will be discussed further within this literature review.

Grzebieta & Rechnitzer (1999 & 2001a) strongly promote that by developing a collaborative approach and changing the culture of road designers, transport industry and vehicle manufacturers to work holistically rather than independently, that systems can be developed / maximised to ensure compatibility between vehicles and the road environment. It is believed that these comments are aimed principally at ensuring that roadside safety systems are compatible with the development of new vehicles, particularly with regard to their constantly changing profile, dimension and weight.

These principals are echoed by Reagan (date unknown) who states ‘.... for the evaluation of the safety performance of roadside safety hardware, input must be sought from all of those involved in the motor vehicle / roadside safety hardware design problem. .... Manufacturers of roadside safety hardware are challenged to develop hardware that provides safe operation for a multitude of vehicle platforms’.

Grzebieta & Rechnitzer (1999 & 2001a) in making these recommendations also endorse the Swedish concept of ‘Vision Zero’ that implies that all measures should be taken to achieve zero road fatalities and that systems should be gentle when a crash occurs. It is interesting to note that the Swedish government have adopted the Vision Zero Philosophy of:

‘no foreseeable accident should be more severe than the tolerance of the human in order not to receive an injury that causes long term health loss’.

One of the key principles of the philosophy is:

‘The designers of the system are ultimately responsible for the design, operation and use of the road transport system and thereby responsible for the level of safety within the entire system’ .

Tingvall (1998) as cited in Grzebieta & Rechner  
(2001b)

Although a very good concept in the attempt to reduce road fatalities, adoption of philosophies such as ‘Vision Zero’ place a huge onus upon a road authority to achieve compliance. However, this author believes the human orientated approach is worthy and supports Grzebieta & Rechner’s thoughts in that by undertaking the Vision Zero humanistic approach the integrity of the design becomes more important.

## **2.4 End Treatments**

Two types of end treatments for guardrail are available. These are gating and non-gating which are described as:

- Gating terminal - One which allows a vehicle to ‘pass through’ the barrier and stop in a runoff area.
- Non Gating terminal – One that redirects the vehicle without allowing a vehicle to pass through the barrier.

Examples of gating terminals are shown in Figures 2.2 and 2.3.



**Figure 2.2** – Gating Terminal – Modified Eccentric Load Terminal (MELT)  
(Forest Hill – Fernvale Road, 2005)



**Figure 2.3** – Gating Terminal – ET 2000 (Photo courtesy Ingal Civil Products)

End treatments provide an anchor for flexible barrier systems and must be considered crashworthy that is, must not cause spearing, vaulting or rolling of a vehicle in an end on collision. (Roper. et al., 2002). In the reviewed literature it consistently advises that end treatments are perilous unless treated in the correct and proper manner.

Viner as cited in Rechnitzer & Grzebieta (1999) and Reagan (date unknown) states that guardrail ends are 40% more hazardous than line of run guardrail. Roper. et al. (2002) summarises their findings by stating that ends of guardrails have been found to cause severe injuries when impacted and further that guardrail end treatments have become increasingly complex. Another area of concern is side impact of vehicles into guardrail ends and their intrusion into the passenger compartment of vehicles. Statistics from the US Transport Research - Fatal Accident Reporting Systems (FARS) stated in Rechnitzer & Grzebieta (1999) reveal that approximately 18% of single vehicle crashes involved side structures of the vehicle and side impact test of the Breakaway Cable Terminal (BCT), Eccentric Load Terminal (ELT) and Modified Eccentric Load Terminal (MELT) have shown considerable intrusion into the passenger car compartment. Regan (1995) in Rechnitzer & Grzebieta (1999) further addresses issues regarding end treatments and the changing shape and weight of vehicles and comments that BCT's are now obsolete as a result of changes in the vehicle fleet and are not suitable for wedge shaped or light vehicles. An example of guardrail intruding in to the passenger compartment is shown in Figure 2.4.





**Figure 2.4** Guardrail speared through passenger compartment of vehicle.  
Hayworth 1997 in Grzebieta & Reznitz (2001a)

## 2.5 Standards

Roper. et al. (2002) has reviewed AS/NZS 3845:1999 and several Australian State Road Authority Guidelines with regard to the selection, installation and maintenance of safety barrier systems. Roper concluded that AS/NZS 3845:1999 has been the grounding for individual road authorities to write their own guidelines. It is advised that prior to the release of the above mentioned standard the only guide for roadside hazards was the National Association of Australian State Road Authorities (NAASRA) Guideline – Safety Barriers which was released in 1987. Roper summarises in advising that various authorities have written their own guidelines by compiling information from NAASRA guide, AS/NZS 2845:1999, and international publications. In reviewing these guidelines Roper advises that they address a range of different aspects with regard to selection, installation and maintenance and that some of the requirements and recommendations overlap between guidelines and that some items are only mentioned by some.

Queensland Department of Main Roads Road Planning and Design Manual details the requirements and standards for safety barriers and roadside furniture. The manual makes reference to the NAASRA guideline and states in the introduction that unconditional acceptance of the guideline would increase the annual road building costs by 6 million dollars. Thus the department has adopted a risk management approach for the installation of guardrail.

With particular regard to maintenance AS/NZS 3845:1999 specifies that maintenance inspections shall be undertaken at varying frequency which are dependent upon, manufacturers specification, operating environment, traffic volumes and composition and risk at individual sites. Appendix B of the standard further details inspection criteria and advises that an inspection program be established and conducted in a regular program of surveillance.

In relation to the design standards used within Australia, variation amongst the different authorities exists. The National Cooperative Highway Research Program Report 350 (NCHRP Report 350) is the primary testing regime that is used throughout the surveyed Australian states and the majority of overseas authorities. NCHRP sets the recommended procedures for testing and performance evaluation of roadside furniture such as guardrail. Comparison of the states guidelines and standards such as NAASRA guidelines and AS/NZS 3845:1999 and the accepted type of barrier and end treatments that are allowed by different guidelines are summarised by Roper et al. (2002). Relevant state guidelines should be consulted prior to making final conclusions with regard to allowed types of rail and end treatments, as this literature review and associated research has revealed that some of the information presented by Roper et al. has been amended.

## **2.6 Maintenance Procedures and Prioritisations Strategies**

In reviewing the maintenance procedures particular attention was paid to the procedures of Australian road authorities and several international authorities. It must be noted that there is minimal information available with respect to maintenance and prioritisation techniques.

AS/NZS 3845:1999 makes the following statement when describing the intention of the standard and its impact upon substandard systems:

‘The intention of this standard is not to create a demand to remove all examples of superseded practice from the roadside. It is anticipated that equipping the road networks with [satisfactory] barrier systems ... will take many years to achieve.’ (AS/NZS 3845:1999 as cited in Davis 2000)

The standard then recommends that an analysis of the hazards and risks be undertaken to identify the sites with the highest need making sure that these sites are addressed first. To strengthen this approach it is noted in the case of *Ruff v. King County* that evidence was presented which concluded that although a road authority has a duty of care in maintaining the roadway to a reasonably safe condition, this duty did not require the authority to update every road and roadway structure to present-day standards.

The Institution of Engineers Australia (IEAust) has developed road safety policy in an aim to reduce the road toll. The policy supports the previously mentioned ‘Vision Zero’ philosophy and presents a strong position with regard to roadside hazards, road safety barriers and roadside furniture. The policy recommends that road safety audits are undertaken prior to design to encourage wide clear zones in preference to provision of barriers. In relation to maintenance and performance, the policy recommends that a database be kept and independent road audits be undertaken and documented for hazardous sites to enable ranking for treatment. It is also advised that practitioners be familiar with the relevant



Australian Standards and also apply methods and ideas obtained from outside these standards.

Information obtained in regard to procedures for individual road authorities is summarised below:

#### **2.6.1 Commonwealth of Virginia – Department of Transportation**

A memorandum that details the guidelines for repair, replacement and upgrade of guardrail does not stipulate when or how guardrail is upgraded / replaced, however it does give certain scenarios when the rail is to be upgraded to the latest standard. Further the document does specify some guidelines for replacement of end terminals. The guideline does not refer to any prioritisation technique. (Commonwealth of Virginia – Department of Transportation, 2001)

#### **2.6.2 U.S. Department of Transportation**

A U.S. Department of Transportation memorandum has been posted on the internet site <http://www.guardrail.org/memo.html>. The memorandum details requirements for replacement and upgrade of end terminals with no reference made to actual line of run rail. Different approaches are taken with regard to replacement depending upon the type of terminal however the replacement strategy is not determined. The memorandum does not refer to the use of any prioritisation technique. (Citizens for Roadside Safety)

#### **2.6.3 Iowa Department of Transport**

This instructional memorandum provides advice in relation to the need to provide traffic barriers at roadway bridges and culverts. With regard to guardrail the memorandum does not give advice with respect to repair or

replacement however it does provide criteria for when the rail should or should not be installed. The instruction advises that the roadside hazard should be reviewed for removal or relocation outside of the clear zone. In regard to bridge rail the information provided gives advice in regard to the installation of superseded rail and upgrade of existing. To aid in assessment, Iowa Department of Transportation have developed a bridge rating system to gauge the degree of upgrading required. The rating system appears to be of use to this project and will be further examined to determine its suitability. (Iowa Department of Transportation, 2001)

#### **2.6.4 Virginia Transport Research Council**

The report was compiled to enable the department to make logical and defensible decisions in prioritising sections of hazardous guardrail that are to be improved with limited funding that is provided on an annual basis. The outcome of the report provided an electronic risk / cost benefit aid for practitioners in screening and deciding upon improvements. Although the report is for the development of software to undertake the prioritisation process, the background literature that has been reviewed for the report provides valuable processes and techniques that other American states have employed. These processes and techniques will be further investigated for use and modification to suit the needs of this project. The authors of the report make comment as to the limited number of viable methodologies that are available for prioritising guardrail works, a point which reinforces comments that I have made previously. (Virginia Transportation Research Council, 2001)

#### **2.6.5 Road and Traffic Authority (RTA) - New South Wales, Australia**

RTA does not currently have procedures or policies in regard to the prioritisation of replacement and upgrading of safety barriers, nor does it possess a database of existing guardrail within the state. The approach

that the RTA takes is one based upon risk management principles and exercising the authorities duty of care whilst working within funding limits. It was advised that the Infrastructure Maintenance Branch is currently developing policy in relation to existing safety barriers that do not conform to current standards. (Williamson SD 2005, pers. comm., 18 February and Walker N 2005 pers. comm., 9 May)

#### **2.6.6 Transport SA – South Australia**

Transport SA currently possesses a database of all safety barriers. To determine priority listings for upgrade / replacement, the data is processed through a computer based risk management tool to determine a priority list. Once projects are determined the sites / objects are then given a complete risk assessment to ensure the correct scope of works. (Clark S 2005 pers. comm., 5 April)

#### **2.6.7 VicRoads – Victoria, Australia**

VicRoads does not have a program for replacing guardrail that does not comply with current standards. Guardrail is replaced under maintenance programs when it has been damaged or when it has deteriorated significantly. VicRoads advised that rail may also be routinely replaced under specific programs, however VicRoads advised that replacement and upgrade of existing road furniture following standard changes is not routinely accommodated due to limited funding that is made available for road maintenance. (Keys J 2005 pers. comm., 24 March)

#### **2.6.8 Main Roads Western Australia (Main Roads WA)**

Main Roads WA advised that they are currently compiling a full inventory of their guardrail assets and are anticipating that condition surveys of the barriers will then be undertaken to determine what rails require

upgrading. In regard to repair and maintenance, works are undertaken by contract and repair works have a 2 week timeframe in which the barrier must be repaired. All repairs are undertaken to comply with AS/NZS 3845:1999. Main Roads WA advised that it is believed that the general problems with guardrail on their network appear to be non compliant end treatments, non compliant length of rail, posts installed in concrete footings and hazards within the deflection limits of the barrier. (Karpinski J 2005 pers. comm., 10 February)

#### **2.6.9 Queensland Department of Main Roads (DMR) – Queensland, Australia**

DMR have an inventory of all crash barriers upon the state controlled network and can separate this data for districts as required. DMR do not currently possess any guidelines for the prioritisation of guardrail repair and replacement and currently schedule these works based upon a risk management approach. These works are completed depending upon the level of funding that is available. Routine maintenance is performed on the network by contractors under provisions of Routine Maintenance Performance Contracts (RMPC) in which contractors audit the network and determine works that need to be undertaken to minimise risk to road users. RMPC documents detail intervention levels at which contractors must perform works and detail the requirements for monitoring of the network to ensure that DMR is exercising its duty of care upon the network. (Derbyshire AC 2005 pers. comm., 9 February)

Queensland Department of Main Roads - Central Highlands District had previously attempted to develop a system for prioritisation of guardrail replacement works although it was never finalised. The system consisted of rating existing guard rail against current guard rail standards. (Flemming J 2005 pers. comm., 26 September)

## **2.7 Summary**

The majority of the reviewed literature unanimously advises that guardrail should only be installed where it is determined to be absolutely necessary as guardrail is a serious hazard in itself. Prior to the installation of guardrail it is recommended that serious consideration is given to the removal of the hazard or provision of other means of protection.

Accident rates are increased in the presence of guardrail, however it is noted that the severity of these accidents is much less than those without guardrail. Closely linked to these facts are recommendations that vehicle manufacturers, road designers and road hardware manufacturers work closely together to develop systems that suit the needs of all parties and ensure compatibility between road environment, vehicles and road users.

End treatments are shown to be considerably more dangerous than line of run guardrail and as such require the proper use of end treatment devices to reduce the hazard to road users.

Standards for installation and provision of treatments vary across road authorities within Australia and overseas, although it appears that the same testing regime is used. Some requirements overlap between states whilst others remain solitary to individual authorities.

From the literature that has been reviewed, minimal information is available with regard to maintenance and prioritisation techniques for guardrail. Some methods that have been reviewed appear to be worthy of further evaluation for implementation in this project.

## **3.0 Methodology**

### **3.1 Introduction**

A methodology statement for the conduct of this research project – prioritisation of guardrail remedial works is developed identifying the methods and processes used for the project and is to be read in conjunction with the project specification (Appendix A) and the remaining chapters.

### **3.2 Data Collection**

Data for this project was supplied by Department of Main Roads – Southern District. 4 primary databases were provided, three of which detailed different aspects of recorded locations of guardrail within Southern District, with the remainder providing details of road accident fatalities on state controlled roads within Southern District during the period 1999 to 2004. Main Roads representatives advised that the data presented had been collected over a 4 year period and as such anomalies may be present due to repair, replacement, removal or upgrading works.

Data was sorted from the 4 databases in order to compile one data base for the roads of the study area. The data from each individual database was manipulated to provide common information throughout the study area and thus provide a logical register of all sites and their status in comparison to relevant standards.

The compiled database is provided within Appendix B and individual data bases are provided in Appendix C.

### **3.3 Data Analysis**

All state controlled roads within Laidley Shire and a random selection of roads within Esk and Gatton Shires were inspected in an attempt to identify the quantity of anomalies against the database. Where anomalies existed the database was corrected to reflect the condition of the infrastructure. The entire database was examined for compliance with standards and guidelines, this enabled a snapshot to be taken of what general problems were evident within the network.

### **3.4 Review of Existing Methods**

Prioritisation methods identified within the literature review as being relevant were analysed to determine their suitability toward the requirements of this project. Components of the identified methods were examined for use in conjunction with self developed strategies. Further information with regard to these methods is detailed in Chapter 5.

### **3.5 Formulation of Prioritisation Tool and Procedure**

Utilising information from previous works in conjunction with self developed strategies an assessment tool was developed to allow an assessor to rate individual items of infrastructure against each other with a view to developing a prioritisation listing. In order for non-biased and distinct results to be obtained for roads, areas and districts, a procedure has been documented to ensure that assessors undertake each individual assessment using the same method and procedure.

Further detail of the prioritisation tool and procedure are shown in Chapters 6 and 7 respectively.

### **3.6 Trial of Prioritisation Tool and Procedure**

A field based trial of the prioritisation tool and procedure was undertaken upon selected roads within the study area. The trial consisted of the assessment of all state controlled roads within Laidley Shire and several randomly selected roads within Esk and Gatton Shires. The results from the trial were used to refine the tool and procedure to ensure their adequacy.

### **3.7 Results**

Using the prioritisation tool and procedure, all roads within the study area were assessed in order to determine a final priority listing for remedial works.

### **3.8 Conclusion**

The methodology of this project as detailed above identifies the methods and processes used for the project and is to be read in conjunction with the project specification (Appendix A) and the remaining chapters.



## **4.0 Data**

### **4.1 Introduction**

The data used throughout this project has been based upon databases held by Department of Main Roads – Southern District. Numerous documents and databases containing information on road distances, guardrail locations and standard, traffic volumes and compilation and fatal accidents were presented to enable this project to be undertaken.

Data for each of the above mentioned criteria were presented in separate files which were consolidated into one complete data base. The databases can be found within the appendices of this report.

### **4.2 Local Authority Identification**

For the purposes of identification, Department of Main Roads allocates a unique number to each local authority within Queensland. This number is referred to on all relevant correspondence, Roadworks Performance Contracts (RPC), Roadworks Maintenance Performance Contracts (RMPC), databases and statistical information.

Department of Main Roads identification for the shires within the study area are shown below:

- Esk Shire - 52
- Gatton Shire - 114
- Laidley Shire - 75

### 4.3 Road Information

Department of Main Roads uses a unique road numbering system that is referred to as a road reference code. The code is applied to each state controlled road for identification and reporting purposes. The roads are also allocated chainages relevant to the roads length. Identified chainages are given at the start of the road, road intersections, predominant land marks (eg shire boundaries, creek crossings etc) and finish. These chainage distances are referred to as through distances.

Tables 4.1, 4.2 and 4.3 list the state controlled roads within Esk, Gatton and Laidley Shires respectively. The tables also display start and finish through distances and total distance.

**Table 4.1 – Esk Shire state controlled roads**

<b>Esk Shire - 52</b>				
<b>Road Number</b>	<b>Road Name</b>	<b>Start</b>	<b>Through Distance</b>	<b>Total Km</b>
18A	Warrego Highway	28.9	36.58	7.68
42A	Brisbane Valley Highway	5.42	89.37	83.95
40B	D'Aguilar Highway	10.55	45.34	34.79
40B	D'Aguilar Highway	47.03	50.05	3.02
405	Esk-Kilcoy Road	0	26.68	26.68
410	Wivenhoe Somerset Road	0	39.13	39.13
411	Cominya Connection Road	0	12.88	12.88
412	Forest Hill Fernvale Road	17.03	38.95	21.92
414	Esk Hampton Road	0	27.62	27.62
4023	Mt Glorious Road	Various		16.61
4144	Gatton Esk Road	17.77	39.87	22.1
Esk Shire Total				296.38

**Table 4.2 – Gatton Shire state controlled roads**

<b>Gatton Shire - 114</b>				
<b>Road Number</b>	<b>Road Name</b>	<b>Start</b>	<b>Through Distance</b>	<b>Total Km</b>
18A	Warrego Highway	52.91	88.83	35.92
312	Gatton Laidley Road	0	3.68	3.68
313	Gatton Clifton Road	0	26.79	26.79
314	Gatton Helidon Road	0	21.19	21.19
3131	Mount Sylvia Road	0	23.57	23.57
4104	Murphys Creek Road	0	22.82	22.82
4144	Gatton Esk Road	0	17.77	17.77
Gatton Shire Total				151.74

**Table 4.3 – Laidley Shire state controlled roads**

<b>Laidley Shire - 75</b>				
<b>Road Number</b>	<b>Road Name</b>	<b>Start</b>	<b>Through Distance</b>	<b>Total Km</b>
18A	Warrego Highway	36.58	52.91	16.33
308	Rosewood Laidley Road	18.89	23.63	4.74
311	Laidley Plainlands Road	0	8.56	8.56
312	Gatton Laidley Road	3.68	15.06	11.38
412	Forest Hill Fernvale Road	0	17.03	17.03
3083	Mulgowie Road	0	29.67	29.67
Laidley Shire Total				87.71

Road reference codes and Department of Main Roads reference through distances for roads within the study area for this project are located in Appendix D.

### **4.3 Crash Barrier Data**

Data for this project supplied by Department of Main Roads – Southern District consisted of 4 databases, namely:

- Guard Rail audit
- Bridge inspections – Level 1
- Bridge inspections – Level 2
- Fatal Road Crashes – 1992 to 2004

Representatives from Department of Main Roads – Southern District advised that with the exception of the fatal road crash data, the raw data within the provided records had been collected over a four year period. In view of this and as such the accuracy could not be guaranteed and anomalies may be present due to repair, replacement, removal and upgrading works. For this reason random field sampling was undertaken to evaluate the integrity of the data. In most instances it was found that the records were correct. In instances where discrepancies were present the required amendments were performed to the database.

Of the 4 provided databases, 3 of these detailed different aspects of recorded locations of guardrail within Southern District. In some instances data in the bridge inspection records was duplicated but this was not a frequent occurrence.

In order to compile one extensive database, data from the 4 databases was interrogated to separate the listings for the three shires of interest. The data was then further categorised using Main Roads road numbers. Data from each source was then collated for each road and compiled into listings according to road numbers.

Compiled crash barrier database is located in Appendix B.

Individual databases (guardrail, bridge inspection [ level 1 and level 2 ] and fatal crashes) are located in Appendix C.

#### **4.4 Traffic Data**

Department of Main Roads data for traffic volumes and composition for the year of 2003 was provided for use in the project as at the time of commencement of the project the 2004 data had not been finalised. It was determined that the 2003 data would suffice for the purposes of this project and that any required adjustments to the results could be easily undertaken following release of the 2004 data.

Traffic Data provided included:

- Average Annual Daily Traffic – AADT
- Percentage of light and heavy vehicles. Which is further categorised into vehicle types (trucks, buses, articulated vehicles and road trains)

Traffic Volume and Compilation Data for the study area is located in Appendix E.

## **4.5 Fatal Traffic Accident Data**

Fatal Traffic Accident Data for the period of 1992 – 2004 for all state controlled roads within Department of Main Roads - Southern District was provided. The data was quite complex and consisted of 50 fields of information for each fatality.

The fatal traffic accident database is located with Appendix C. A listing of codes used for reporting purposes is located within Appendix F.

## **4.6 Data Validation**

In order to validate Department of Main Roads data inspections of all state controlled roads within Laidley Shire and a random sample of roads within Esk and Gatton Shires were inspected. Any anomalies that were discovered between data and physical assets were identified for amendment.

### **4.6.1 Road Inspections**

In the interests of individual safety it was determined that no inspections would be undertaken on highways, therefore the following roads within the study area were excluded from inspections:

- 18A – Warrego Highway;
- 40B – D'Aguilar Highway; and
- 42A – Brisbane Valley Highway.

Roads that were selected for inspection are identified in Table 4.4.

**Table 4.4 – Inspected roads within study area**

<b>Road Number</b>	<b>Road Name</b>	<b>Start</b>	<b>Through Distance</b>	<b>Total Km</b>
308	Rosewood Laidley Road	18.89	23.63	4.74
311	Laidley Plainlands Road	0	8.56	8.56
312	Gatton Laidley Road	0	3.68	3.68
312	Gatton Laidley Road	3.68	15.06	11.38
314	Gatton Helidon Road	0	21.19	21.19
410	Wivenhoe Somerset Road	0	39.13	39.13
411	Cominya Connection Road	0	12.88	12.88
412	Forest Hill Fernvale Road	17.03	38.95	21.92
412	Forest Hill Fernvale Road	0	17.03	17.03
414	Esk Hampton Road	0	27.62	27.62
3083	Mulgowie Road	0	29.67	29.67

Guardrail locations on the inspected roads were identified from the database and were inspected to identify:

- Correlation between the description from the database and the physical asset;
- Deficiencies present; and
- Elements requiring upgrade and / or replacement.

#### 4.6.1.1 Conduct of Inspections

Inspections were primarily conducted as an on ground visual inspection by the author with each individual piece of infrastructure being assessed against the relevant standard. Typical items for assessment included:

- End treatments;
- Rail height and length;
- Post type and spacing;
- Connection to bridge (if applicable); and
- Delineation.

In a minority of locations the inspection was not undertaken as an on ground survey and was conducted from within a slow moving vehicle.

Figures 4.1, 4.2 and 4.3 show an inspected guardrail which is of poor standard on Forest Hill – Fernvale Road. This guardrail displays the following attributes that are not in accordance with Department of Main Roads Standards and AS/NZS 3845:1999:

- Poor general condition of the rail, including corrosion;
- No end treatment;
- Timber posts which are incorrectly spaced and are of a very poor condition; and
- Substandard height.



**Figure 4.1** – Substandard Guardrail - Damaged and generally in very poor condition.  
(Forest Hill – Fernvale Road, 2005)



**Figure 4.2** – Substandard Guardrail - Rotten Timber Post causing rail to rotate and collapse. (Forest Hill – Fernvale Road, 2005)



**Figure 4.3** – Substandard Guardrail - Poor condition and non compliant height. (Forest Hill – Fernvale Road, 2005)



#### 4.6.1.2 Inspection Safety

As previously stated field inspections were not undertaken on highways due to the high volumes of traffic that are present upon these roads and the limited availability of intermittent stopping areas on the roadside. To ensure safety during the conduct of the inspections a risk analysis was completed prior to undertaking the inspections to ensure that any risks associated with the operation were eliminated or minimised. Risk assessments are located within Appendix G.

It was identified that the undertaking of road inspections whilst the road was operational was a dangerous situation. Hence certain control measures were identified and implemented to reduce risk associated with the conduct of inspections, these included:

- Park vehicle well clear of roadway;
- Have orange flashing light operating at all times when stationary, approaching and exiting sites;
- If possible park vehicle clear of guardrail so that oncoming drivers are not 'visually confused' by congestion on side of road;
- All persons to wear high visibility vests or clothing;
- All persons where possible to face oncoming traffic;
- Walk clear of the road shoulder and traffic lanes when and where possible;
- Where practicable and possible make assessments from behind the rail not from traffic side; and
- Be aware of other vehicles when entering or exiting the vehicle and at all times whilst out of the vehicle.

The above mentioned measures were adhered to whilst undertaking inspections and safety problems were not encountered.

#### 4.6.1.3 Weather

Weather did not effect the conduct of field based inspections.

#### 4.6.1.4 Recording of Inspection Data

Hard copies of the individual and collated databases were transported to the field and all notations and recordings were made upon these records whilst conducting field based inspections. Upon return, all notations and recordings were manually transferred to the electronic databases.

### **4.7 Accuracy of Provided Data**

Initial data provided by the Department of Main Roads was determined to be of a reasonable standard of accuracy given the fact that it had been collected over a 4 year period. The major anomaly that existed with the data was where rail had been upgraded or replaced and the works had not been recorded on the database.

Several locations had experienced damage through minor vehicle collisions and these defects had also not been recorded. In one instance a section of rail had been demolished as a result of a vehicle collision and the department's records had not been updated. It is predicted that in situations where sections of rail have suffered damage, Main Roads contractors would record such defects whilst undertaking road audits for RMPC activities, however these recordings are not being recorded on the main guardrail data base within Department of Main Roads.

It is evident that upgrade works and defects are not being transferred to the main guardrail data base and therefore the data base is not an entirely accurate representation of the department's assets. It is therefore imperative not only for the requirements of this project but for the department's own asset register that the guardrail data is kept current at

all times. It would be advisable that prior to the implementation of the prioritisation method developed in this project that all guardrail locations within the road network of Southern District of Department of Main Roads be reinspected to guarantee that accurate data is being assessed.

Chapter 10 details common findings with inspected guardrail of Southern District.



**Figure 4.4** – New guardrail installation, (Warrego Highway, 2005)

## **4.8 Conclusion**

As a result of the random sampling that was undertaken, the data provided by Department of Main Roads for the purposes of this project was of a reasonable standard of accuracy. Any anomalies that existed within the data were corrected to reflect the status of the infrastructure at the point in time that it was inspected. However it is recommended that a

reinspection of the entire district be undertaken to ensure the assessment of accurate data.

All databases were successfully merged to form one complete data base for the purposes of this project. This entire database can be referenced in Appendix B.

## **5.0 Review of Existing Methods**

### **5.1 Introduction**

Two prioritisation methods identified in the reviewed literature were determined to have some suitability to this project. These methods were presented by Iowa Department of Transport and the Virginia Transportation Research Council. The methods have been summarised and the results of the review of these methods for adoption to this project are shown below.

### **5.2 Iowa Department of Transportation**

This method was developed primarily for use on bridge rail, however it appears adequate when modified for use on all guardrail systems. To remind road safety practitioners of the danger associated with guardrails, the report identifies that barriers themselves present a hazard and the obstacle should be reviewed for removal or relocation outside the clear zone.

For objects that can not be removed from the clear zone the method proposes 4 options:

- Removal;
- Relocation;
- Install Barrier; or
- Do nothing - based upon cost benefit ratio.

The rating system used to determine or prioritise installation and / or upgrades for crash barriers assigns points to the following five factors:

- Crashes in past 5 years – Subdivided into 3 Categories;
- ADT – Average Daily Traffic;
- Width of Bridge;

- Length; and
- Type of Rail.

The method allocates points in increments of 5 depending upon the status of the elements within the category. The total point score then determines the prioritisation of upgrading or provision that is required.

The method of the Iowa Department of Transportation is reproduced in Figure 5.1

Points	0	5	10	15	20
<b>Crashes (in past 5 yrs)</b>	0	1 PDO	1 PI	IF 2 PDO's or 1 PI & 1 PDO	2 or more F's / PI'S or 3 or more PDO's
<b>ADT (current year)</b>	<200	200-299	300-399	400-750	>750
<b>Bridge Width</b>	>=30	28	24	22	<=20
<b>Bridge Length</b>	<50	50-99	100-149	150-200	>200
<b>Rail type</b>	Aluminium Rail (1967 Standard)	Steel Box Rail (1964 Standard)	Formed Steel Beam Rail (1951 & 1957 Standards)	Steel Rail (1941 Standard) Concrete Rail (1928 Standard)	Angle Hand Rail (1928 Standard)

#### Abbreviations

PDO	Property Damage Only
PI	Personal Injury
F	Fatality

#### Upgrading Needed

Under 25 Points	No upgrading at this time
25-50 Points	Delineation acc to standard
51-75 Points	Blockout with thrie Beam to curb edge
Over 75 Points	Retrofit

**Figure 5.1** – Iowa Department of Transportation Model

### **5.2.1 Suitability**

The method has been assessed for suitability to this project by the individual assessment of each of the five categories and their degree of relevance to the project. Individual assessments are listed below.

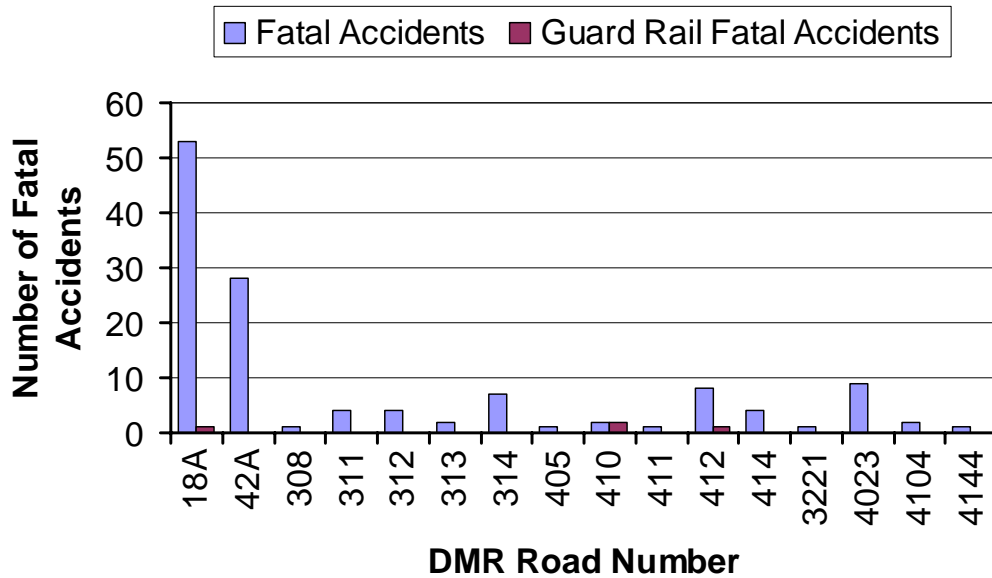
#### **5.2.1.1 Crashes**

The only crash data that this project is taking into account is fatal accidents during the period 1992 – 2004. Personal Injury and property damage only crashes have not been evaluated in this research. Evaluation of all crash types would be a very time consuming and difficult task in the initial stages, however it is envisaged that the process would simplify as time proceeded and be a useful tool for prioritisation as part of a risk analysis process.

With respect to fatal crashes with guardrail in the observed shires, a very small amount of fatal crashes occur due to collision with guardrail as compared to other means. Fatal crash data for Esk, Gatton and Laidley Shires reveals that during the period 1992 – 2004 only 4 of the 128 fatalities (3.125%) on state controlled roads within these Shires have been as a result of collision with guardrail. This statistic is low in comparison to American fatal road crash statistics for 1994 and 1998 which reveal collision with guardrail accounted for 10.11% and 10% of fatal crashes respectively. <http://www.guardrail.org/stats.html>

Fatal accidents including those involving guardrails within Esk, Gatton and Laidley Shires is represented in Figure 5.2.

## Fatal Accidents 1992 - 2004



**Figure 5.2** – Fatal Crash Data – Esk, Gatton and Laidley Shires 1992 - 2004

Due to the low proportion of fatal accidents involving guardrail in this study area, crashes will not be considered for use in this project.

### 5.2.1.2 Average Daily Traffic - ADT

Termed Annual Average Daily Traffic (AADT) in Australia and defined as:

“Volume representing the total traffic in both directions at each location, calculated from mechanically obtained axle counts.” (Arup Australasia)

This element of traffic volume is of extreme significance in this project and traffic count data for state controlled roads within the study is readily available for assessment.



#### 5.2.1.3 Rail Type

This project is only considering steel extruded guardrail type barriers eg W beam and thrie beam. Difficulty will prevail in determining the type of rail as the current database held by Department of Main Roads does not detail individual rail types nor does it detail the level of compliance with the current standards. To add to the level of complexity the rail in use throughout the district is extremely varied in range. Therefore it would be required to set some form of bench marks for the level of adequacy and compliance with standards and then interpolate between these bench marks to determine suitability.

#### 5.2.1.4 Length

It is considered that length of the rail is appropriate to the overall effectiveness of the rail system and in determining if the rail is compliant with current standards.

#### 5.2.1.5 Width

Width is not applicable in most instances however it may be relevant when considering steep drops, narrow pavement, etc.

#### 5.2.1.6 Summary

In summary it is considered that certain elements of this method would be applicable to the development of a method for Southern District and these elements are, AADT and length. Additionally the concept of 'point scoring' possesses merit in determining overall priorities and this process shall be refined in the outcomes of this project.

## **5.3 Virginia Transportation Research Council**

The project undertaken by Virginia Transportation Research Council was to develop software to aid road managers in determining guardrail prioritisation by assessing a number of factors including crash severities, traffic exposure and cost.

### **5.3.1 Suitability**

The complexity of the Virginia project is beyond the methods intended to be applied in this project, however several of the concepts used are highly significant and can be utilised in developing a prioritisation method.

Guardrail catchment areas were screened and data collected for further analysis. Attributes considered were:

- Guardrail Coverage;
- Accident History;
- Daily Traffic;
- Citizen Complaints; and
- Corridor Length.

Each of these attributes is discussed with regard to relevance to this project.

#### **5.3.1.1 Guardrail Coverage**

Guardrail Coverage involves comparison of road corridors in large geographic regions with regard to guardrail coverage, condition and other relevant factors. This element is determined to be extremely vital to the project, as without this data, further analysis and implementation of a method can not proceed.

#### 5.3.1.2 Accident History

As stated previously this project only involves the analysis of fatal accidents involving guardrail. The provided data does not include all types of accidents and collation of this information would initially be an extremely time consuming and difficult process. Given the very low proportion of fatal accidents involving guardrail in the study area, accident history is not determined to be of appropriate use in this project. It is envisaged that in the future, the model could be expanded to accommodate accident history and therefore provide additional elements for assessment.

#### 5.3.1.3 Daily Traffic

In relation to daily traffic the report states in relation to average daily traffic (ADT) that:

- The higher the ADT the more importance of a corridor;
- ADT is a measure of exposure - higher ADT leads to a greater number of guardrail relevant accidents; and
- Every vehicle that travels past a location, there is opportunity for an accident.

(Virginia Transportation Research Council (2001))

These statements very clearly highlight the importance of utilisation of traffic data in the formulation of a prioritisation method, hence traffic data will be used in this project.

#### 5.3.1.4 Citizen Complaints

This element has not been considered for use in this project.

#### 5.3.1.5 Corridor Length

This project aims to develop a method suitable for all roads and hence length of road or corridor is not applicable to this project.

#### 5.3.1.6 Summary

The entire approach involves complex calculations, however the use of graphs and flow charts is promoted in some instances to avoid calculation. Figure 11 of the report is a flowchart to determine if an upgrade project is warranted. A modified version of this flowchart will be of use to this project.

### 5.4 Conclusion

The methods present reasonable approaches to the prioritisation of remedial and upgrade works. As stated some of the elements used in these models are not applicable to a model at this level, however later refinement of the developed model and subsequent inclusion of such factors is foreseen to be of benefit.

Elements to be used in the development of this model will be AADT and Length. The method of point scoring for the Iowa model will be utilised in conjunction with a flowchart for determination of outcome as used in the Virginia model.

In development of the model it is important to reflect upon the goal of the Virginia model, this being, – identify locations where the largest safety benefits can be obtained.

## **6.0 Formulation of Prioritisation Tool**

### **6.1 Introduction**

A suitable prioritisation tool is required to be formulated for use as a fundamental part of a prioritisation method to be used by the Department of Main Roads – Southern District. Further development of the Iowa Department of Transportation and Virginia Department of Transport methods will be undertaken. As previously discussed in Chapter 5, certain elements of these previously developed methods are of use in this project.

### **6.2 Prioritisation of Remedial Works**

In establishing a prioritisation strategy, the methods of the Iowa Department of Transportation and Virginia Department of Transport were refined for suitability to the Southern District. The method for Southern District has been developed using AADT, traffic composition and standard of rail in comparison with current standards. The method uses a point scoring system similar to that used in the Iowa method.

The developed method scores each individual piece of infrastructure according to the categories of AADT, traffic composition (percent heavy vehicles) and the standard of rail. Each category is further divided into subcategories that are numerically weighted according to severity.

Summation of the subcategory scores provides a total score for each piece of guardrail from which a priority of works can be determined by ranking the scores of the assessed items of infrastructure in descending order.

It is recognised that 2 or more individual sites can be allocated identical total point scores using this method. Should this occur a complete risk analysis shall be undertaken for the subject sites to evaluate the risk of each site to the road user and road authority. Final compilation of a priority listing when using a complete risk management method is at the discretion of the road authority, however in accordance with Australian Standard AS/NZS 3845:1999 it is suggested that sites identified as possessing the greatest risk receive highest priority and they be integrated with the results obtained from the prioritisation tool.

It is important to note that guardrail that is totally compliant with the current standards does not require assessment and prioritisation for remedial works, hence 'scoring' of the infrastructure using the prioritisation tool is not required.

## **6.3 Components**

### **6.3.1 Annual Average Daily Traffic (AADT)**

"AADT is a measure of exposure - higher AADT leads to greater number of guardrail relevant accidents.....Every vehicle that travels past a location, there is opportunity for an accident."

(Virginia Transport Research Council (2001)).

Annual Average Daily Traffic is of extreme significance to the required safety characteristics of a road. Hence it is considered that AADT is a governing factor in determining a priority list for remedial works.

AADT data for roads within the surveyed area is extremely large in range and varies from 18,223 (Warrego Highway) to 228 (Mt Glorious Road). It is therefore necessary to dissect the AADT into appropriately sized groupings whilst bearing in mind that the groupings are to be of an

appropriate size to capture the extreme variation in vehicle movements throughout the network.

For this project the following AADT groupings have been determined:

- Less than 500;
- 500 – 1000;
- 1001 – 3000; and
- Greater than 3000.

In recognising the exposure of vehicles and concurring with the statements made by the Virginia Transport Research Council, it is prudent that larger weightings are given to higher groupings of AADT.

### **6.3.2 Traffic Composition**

In addition to the volume of daily traffic it is important that the composition of the traffic be identified in conjunction with AADT when determining the prioritisation of remedial works. This component is considered to be critical to the method as the measure of AADT will not distinguish between two or more roads that have similar traffic volumes but a dissimilar composition of traffic.

In this project, percent heavy vehicles will be the only traffic composition assessed and this figure will not be further dissected. The figure given for percent heavy vehicles will include, short vehicles, trucks and buses, articulated vehicles and road trains.

The percentage of heavy vehicles within the surveyed area is of large variation, ranging from 21.9% (Gatton – Clifton Road) to 1.8% (Mt Glorious Road). Similar to AADT it is necessary to divide the heavy vehicle data into appropriately sized groupings whilst ensuring that the grouping sizes are of an appropriate size to capture the extreme variation in vehicle movements throughout the network.

For traffic composition data in this project the following groupings have been determined:

- Less than 4 %
- 4 – 8 %;
- 9 – 13 %; and
- Greater than 13 %.

Similar to AADT it is essential that larger weightings are given to higher percentages of heavy vehicles.

### **6.3.3 Rail Standard**

Within Queensland, standards for guardrail are determined by AS/NZS 3845:1999 and relevant Department of Main Road documents and standard drawings. As guardrail standards have changed over time Department of Main Roads – Southern District has a variety of barrier systems within their jurisdiction and consequently not all are compliant with the current standards.

Whilst some of the guardrails may possess minor defects such as no delineation, others are a gross breach of the current standards and present hazards such as no end terminals, non compliant clear zones and non standard height and length. These facts were considered in determination of suitable categories for the method.

Appropriately, rails that present large defects when comparing to the current standard are weighted heavier than those whose defects are of a less serious nature and present less risk to the road user.

For this project the following groupings have been determined for Rail Standard:



- No Delineation, however remainder of Guardrail is compliant with current standard;
- Guardrail is compliant with previous required standard & has some form of end treatment eg flare, BCT;
- Guardrail is not compliant with current or previous standard OR no end treatment OR short in length OR incorrect height OR incorrect post spacing; and
- Guardrail is not compliant with current or previous standard has timber posts OR no end treatment & incorrect height OR short in length.

The prioritisation tool which presents the categories of AADT, Traffic composition and rail standard coupled with the associated weightings for each category is shown in Figure 6.1.

Road Name: \_\_\_\_\_

Road Number: \_\_\_\_\_

Structure ID: \_\_\_\_\_

Through Chainage: \_\_\_\_\_

Left / Right: \_\_\_\_\_

AADT: \_\_\_\_\_

Heavy Vehicles (%): \_\_\_\_\_

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	
Rail Standard	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard <u>&amp;</u> has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment <u>&amp;</u> incorrect height <u>OR</u> short in length	
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.				<b>TOTAL</b>	

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Figure 6.1 – Prioritisation Tool

## **6.4 Use of Prioritisation Tool**

The prioritisation tool shown in Figure 6.1 is a tool which is to be used to assess each individual piece of infrastructure. The output of this tool is a total score which is a vital component in the determination of a priority listing for remedial works. The process involves assessment of the infrastructure against traffic volumes and composition and relevant crash barrier standards. Therefore it is pertinent that the assessor is familiar with present and past standards for guardrail.

Each individual piece of guardrail is to be 'scored' using a separate prioritisation tool.

### **6.4.1 Preliminary Information**

The guardrail is to be identified with the following information:

- Road Name;
- Road number;
- Structure ID (if applicable);
- Through Chainage; and
- Left or Right of Road.

Additionally the current traffic volume (AADT) and composition (percent heavy vehicles) for the specific location is to be known.

### **6.4.2 Allocation of Scores**

As previously stated the tool is based upon a method which allocates a weighted score to predetermined assessment categories of AADT, Percentage of heavy vehicles and Standard of rail.

#### 6.4.2.1 AADT

This component is to be assessed by determining which grouping the AADT for the specific location falls within and the appropriate points are scored for that volume.

##### Example

If the AADT at a designated location is 598 the category of AADT is allocated a score of 10.

#### 6.4.2.2 Traffic Composition

This component is to be assessed by determining which grouping the identified composition of traffic (percent heavy vehicles) in the specific location is allocated to and the appropriate points are scored for that percentage.

##### Example

The traffic composition of a designated location is 11.78% heavy vehicles. The category of traffic composition is allocated a score of 15.

#### 6.4.2.3 Rail Standard

This component is to be determined by undertaking a full assessment of the guardrail against the current applicable standards and determining which pre-determined grouping the guardrail falls within. The appropriate points are then scored for the standard of rail.

##### Example

If a section of guardrail is substandard in length and has no end treatment the category of rail standard is allocated a score of 20.

#### 6.4.2.4 Total

The allocated scores for the AADT, Traffic Composition and Rail Standard categories are summed to give a total score. This score then serves as the basis for prioritisation of works on this piece of infrastructure.

#### Example

AADT	10
Traffic composition	15
Rail Standard	20
<b>Total</b>	<b>45</b>

### 6.4.3 Guide of Works

Compilation of the final priority listing is a process that can not be undertaken following the assessment of each individual piece of guardrail. This process must be performed upon the completion of an assessment of the entire district, area or road. To give the assessor an idea of what works are most likely to be required to an item of infrastructure, a suggested guide of works is listed below. It is to be noted that this information is only a preliminary guide and can be altered at the road authority's discretion.

Suggested guide of works:

- Under 15 Points      No upgrading at this time - location is to be monitored;
- 15 - 25 Points      Retrofit uncompliant item eg fit terminal end; and
- Over 25 Points      Upgrade to standard.

#### **6.4.4 Completion**

Upon completion of each assessment, the prioritisation tool is to be transferred to electronic records (where required) and filed appropriately in the road authority's records system and utilised in the determination of a priority listing.

### **6.5 Future Components**

The developed method allows for the addition of further components in the future to aid in the establishment and refinement of a priority listing. Should further components be added to the tool it is crucial that the entire district, area or road being considered is reassessed to ensure homogeneous results throughout the district, area, road and that no particular piece of infrastructure is biased for works.

As previously discussed a valuable component in the determination of priority ranking is crash history. Upon further provision of data and enhancement of the prioritisation tool it is envisaged that the model could ultimately incorporate crash history. The incorporation of this element would expand the results and allow for greater variety in the priority listing.

Crash History will not be included for the purposes of this project. However a modified prioritisation tool using crash history based upon the model of Iowa Department of Transportation is shown in Figure 6.2.

### **6.6 Conclusion**

A prioritisation tool has been developed for use in a prioritisation method for the Department of Main Roads - Southern District. Formulation of the tool drew upon ideas of previously developed models in conjunction with strategies developed for this project.

The use of the tool is an essential part of a prioritisation method which is explained within later chapters.

Road Name: \_\_\_\_\_  
 Road Number: \_\_\_\_\_  
 Structure ID: \_\_\_\_\_  
 Through Chainage: \_\_\_\_\_  
 Left / Right: \_\_\_\_\_

AADT: \_\_\_\_\_  
 Heavy Vehicles (%): \_\_\_\_\_

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	
Rail Standard	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard <u>&amp;</u> has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment <u>&amp;</u> incorrect height <u>OR</u> short in length	
Crash History	1 PDO	1PI	IF 2PDO's or 1PI & 1PDO	2 or more F's/PI'S or 3 or more PDO's	
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.				TOTAL	

#### Abbreviations

AADT - Annual Average Daily Traffic  
 BCT - Breakaway Cable Terminal

PDO - Property Damage Only  
 PI - Personal Injury  
 F - Fatality

Comments:

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**Figure 6.2** - Prioritisation tool utilising crash history



## **7.0 Procedure for Prioritisation**

### **7.1 Introduction**

The prioritisation procedure is required to be undertaken in a systematic method and be structured to enable simplicity and production of distinct and homogeneous results throughout the district. To achieve this, a procedure for prioritisation has been developed. The procedure has been dissected into logical phases to allow the user to become familiar with the method for ease of completion.

### **7.2 Procedure**

The designated phases are each stand alone components of the procedure and are further described below.

The complete procedure is represented in a flowchart shown in Figure 7.1.

#### **7.2.1 Identification of Guardrail**

All guardrails within the district must be identified and listed on a comprehensive database detailing all relevant information with regard to the item of infrastructure. An example of such a database is shown in Appendix B.

To ensure that each individual piece of guardrail is uniquely identifiable it is recommended that the minimum recorded data be:

- Road number;
- Shire number;
- Through distance (chainage);
- Left or Right of road;
- Structure ID - eg if rail is attached to a bridge or culvert;

- Location description - eg Bridge name;
- Annual Average Daily Traffic (AADT);
- Traffic composition (% Heavy Vehicles); and
- Comments – used for any relevant comments.

As stated previously, the above mentioned dataset is considered to be the minimum required and any expansion of the minimum dataset to aid in identification and record keeping purposes would benefit the user. Any photographs and relevant documents should also be linked to this database.

It is imperative that the database is kept current and that amendments are undertaken without delay.

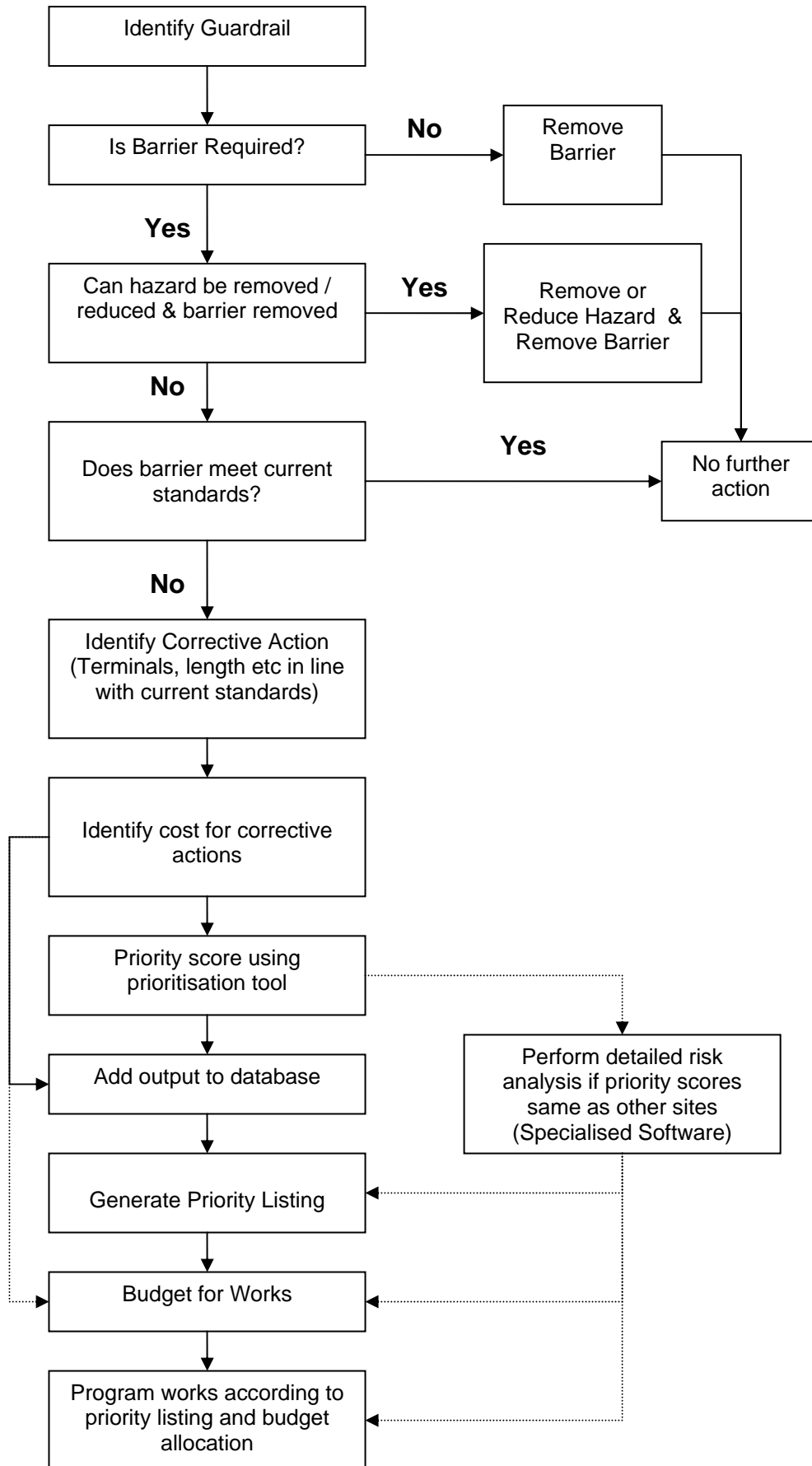
### **7.2.2 Requirement for Barrier**

All researched literature reveals that barriers are considered to be a hazard themselves and should not be erected where not required. Therefore the guardrail auditor must be familiar with the requirements for the provision of guardrail and be able to accurately determine if the barrier is or is not required.

Should it be established that the barrier is not required then the barrier should be removed at the earliest available opportunity and no further action with regard to the completion of the priority tool is required. In these instances it is recommended that:

1. The entry in the database is coloured with a predominant colour which is referenced in the database legend. (In this project, entries within the database where guardrail is to be removed are coloured yellow.)
2. These locations be classified as a high priority and be designated as such in the production of a priority listing.

Figure 7.2 shows a guardrail that is identified for removal as it is not required due to no hazards being present within the clear zone.



**Figure 7.1 – Procedure Flowchart**



**Figure 7.2** – Guardrail identified for removal. No hazard within vehicle clear zone.  
(Gatton – Helidon Road, 2005)

### **7.2.3 Hazard Reduction / Removal**

If it is determined that a barrier is required then attention is to be directed to the reduction or removal of the hazard. All efforts are to be taken to reduce or remove the hazard in an attempt to allow for the removal of the barrier.

If the hazard and subsequent guardrail can be removed, the entry in the database is to be coloured accordingly and the appropriate works scheduled to be performed without delay.

If the hazard can be reduced, these works should be performed at the earliest opportunity and a complete risk assessment of the remaining hazard undertaken to determine if a crash barrier is required in that location. If it is determined that a crash barrier is warranted, further assessment of the guardrail against the procedure is applicable.

#### 7.2.3.1 Severely Damaged Guardrail

Situations may arise where an existing section of guardrail has been severely damaged cannot perform its intended function. These situations may present the following safety hazards to motorists by remaining in its damaged form:

- The hazard that the guardrail was originally installed to protect maybe now unprotected; and / or
- The guardrail in its damaged state may present an increased hazard to motorists.

In these instances and where it has been determined that the hazard cannot be removed it is recommended that:

1. The entry in the database is coloured with a predominant colour which is referenced in the database legend. (In this project, entries within the database where damaged guardrail is to be removed and replaced are coloured magenta.)
2. These locations be classified as a high priority and be designated as such in the production of a priority listing.

Figure 7.3 shows an unprotected hazard which is temporarily and inadequately guarded by barrier mesh as a result of the demolition of the guardrail due to a vehicle collision. Figure 7.4 shows the damaged section of guardrail.





**Figure 7.3** – Unprotected hazard due to vehicle collision. (Gatton – Laidley Road, 2005)



**Figure 7.4** – Damaged guardrail due to vehicle collision. (Gatton – Laidley Road, 2005)

#### **7.2.4 Current Standards**

The guardrail must be assessed against current Department of Main Roads documents and standard drawings and the current Australian Standard (AN/NZS 3845:1999).

If the guardrail meets the prescribed standards then no further action is required.

If the guardrail does not meet the prescribed standards then further assessment of the guardrail against this procedure is required.

#### **7.2.5 Identification of Components not in Compliance with Standards**

The auditor must assess the guardrail and determine what components require upgrading and / or replacement in order for the infrastructure to comply with the relevant standards. All defective items should be included in this review and be recorded in the comments column of the database.

#### **7.2.6 Cost Estimate of Corrective Works**

Items identified in 7.2.5 are to be itemised and a cost estimate prepared for the repair or provision of such items. Rates of repair applicable to the locality shall be used in determining cost estimates.

Rates of repair are expected to significantly differ between localities and shall be confirmed periodically to ensure that accurate data is being presented. It is vital that current rates of repair or provision, for the relevant area or district, are used in this analysis.



At the time of compiling this report the Department of Main Roads (Derbyshire AC 2005 pers. comm., 6 April) advised rates in the study area were approximately:

- Wbeam \$120/m
- Bridge Connections \$145/m + End Treatment
- Wire rope \$150/m
- Concrete \$500/m
- End treatment \$2500 - \$5000 (MELT to ET2000)

For the purposes of this report the above listed rates will be used.

Cost estimate totals for each individual site shall be entered into the guardrail prioritisation database (described in section 7.2.9).

### **7.2.7 Prioritisation of Remedial Works Using Prioritisation Tool**

Using the prioritisation tool described in Chapter 6 and shown in Figure 6.1 the guardrail is to be 'scored'. The results of the scoring shall be recorded to enable a prioritisation listing to be created.

Upon completion of the assessment of each road, area or district the prioritisation scores for individual locations of guardrail which require remedial works shall be entered into the guardrail prioritisation database.

Should individual guardrails present the same score a complete risk analysis is to be performed on the subject sites to evaluate the associated risk to the road user and road authority.

Final compilation of a priority listing when using a complete risk management method is at the discretion of the road authority. It is suggested that the sites that are identified as possessing the greatest risk receive highest priority and these be integrated with the results obtained from the prioritisation tool.

### **7.2.8 Add Output to Database**

Output generated from phases 7.2.6 and 7.2.7 (cost estimate and priority score) is to be input into the crash barrier database for the purposes of generating a priority listing and for asset record purposes. To allow for the input of this data the following four additional fields were provided to the data base:

- Required Elements – Listing of required infrastructure eg 2 x MELT;
- Rectification Estimate – Cost estimate of rectification works;
- Prioritisation Score – Obtained from prioritisation tool; and
- Priority Rank – Numerical ranking of works.

### **7.2.9 Generate Priority Listing**

A priority listing is to be generated which provides a sorted data list of all individual sites in descending order according to the priority score of each location.

To successfully undertake this phase, without damaging the integrity of the data within the crash barrier database, an additional database is to be generated using the contents and general format of the crash barrier database.

This generated database is to be termed the 'Prioritisation Database' and is produced to allow prioritisation ranking for the whole district without amending the general format of the crash barrier database which lists individual guardrail sites according to the road. It is essential that the prioritisation database is generated from the crash barrier database to ensure that it contains current data and eliminates the need for cross referencing when viewing or updating data.

In order to generate a priority listing and ultimately a works schedule according to prioritisation score, the database is to be sorted in descending order using the prioritisation score field. Following completion

of sorting according to prioritisation scores the priority rank field can be completed by manual input eg 1, 2, 3. The priority rank is given by the number allocated to the site in accordance with its prioritisation score and numerical position within the database.

#### **7.2.10 Budget for Works**

To enable the upgrade of all current non compliant guardrail to the current standards over a period of time, it is recommended that the district allow an allocation in the annual budget for guardrail remedial works.

Upon confirmation of the annual budget allocation the district can determine the guardrail works that are financially able to be completed from the developed priority listing using the cost estimate information compiled when undertaking the phases described in sections 7.2.5 and 7.2.6.

A suggested approach for determining appropriate annual budget allocations for a district, area or road is:

1. Undertake a complete assessment, prioritisation and cost estimate of all guardrail within the district, area or road;
2. Total the cost estimates of each piece of infrastructure for the district, area or road;
3. Establish a time frame for all guardrail to be compliant with the relevant standards; and
4. Divide the total cost by the allocated time frame or depending upon the determined priorities and proportion the funds appropriately.

#### **7.2.11 Program Works**

Upon approval of funding works, they are to be programmed for completion in accordance with the developed priority list.

Determination of what Department of Main Roads works scheme the works are to be completed under is a decision to be made by the district.

### **7.3 Conclusion**

This chapter provides the designated procedure which must be followed when assessing guardrail for remedial works. It is imperative that 9 major phases of this procedure be followed to enable consistency of results throughout the district and / or assessed area.

## **8.0 Testing of Prioritisation Tool and Procedure**

### **8.1 Introduction**

The developed prioritisation method is to be used throughout the Southern District of the Department of Main Roads. To ensure a useable and successful method has been developed considerable trials and testing was undertaken throughout the study area.

To ensure that the method was not biased toward any particular area or road type, one entire shire and a random selection of roads in the remaining two shires were selected for testing.

This chapter details the selection of roads for testing, the testing procedure and the modifications that were made to the prioritisation tool following analysis upon completion of testing.

### **8.2 Selection of Roads for Testing**

As previously stated only a selection of roads were chosen for testing. Reasons for limiting the amount of roads for testing purposes were due to time constraints and provision of resources. In selecting roads and areas to be used in the trial area, it was determined that one complete shire should be analysed in addition to a random sample of roads within the study area. The basis of selecting an entire shire for assessment is to prove that the developed method does not present any bias toward a certain classification of road and / or situation. Laidley Shire was selected for testing for this project.

The selection of Laidley Shire was based upon the diversity of the composition of the state controlled road network within the shire. Laidley

Shire contains six state controlled roads which are listed in Table 8.1. The roads vary widely in status and traffic volume ranging from a dual carriageway national highway (Warrego Highway) carrying approximately 16,800 vehicles per day in this location to a collector / trunk collector road (Mulgowie Road) with a volume of 801 vehicles per day.

Hence it was determined that the mixture of road categories and traffic volumes within Laidley Shire would provide a suitable trial for the developed method.

**Table 8.1 – Laidley Shire State Controlled Roads**

<b>Road Number</b>	<b>Road Name</b>	<b>Start Chainage</b>	<b>Through Chainage</b>	<b>Total Km</b>
18A	Warrego Highway	36.58	52.91	16.33
308	Rosewood Laidley Road	18.89	23.63	4.74
311	Laidley Plainlands Road	0	8.56	8.56
312	Gatton Laidley Road	3.68	15.06	11.38
412	Forest Hill Fernvale Road	0	17.03	17.03
3083	Mulgowie Road	0	29.67	29.67

Random selection of other roads within the study area ensured a mixture of road categories, traffic volumes and vertical and horizontal alignments. Selected roads in addition to roads within Laidley Shire are listed in Table 8.2.

**Table 8.2 –Selected Roads for Assessment**

<b>Road Number</b>	<b>Road Name</b>	<b>Start</b>	<b>Through Distance</b>	<b>Total Km</b>
312	Gatton Laidley Road	0	3.68	3.68
314	Gatton Helidon Road	0	21.19	21.19
410	Wivenhoe Somerset Road	0	39.13	39.13
411	Cominya Connection Road	0	12.88	12.88
412	Forest Hill Fernvale Road	17.03	38.95	21.92
414	Esk Hampton Road	0	27.62	27.62

In total, 10 roads from a possible 18 within the study area were trialled, and 121 guard rail sites from a possible 379 sites were evaluated.

### **8.3 Testing Procedure**

The procedure for testing was generally as determined in Chapter 7 and detailed in Figure 7.1, with the exception of the 'Budget for Works' and 'Program for Works' phases. These phases are considered to be operational level requirements within an organisation and as such can not be fulfilled as part of this project.

Testing of the procedure upon the selected sites was initially field based assessment which was pursued by desk top analyses where hard copy records were transferred to electronic versions.

#### **8.3.1 Field Based Assessment**

The roads specified in Tables 8.1 and 8.2 were inspected primarily using an 'on ground' inspection method however a minority of sites were inspected from a slow moving vehicle. The aims of the inspections were:

- Validation of Department of Main Roads data; and
- Allow detailed inspection of the infrastructure items and assessment against relevant standards.

Relevant notations and assessment using the prioritisation tool were made on hard copy templates which allowed simple transfer to electronic databases.

Prioritisation tool results of the road detailed within Tables 8.1 and 8.2 are contained within Appendix K.

### **8.3.2 Photographs**

In conjunction with the field based assessment, photographs were taken of most locations of guardrail. These photographs were later used in further evaluation and desktop analyses of individual guardrail sites. Ultimately photographs taken during inspections should be linked to the main guardrail database for reference purposes. For this project, photographs will not be formally linked to the databases.

Appendix H contains photographs of selected guardrail sites upon the inspected roads within the study area.

### **8.3.3 Prioritisation Tool**

At each site a hard copy prioritisation tool was completed. Each category of the tool was completed and the rail scored by assessing the individual sections of the rail against traffic volumes, vehicle composition and relevant guardrail standards. Relevant notations for each site were made within the comments section of the tool.

Upon completion of the field assessments, prioritisation tools for each road were consolidated and then the data including prioritisation scores was transferred to electronic files. Where necessary, the database was amended to reflect any pertinent information that was found whilst undertaking the inspection.

### **8.3.4 Cost Estimate of Rectification Works**

As identified in Chapter 7 an essential part of the process in determining the final rectification priority list is to determine a cost estimate for sites that were not in compliance with the current guardrail standards. Cost estimates were performed by identifying items of the guardrail that were



not in compliance and required upgrading to meet the current standards and applying the relative rate for the repair or upgrade.

Rates of repair are most likely to differ between localities and should be confirmed periodically to ensure that accurate data is being presented. It is vital that current rates of repair or provision for the relevant area / district are used in the analysis.

Department of Main Roads rates for the study have been used in this analysis and are listed below.

- Wbeam                      \$120/m
- Bridge Connections      \$145/m + End Treatment
- Wire rope                  \$150/m
- Concrete                  \$500/m
- End treatment            \$2500 - \$5000 (MELT to ET2000)

(Derbyshire AC 2005 pers. comm., 6 April)

Cost estimates calculated for each individual locality were entered into the prioritisation database.

### **8.3.5 Ranking of Prioritisation Scores**

Completed prioritisation tools present the prioritisation score which is the primary element used to generate a prioritisation listing for remedial works. Individual prioritisation scores were entered into the crash barrier database. The prioritisation database was then generated from the crash barrier database and then sorted in descending order using the prioritisation score field to generate a priority listing. Rankings were then allocated to each site and entered into the relevant field of the database.

Ranked prioritisation database for the inspected roads is shown in Appendix I.

## 8.4 Modification to Prioritisation Tool

### 8.4.1 Initial Prioritisation Tool

Prior to the development of the prioritisation tool described within Chapter 6 and detailed in Figure 6.1 a prioritisation tool was formulated that did not consider traffic composition in conjunction with traffic volume and guardrail standard. This initial prioritisation tool is shown in Appendix J.

Preliminary testing of the prioritisation method was undertaken using the initial prioritisation tool and upon analysis of the results obtained it was determined that this tool did not give an encompassing representation of the situation. No assessment of traffic composition was performed and the use of traffic volume data alone did not distinguish between roads that had similar traffic volumes but dissimilar traffic composition. Therefore, two or more completely different situations with regard to traffic volumes and rail standards could present equal scores but could be of extreme difference in relation to the danger they presented to the road user and road authority.

Example (using initial prioritisation tool – Appendix J)

#### Road 1

Traffic Volume:	5600 vpd
Traffic Composition:	3.2 % Heavy vehicles
Guardrail Standard:	Compliant with previous standard and has BCT.
Prioritisation Score:	30 (20 AADT, 10 Rail Standard)

#### Road 2

Traffic Volume:	870 vpd
Traffic Composition:	29.4 % Heavy vehicles
Guardrail Standard:	Non compliant with previous or current standard, has timber posts and no end treatment
Prioritisation Score:	30 (10 AADT, 20 Rail Standard)

Results that are obtained using the scoring process associated with the initial tool are identical and would be entered into the prioritisation database as such. When analysing these results there is no ability to distinguish which is the most dangerous location and determine if the urgency for rectification works was equal. Consequently it was determined that an additional element needed to be introduced into the prioritisation tool to allow a more substantial and accurate evaluation of each guardrail location to be performed.

Additional data available for interrogation for each individual site and ultimately for incorporation into the prioritisation tool was:

- Fatal Traffic Accident Data; and
- Traffic Composition Data.

#### 8.4.1.1 Fatal Traffic Accident Data

As previously discussed in Chapter 5 the number of fatal traffic accidents involving guardrail within Southern District is very small. In the period 1992 – 2004, 4 of the 128 (3.125%) fatal traffic accidents involved guardrail. This information is represented graphically in Figure 5.2.

It was determined that given the small quantity of fatal accidents involving guardrail within Southern District, the incorporation of fatal traffic accident data within the tool was not viable at this point in time to produce more equitable results.

#### 8.4.1.2 Traffic Composition Data

Traffic composition data is readily available and is regularly collected in conjunction with traffic volume data. Traffic composition data provided by Department of Main Roads is read in combination with AADT for each location and is able to be further dissected beyond the proportion of light

and heavy vehicles to determine the percentages of trucks and busses, articulated vehicles and road trains using the road network. Traffic composition data for the roads listed in Tables 8.1 and 8.2 is contained within Appendix E.

It was concluded that traffic composition is critical to the method as the measure of AADT alone will not distinguish between two or more roads that have similar traffic volumes but dissimilar compositions of traffic. Therefore it was considered that the incorporation of traffic composition data into the prioritisation tool was a feasible means to produce more rational results.

#### **8.4.2 Modified Prioritisation Tool**

To enable logical and equitable results the initial prioritisation tool was modified to include the assessment of traffic composition in conjunction with traffic volume and guardrail standard. The decision to amend the initial prioritisation tool was based upon the previous discussions.

##### **8.4.2.1 Testing of Modified Prioritisation Method**

Testing of the modified prioritisation tool was undertaken to determine its suitability to this project. The addition of the traffic composition field added extra dimension to the assessment and broadened the range of scores obtained in testing.

The range of scores / results of the modified prioritisation tool depended upon the number of traffic count locations on each road. For example if only one traffic volume and composition count was available for a road of 30 kilometres in length then the same traffic volume and composition data will exist for each individual guardrail location and the rail standard will be the only variation in determining a priority score. This issue is believed to

be one that is related to the provision of data and not related to the method.

#### 8.4.2.2 Adoption of Prioritisation Tool

From the testing that was performed using the initial and modified methods it was decided to use the modified prioritisation tool for this project. As stated in section 8.4.2.1 the variety of results using the modified prioritisation tool depends upon the amount of traffic data that exists for each road. This is not considered to be a hindrance to the use and development of the prioritisation process as additional survey locations for volume and composition can be introduced during the programming of these activities. Accordingly the modified prioritisation tool was selected for use.

The format of the modified prioritisation tool and information regarding the relevant data groupings and scoring mechanisms of each of the components are detailed within Chapter 6.

## 8.5 Conclusion

A suitable prioritisation method and tool has been developed for use in determining a prioritisation listing for remedial works of guardrail systems. The refinement of the prioritisation tool, the implementation of the tool within the method and subsequent testing of such upon a selection of roads has ensured that the method produces equitable and logical results.

## 9.0 Example of Procedure

### 9.1 Introduction

Roads within Department of Main Roads - Southern District possess a wide variety of guardrail systems. Some of these systems are compliant with the current standards and do not present a risk, a proportion of systems are not in compliance with current or previous standards and present a danger to the road user and road authority. A method has been developed to prioritise the required rectification works for noncompliant locations.

This chapter demonstrates the workings and outcomes of the developed method to an entire road within Southern District which possesses a variety of guardrail systems.

### 9.2 Road Information

Name: Mulgowie Road  
Road Number: 3083  
Shire: 75  
Through Distances: 00 – 29.67  
Traffic Volume: 801  
Traffic Composition: 8.4 % Heavy Vehicles  
Guardrail Locations: Table 9.1

**Table 9.1** – Mulgowie Road – guardrail locations.

Through Distance	L/R	Structure ID	Location / Description
0.8	B	303	Bridge - Campbell Bridge
2.518	B	25730	Bridge - Coopers Bridge
12.2	L		
25.175	B	301	Bridge - Peacock Bridge

### **9.3 Assessment Using Prioritisation Method**

Each guardrail site detailed in Table 9.1 will be assessed using the prioritisation method described in Chapter 7. The procedure followed will be that shown in Figure 7.1. These examples will present to the reader the format in which to complete the process for a variety of circumstances. Photographs are displayed for each location to allow the reader to visualise the status of the guardrail and surrounding terrain.

#### **9.3.1 Campbell Bridge – Through Distance 0.8**



**Figure 9.1** – Campbell Bridge – Photograph 1





**Figure 9.2** – Campbell Bridge – Photograph 2



**Figure 9.3** – Campbell Bridge – Photograph 3



#### 9.3.1.1 Procedure – Campbell Bridge

With reference to Figure 7.1

- Identify Rail – Campbells Bridge – Through distance 0.8.
- Is barrier required? – Yes, large drop from side of road within clear zone.
- Can hazard be removed or reduced and barrier removed? – No, Hazard is part of road infrastructure.
- Does barrier meet current standards? – No, Meets previous standards.
- Corrective action required. – Provision of 4 end treatments. (MELT)
- Cost estimate for corrective actions. – 4 x MELT. \$2,500 each Total cost \$10,000.

- **Prioritisation Tool**

The prioritisation tools for Campbell Bridge have been divided into two parts, one for the left of the bridge and one for the right of the bridge, given the fact that the rail standard is identical on both sides of the bridge. Entry to the database will be singular.

Prioritisation Tools for Campbell Bridge are shown in Figures 9.4 (a) and 9.4 (b). Note that left and right are defined by direction of through distance.

- Output to database – Cost estimate and prioritisation scores are manually input into the prioritisation database.

Priority listing generation is completed following the assessment of the entire road.

<b>Road Name:</b> <u>Mulgowie Road</u> <b>Road Number:</b> <u>3083</u> <b>Structure ID:</b> <u>303</u> <b>Through Chainage:</b> <u>0.8</u> <b>Left / Right:</b> <u>Left</u>	<b>AADT:</b> <u>801</u>  <b>Heavy Vehicles (%):</b> <u>8.4</u>
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Points	5	10	15	20	Allocated Score	
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>	
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>	
<b>Rail Standard</b>	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard <b>&amp;</b> has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>10</b>	
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.					<b>TOTAL</b>	<b>30</b>

**Abbreviations**  
 AADT - Annual Average Daily Traffic  
 BCT - Breakaway Cable Terminal  
  
 Comments:  
BCT as terminal  
Compliant with previous standard  
Rail full length over bridge

**Figure 9.4 (a)** – Prioritisation Tool - Campbell Bridge – Left

<b>Road Name:</b> <u>Mulgowie Road</u> <b>Road Number:</b> <u>3083</u> <b>Structure ID:</b> <u>303</u> <b>Through Chainage:</b> <u>0.8</u> <b>Left / Right:</b> <u>Right</u>	<b>AADT:</b> <u>801</u>  <b>Heavy Vehicles (%):</b> <u>8.4</u>
--	--

Points	5	10	15	20	Allocated Score	
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>	
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>	
<b>Rail Standard</b>	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard <b>&amp;</b> has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>10</b>	
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.					<b>TOTAL</b>	<b>30</b>

**Abbreviations**  
 AADT - Annual Average Daily Traffic  
 BCT - Breakaway Cable Terminal

Comments:  
 BCT as terminal  
 Compliant with previous standard  
 Rail Full length over bridge

**Figure 9.4 (b)** – Prioritisation Tool - Campbell Bridge – Right

### 9.3.2 Coopers Bridge – Through Distance 2.518



**Figure 9.5** – Coopers Bridge – Photograph 1



**Figure 9.6** – Coopers Bridge – Photograph 2





**Figure 9.7** – Coopers Bridge – Photograph 3

#### 9.3.2.1 Procedure – Coopers Bridge

With reference to Figure 7.1

- Identify Rail – Coopers Bridge – Through distance 2.518.
- Is barrier required? – Yes, bridge
- Can hazard be removed or reduced and barrier removed? – No, Hazard is part of road infrastructure.
- Does barrier meet current standards? – No, Require delineation. Rail, End treatments and bridge connections meet current standards.
- Corrective action required. – Provision of Delineators
- Cost estimate for corrective actions. – Approx \$300

#### • Prioritisation Tool

The prioritisation tools for Coopers Bridge have been consolidated into one sheet as the only defect is delineation and this is common upon all approaches and departures. Entry to the data base will be singular.

The Prioritisation Tool for Coopers Bridge is shown in Figure 9.8.

Output to database – Cost estimate and prioritisation scores are manually input into the prioritisation database.

Priority listing generation is completed following the assessment of the entire road.

Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: 25730  
 Through Chainage: 2.518  
 Left / Right: Left & Right – App & Dep.

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment <u>&amp;</u> incorrect height <u>OR</u> short in length	5
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.				<b>TOTAL</b>	<b>25</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No delineation

Compliant with standard

**Figure 9.8** – Coopers Bridge – Prioritisation Tool

### 9.3.3 Through Distance 12.2



**Figure 9.9** – Through Distance 12.2 – Photograph 1



**Figure 9.10** – Through Distance 12.2 – Photograph 2



#### 9.3.3.1 Procedure – Through Distance 12.2

With reference to Figure 7.1

- Identify Rail – Through distance 12.2 – Left Side of road.
- Is barrier required? – Yes, Culvert headwall within clear zone.
- Can hazard be removed or reduced and barrier removed? – No, Hazard is part of road drainage infrastructure.
- Does barrier meet current standards? – No, incorrect height, no end treatments, timber posts, incorrect post spacing.
- Corrective action required. – Replace rail with 36 metres of Wbeam type rail and 2 x MELT.
- Cost estimate for corrective actions.

Guardrail	36 x \$120 = \$ 4,320.00
End Terminal	2 x \$2,500 = \$ 5,000.00
Total	\$ 9,320.00

- Prioritisation Tool – Refer Figure 9.11.

Road Name: Mulgowie Road  
Road Number: 3083  
Structure ID: -  
Through Chainage: 12.2  
Left / Right: Left

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard <u>&amp;</u> has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment <u>&amp;</u> incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.					<b>TOTAL 40</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Straight run of rail

Post spacing 4m

No flare or end treatment

Timber posts

Figure 9.11 – Through Distance 12.2 – Prioritisation Tool

#### 9.3.4 Peacock Bridge – Through Distance 25.175



Figure 9.12– Peacock Bridge – Photograph 1



Figure 9.13 – Peacock Bridge – Photograph 2

#### 9.3.4.1 Procedure – Peacock Bridge

With reference to Figure 7.1

- Identify Rail – Peacock Bridge – Through distance 25.175.
- Is barrier required? – Yes, bridge.
- Can hazard be removed or reduced and barrier removed? – No, Hazard is part of road infrastructure.
- Does barrier meet current standards? – No, incorrect length and height, no bridge rail, no end treatments, timber posts.
- Corrective action required. – Provide new rail and end treatments (MELT) to left and right of road on approach and departure. Provide bridge rail over full length of bridge. Applicable to use wbeam.
- Cost estimate for corrective actions.

Guardrail (bridge)	$2 \times 30 \times \$120 = \$$	7,200.00
Guardrail (app and dep)	$4 \times 20 \times \$145 = \$$	11,600.00
End Terminal	$4 \times \$2,500 =$	\$ 10,000.00
Total		\$ 28,800.00

- Prioritisation Tool

The prioritisation tools for Campbell Bridge have been divided into two parts, one for the left of the bridge one for the right of the bridge, given the fact that the rail standard is identical on both sides of the bridge. Entry to the database will be singular.

Prioritisation Tools for Campbell Bridge are shown in Figures 9.14 (a) and 9.14 (b). Note that left and right are defined by direction of through distance.

- Output to database – Cost estimate and prioritisation scores are manually input into the prioritisation database.

Priority listing generation is completed following the assessment of the entire road.

**Road Name:** Mulgowie Road  
**Road Number:** 3083  
**Structure ID:** 301 - Peacock Bridge  
**Through Chainage:** 25.175  
**Left / Right:** Left - App & Dep

**AADT:** 801

**Heavy Vehicles (%):** 8.4

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard <b>&amp;</b> has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.					<b>TOTAL 40</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

#### Comments:

No bridge rail      No connection to bridge

No end treatments      Incorrect height

Short in length

Timber posts

**Figure 9.14 (a)** – Prioritisation Tool - Peacock Bridge – Left

**Road Name:** Mulgowie Road  
**Road Number:** 3083  
**Structure ID:** 301 - Peacock Bridge  
**Through Chainage:** 25.175  
**Left / Right:** Right - App & Dep

**AADT:** 801

**Heavy Vehicles (%):** 8.4

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guardrail is compliant with current standard	Guardrail is compliant with previous required standard <b>&amp;</b> has some form of end treatment eg flare, BCT	Guardrail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guardrail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guardrail is compliant with current standard then no assessment is required.					<b>TOTAL 40</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No bridge rail                      No connection to bridge

No end treatments                  Incorrect height

Short in length                      Timber Posts

**Figure 9.14 (b)** – Prioritisation Tool - Peacock Bridge – Right

## **9.4 Prioritisation**

All data including cost estimates and prioritisation scores are entered into the crash barrier database manually within the allocated fields. The input of this information completes the database and allows the generation of the prioritisation database.

### **9.4.1 Crash Barrier Database – Mulgowie Road**

Figure 9.15 shows the data for Mulgowie Road. Whilst in this tabular format and utilising the cost estimate data, cost estimates for the entire road can be determined. This concept is illustrated in Figure 9.15.

### **9.4.2 Prioritisation Database – Mulgowie Road**

As discussed in the preceding chapters and sections the prioritisation database is generated from the crash barrier database once all relevant data has been entered. The prioritisation database is a ranked listing of the crash barrier database according to prioritisation score. This ranking determines what order or 'priority' the works should be undertaken in according to the method that has been developed within this project.

Prioritisation listing for guardrail remedial works within Mulgowie Road is shown in figure 9.16.

## **9.5 Conclusion**

This chapter demonstrates the workings and outcomes of the developed method tested on Mulgowie Road. The use of Mulgowie Road presents an example of how the tool can be utilised for a variety of non compliant guardrail systems.

Shire	Road No.	Thru Dist	L/R	Struct. ID	Location/ Description	AADT	% Heavy Veh	Comments	Required Elements	Rectification Estimate (\$)	P'sation Tool Score	Priority Rank
75	3083	0.8	B	303	Campbell Bridge	801	8.4	BCT on ends, compliant with previous standard.	4 x MELT	\$ 10,000	30	
75	3083	2.518		25730	Coopers Bridge	801	8.4	No delineation	Delineators	\$ 300	25	
75	3083	12.2	L			801	8.4	Non standard rail, non standard height & length, timber posts	36m rail, 2 x MELT	\$ 9,320	40	
75	3083	25.175		301	Peacock Bridge	801	8.4	Non standard armco and rail, no connection to bridge, length & height	2 x 30m rail, 4 x 20m rail, 4 x MELT	\$ 28,800	40	
									<b>Road 3083 - TOTAL</b>	<b>\$ 48,420</b>		

**Figure 9.15** - Crash Barrier Database – Mulgowie Road

Shire	Road No.	Thru Dist	L/R	Struct. ID	Location/ Description	AADT	% Heavy Veh	Comments	Required Elements	Rectification Estimate (\$)	P'sation Tool Score	Priority Rank
75	3083	12.2	L			801	8.4	Non standard rail, non standard height & length, timber posts	36m rail, 2 x MELT	\$ 9,320	40	<b>1</b>
75	3083	25.175		301	Peacock Bridge	801	8.4	Non standard armco and rail, no connection to bridge, length & height	2 x 30m rail, 4 x 20m rail, 4 x MELT	\$ 28,800	40	<b>1</b>
75	3083	0.8	B	303	Campbell Bridge	801	8.4	BCT on ends, compliant with previous standard.	4 x MELT	\$ 10,000	30	<b>2</b>
75	3083	2.518		25730	Coopers Bridge	801	8.4	No delineation	Delineators	\$ 300	25	<b>3</b>

**Figure 9.16** – Prioritisation Database – Mulgowie Road



## 10.0 Results

### 10.1 Introduction

The developed prioritisation procedure described in preceding chapters was applied to a selection of roads within Department of Main Roads - Southern District in the development of a suitable system for the prioritisation of guard rail remedial works within the district.

This chapter discusses the results of the study using the developed method and the findings of common problems and standards throughout the study area.

### 10.2 Results of Prioritisation Procedure

The prioritisation procedure was employed to a selection of state controlled roads within the study area. To prevent bias toward a certain classification of roads, all roads within 1 complete shire and a random selection of roads within the remaining 2 shires were scheduled for assessment using the developed procedure. A complete listing of the selected roads is shown in Table 10.1.

**Table 10.1** – Selected Roads

Road Number	Road Name	Start	Through Distance	Total Km
308	Rosewood Laidley Road	18.89	23.63	4.74
311	Laidley Plainlands Road	0	8.56	8.56
312	Gatton Laidley Road	0	3.68	3.68
312	Gatton Laidley Road	3.68	15.06	11.38
314	Gatton Helidon Road	0	21.19	21.19
410	Wivenhoe Somerset Road	0	39.13	39.13
411	Cominya Connection Road	0	12.88	12.88
412	Forest Hill Fernvale Road	0	17.03	17.03
412	Forest Hill Fernvale Road	17.03	38.95	21.92
414	Esk Hampton Road	0	27.62	27.62
3083	Mulgowie Road	0	29.67	29.67

The selection of the roads was based upon obtaining a diverse range of road classifications, traffic volumes and vertical and horizontal alignments. It is believed that the roads listed in Table 10.1 satisfy these characteristics.

### **10.2.1 Databases Containing Results**

The developed method utilises two databases to manage the results obtained. The two databases used are:

- Crash Barrier Database; and
- Prioritisation Database.

#### **10.2.1.1 Crash Barrier Database**

The crash barrier database is the major developed database which stores all of the consolidated information from the Department of Main Roads records. The database is comprised of the following entry fields:

- Shire Identification
- Road Number
- Though Distance
- Left / Right
- Structure Identification
- Location / Description
- AADT
- Percent Heavy Vehicles
- Comments
- Required Elements
- Rectification Estimate
- Prioritisation Tool Score
- Priority Rank

Results from the developed prioritisation procedure have been entered in to this database. The database can be interrogated to determine results with respect to the overall network, individual roads or individual guardrail locations.

The crash barrier data base including cost estimate, priority score results and priority rank for this project is displayed within Appendix B.

#### 10.2.1.2 Prioritisation Database

As explained within Chapter 7, the prioritisation database is generated from the crash barrier database and ranks all entries in descending order based upon the Prioritisation Tool Score field. The prioritisation data base generated for the surveyed roads for this project is displayed in Appendix I.

### 10.2.2 Results – Individual Roads

Results for all of the roads selected for assessment are entirely detailed and contained within the Crash Barrier and Prioritisation Databases, which are displayed with Appendices B and I respectively. In order to assess the results of each individual road a simplified table has been produced for each road detailing:

- Individual cost estimates;
- Prioritisation tool scores;
- Prioritisation rank; and
- Total cost estimate for the road.

It must be noted that the prioritisation rank for each individual location is taken from the overall priority listing of the surveyed roads.

### 10.2.2.1 Rosewood – Laidley Road – Road Number 308

**Table 10.2** – Rosewood Laidley Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
19.31	84m rail, 2 x MELT	\$ 15,080	50	3
21.68	4 x 20m rail, 4 x MELT ( L&R App & Dep)	\$ 21,600	50	3
	<b>Road 308 - TOTAL</b>	<b>\$ 36,680</b>		

### 10.2.2.2 Laidley – Plainlands Road – Road Number 311

**Table 10.3** – Laidley Plainlands Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
0	2 x 20m rail, 2 x MELT (L App & Dep)	\$ 10,800	50	3
0	2 x 20m rail, 2 x MELT (R App & Dep)	\$ 10,800	45	4
0.8	4 x MELT	\$ 10,000	45	4
1.2	4 x MELT	\$ 10,000	45	4
	<b>Road 311 - TOTAL</b>	<b>\$ 41,600</b>		

### 10.2.2.3 Gatton – Laidley Road – Road Number 312

**Table 10.4** – Gatton – Laidley Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
7	Remove Rail	\$ 500	45	1
10.96	Replace rail with new standard - 2 x 20m rail, 2 x MELT	\$ 7,400		1
14.4	2 x 20m rail, 2 x MELT (L App & Dep)	\$ 10,800	45	4
14.4	2 x 20m rail, 2 x MELT (R App & Dep)	\$ 10,800	45	4
	<b>Road 312 - TOTAL</b>	<b>\$ 29,500</b>		

Required works on Gatton Laidley Road include the removal of a section of guardrail that has been determined as not being required (coloured yellow, refer section 7.2.2), and replacement of a damaged section of guardrail (coloured magenta, refer section 7.2.3.1).

#### 10.2.2.4 Gatton Helidon Road – Road Number 314

**Table 10.5** – Gatton – Helidon Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
5.66	2 x MELT	\$ 5,000	45	4
5.66	20m rail, 2 x ET	\$ 14,800	55	2
5.95	Remove Rail	\$ 1,000	50	1
6.86	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
6.86	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
9.553	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
9.553	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
9.97	20m rail, 2 x MELT	\$ 7,400	55	2
9.97	20m rail, 2 x MELT	\$ 7,400	55	2
13.02	50m rail, 2 x MELT	\$ 11,000	55	2
13.02	50m rail, 2 x MELT	\$ 11,000	55	2
17.27	30m rail, 2 x ET	\$ 13,600	55	2
17.27	30m rail, 2 x ET	\$ 13,600	55	2
21.34	2 x MELT	\$ 5,000	45	4
21.34	30m rail, 2 x MELT	\$ 8,600	50	3
	<b>Road 314 - TOTAL</b>	<b>\$ 161,600</b>		

#### 10.2.2.5 Wivenhoe – Somerset Road – Road Number 410

**Table 10.6** – Wivenhoe - Somerset Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
0.4	2 x 120m rail , 4x ET	\$ 48,800	35	6
1.6	200m rail, 2 x ET	\$ 34,000	35	6
1.9	2 x 55m rail, 4 x ET	\$ 33,200	35	6
2.2	2 x100m rail, 4 x ET	\$ 44,000	35	6
2.3	20m rail, 2 x ET	\$ 12,400	35	6

4.1	2 x 130m rail, 4 x ET	\$ 51,200	35	6
4.4	2 x 140m rail, 4 x ET	\$ 53,600	35	6
5.1	2 x 175m rail, 4 x ET	\$ 62,000	35	6
5.3	2 x 50m rail, 4 x ET	\$ 32,000	35	6
5.4	2 x 32m rail, 4 x ET	\$ 27,680	35	6
5.6	88m rail, 4 x ET	\$ 20,560	35	6
5.9	2 x 90m rail, 4 x ET	\$ 41,600	35	6
6.5	2 x 96m rail, 4 x ET	\$ 43,040	35	6
6.8	2 x 206m rail, 4 x ET	\$ 69,440	35	6
7.3	20m rail, 2 x ET	\$ 12,400	35	6
7.7	168m rail, 2 x ET	\$ 30,160	35	6
7.9	2 x 22m rail, 4 x ET	\$ 25,280	35	6
8.1	136m rail, 2 x ET	\$ 26,320	35	6
8.53	188m rail, 2 x ET	\$ 32,560	35	6
9.13	2 x 80m rail, 4 x ET	\$ 39,200	35	6
9.53	2 x 150m rail, 4 x ET	\$ 56,000	35	6
9.63	224m rail, 2 x ET	\$ 36,880	35	6
9.93	108m rail, 2 x ET	\$ 22,960	35	6
10.43	2 x 262m rail, 4 x ET	\$ 82,880	35	6
10.83	2 x 124m rail, 4 x ET	\$ 49,760	35	6
11.23	24m rail, 2 x ET	\$ 12,880	35	6
11.233	2 x 134m rail, 4 x ET	\$ 52,160	35	6
11.83	112m rail, 2 x ET	\$ 23,440	35	6
12.03	40m rail, 2 x ET	\$ 14,800	35	6
12.33	2 x 62m rail, 4 x ET	\$ 34,880	35	6
12.63	72m rail, 2 x ET	\$ 18,640	35	6
13.73	2 x 146m rail, 4 x ET	\$ 55,040	35	6
14.23	2 x 126m rail, 4 x ET	\$ 50,240	35	6
14.63	2 x 28m rail, 4 x ET	\$ 26,720	35	6
14.73	196m rail, 2 x ET	\$ 33,520	35	6
15.51	88m rail, 2 x ET	\$ 20,560	35	6
15.81	56m rail, 2 x ET	\$ 16,720	35	6
16.01	92m rail, 2 x ET	\$ 21,040	35	6
16.23	112m rail, 2 x ET	\$ 23,440	35	6
16.51	36m rail, 2 x ET	\$ 14,320	35	6
16.61	2 x 20m rail, 4 x ET	\$ 24,800	35	6
16.71	2 x 50m rail, 4 x ET	\$ 32,000	35	6
17.11	2 x 208m rail, 4 x ET	\$ 69,920	35	6
17.71	2 x 66m rail, 4 x ET	\$ 35,840	35	6
23.11	2 x 250m rail, 4 x ET	\$ 80,000	35	6
27.41	2 x 32m rail, 4 x ET	\$ 27,680	35	6
33.31	92m rail, 2 x ET	\$ 21,040	35	6
35.31	2 x 150m rail, 4 x ET	\$ 56,000	35	6
37.31	2 x 224m rail, 4 x ET	\$ 63,760	35	6
<b>Road 410 - TOTAL</b>		<b>\$ 1,817,360</b>		

### 10.2.2.6 Forest Hill – Fernvale Road – Road Number 412

**Table 10.7 –** Forest Hill – Fernvale Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
0.38	4 x 20m rail, 4 x MELT	\$ 21,600	40	5
8.38	4 x 20m rail, 4 x MELT	\$ 21,600	50	3
18.08	4 x 20m rail, 4 x MELT	\$ 21,600	50	3
32.27	500m rail, 2 x MELT	\$ 65,000	50	3
	<b>Road 412 - TOTAL</b>	<b>\$ 129,800</b>		

### 10.2.2.7 Esk – Hampton Road – Road Number 414

**Table 10.8 –** Esk - Hampton Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
0.45	4 x 20m rail, 4 x ET	\$ 31,600	40	5
0.85	2 x 32m rail, 4 x MELT	\$ 17,680	35	6
3.2	4 x 20m rail, 4 x ET	\$ 31,600	40	5
10.55	4 x 20m rail, 4 x ET	\$ 31,600	40	5
12.066	4 x 20m rail, 4 x ET	\$ 31,600	40	5
12.258	4 x 20m rail, 4 x ET	\$ 31,600	40	5
13.62	66m rail, 2 x MELT	\$ 12,920	40	5
15.22	42m rail, 2 x MELT	\$ 10,040	40	5
16.52	26m rail, 2 x MELT	\$ 8,120	40	5
16.62	96m rail, 2 x MELT	\$ 16,520	40	5
17.12	64m rail, 2 x MELT	\$ 12,680	40	5
17.34	62m rail, 2 x MELT	\$ 12,440	40	5
	<b>Road 414 - TOTAL</b>	<b>\$ 248,400</b>		

#### 10.2.2.8 Mulgowie Road – Road Number 3083

**Table 10.9** – Mulgowie Road - Required rectification works and cost estimate.

Thru Dist	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
0.8	4 x MELT	\$ 10,000	30	7
2.518	Delineators	\$ 300	25	8
12.2	36m rail, 2 x MELT	\$ 9,320	40	5
25.175	4 x 20m rail, 4 x MELT	\$ 21,600	40	5
	<b>Road 3083 - TOTAL</b>	<b>\$ 41,220</b>		

From the data contained within tables 10.3 to 10.9 it can be seen that within each road there is not a large variety in priority rankings. This is due to several contributing reasons which are discussed further in sections 10.4 and 10.5. As stated previously, it is recognised that the developed method will produce equal scores at different locations. In these instances, a risk assessment of the individual sites shall be performed to identify which sites present the greatest risk to the road user and road authority. Elements which need to be taken into consideration when conducting a risk analysis due to these circumstances are detailed in section 10.6.

### 10.3 Estimated Cost of Remedial Works

Estimated cost for repair / upgrade was determined using the rates as detailed in section 7.2.6. The total cost for rectification works on the surveyed roads is \$2,506,160.00, table 10.10 details the breakdown of this figure against each road and ranking categories.

It can be clearly seen within Table 10.10 that the costs associated with the rectification works are not evenly distributed and vary in magnitude throughout the surveyed road network. The large difference in costs between the roads is associated with the quantity and the condition of guardrail upon each road. The total estimated cost for rectification works



to the entire Southern District is predicted to be quite significant considering that the cost of rectification is in excess of 2 million dollars and only 9 of the 84 roads under the district control have been surveyed using this prioritisation method. In order to implement a guardrail rectification works program and satisfy budget and financial sustainability requirements it is anticipated that the construction program will be executed over a number of years.

**Table 10.10** – Cost for repair and rectification works to surveyed roads.

Road Name	Priority Ranking								Total Cost of Rectification Works
	1	2	3	4	5	6	7	8	
Rosewood Laidley Road			\$ 36,680						\$ 36,680.00
Laidley Plainlands Road			\$ 10,800	\$ 30,800					\$ 41,600.00
Gatton Laidley Road	\$ 7,900			\$ 21,600					\$ 29,500.00
Gatton Helidon Road	\$ 1,000	\$ 78,800	\$ 8,600	\$ 73,200					\$ 161,600.00
Wivenhoe Somerset Road						\$1,817,360			\$ 1,817,360.00
Cominya Connection Road									\$ -
Forest Hill Fernvale Road			\$108,200		\$ 21,600				\$ 129,800.00
Esk Hampton Road					\$230,720	\$ 17,680			\$ 248,400.00
Mulgowie Road					\$ 30,920		\$ 10,000	\$ 300	\$ 41,220.00
<b>Total</b>	\$ 8,900	\$ 78,800	\$164,280	\$125,600	\$283,240	\$1,835,040	\$10,000	\$ 300	\$ 2,506,160.00

## **10.4 Trend of Results**

As detailed within the priority database a large number of individual rail sites received equal priority tool scores which therefore produced equal rankings for these sites within the final priority listing. This was particularly apparent within particular roads and can be seen within Tables 10.3 to 10.9. The abundance of equal scores is attributed to the following reasons:

- **Traffic Data**

For 5 of the surveyed roads, traffic data was only available in one location and did not provide a true representation of traffic volumes and composition over the entire road. Therefore the each guard rail site along the entire length of road was allocated the same score for traffic volume and composition. In order to solve this anomaly it is recommended that additional traffic data be obtained at more frequent intervals upon these roads.

- **Rail Standard**

Generally all of the guardrail upon each of the surveyed roads was of a similar vintage and therefore possessed the same attributes. Consequently the majority of the individual sites had the same defects and consequently scored the same in the rail standard category.

## **10.5 Common Guard Rail Deficiencies**

Guardrail deficiencies with regard to relevant standards were found to be regular within the surveyed roads and as discussed in section 10.4 these were found to be particularly common to individual roads. Whilst some of the problems were common upon all of the surveyed roads, a listing of the individual roads and their associated common deficiencies is provided below.

### **Rosewood Laidley Road**

- Incorrect post spacing;
- Timber Posts;
- No End Treatment; and
- Incorrect height and length.



**Figure 10.1** – Typical bridge approach rail Rosewood Laidley Road

### **Laidley Plainlands Road**

- No connection to bridge;
- No End Treatment; and
- Incorrect height and length.

### **Gatton Laidley Road**

- End Treatment; and
- Incorrect height and length.

### **Gatton Helidon Road**

- No End Treatment; and
- Incorrect height and length; and
- No connection to bridge.



**Figure 10.2** – Non conforming guardrail Gatton Helidon Road - Incorrect height and length, no end treatments, incorrect post spacing and inadequate clear zone behind rail

### **Wivenhoe Somerset Road**

- Incorrect post spacing;
- No End Treatment; and
- Incorrect height.

### Forest Hill Fernvale Road

- No End Treatment;
- Incorrect height and length; and
- No connection to bridge.



**Figure 10.3** – Non conforming guardrail Wivenhoe Somerset Road - Incorrect height and post spacing, no end treatments, and inadequate clear zone behind rail.





**Figure 10.4** – No connection to bridge Forest Hill - Fernvale Road



**Figure 10.5** – Typical bridge approach rail Esk Hampton Road

### **Esk Hampton Road**

- Non standard height and length;
- No bridge rail;
- No connection to bridge; and
- No end treatments.

### **Mulgowie Road**

- Non standard height and length.

Further photographs of sites upon the surveyed roads are located within Appendix H.

## **10.6 Considerations When Undertaking Risk Analyses**

As previously discussed within Chapter 7 and section 10.2 when 2 or more locations achieve an identical score using the prioritisation tool a risk assessment of each individual site is to be undertaken to determine the priority listing based upon the severity of the risk that is presented to the road user and road authority. It is recommended that the priority listing of such sites be ranked according to the severity of risk.

When performing risk analyses it is important that the individual deficiencies which cause the rail to be sub standard are weighted according to their possible impact and severity upon a road user. For example a rail with no delineation is required to be weighted less severe than a rail with no end treatment. The adoption of appropriate severity indexes is crucial to ensure that equitable prioritisation results are produced from the risk analysis process.

Queensland Department of Main Roads Road Planning and Design Manual contains predetermined severity indexes for use in conjunction with the departments risk management software, however these would be required to be revised to ensure that they were appropriate for use with



the developed method and to ensure the versatility of such indexes for use in conjunction with other risk management tools.

Due to time restrictions the development of appropriate severity indexes of use with this method has not been undertaken as part of this project and is an area that requires further research and development.

## **10.7 Comparison of Developed Procedure with Existing Methods**

Methods presented by the Iowa Department of Transport and the Virginia Transportation Research Council were the only two methods that were identified to have suitability toward the development of a prioritisation procedure for guardrail remedial works. This section will evaluate the quality of this developed method against the above mentioned methods.

### **10.7.1 Iowa Department of Transport Method**

Primarily developed for use on bridge rail the method evaluated the site against 5 specified criteria and used a scoring technique against each of these criteria. The total score determined the standard of rectification work that was required to be undertaken at each site. The Iowa method is relatively simple to use from an assessors point of view.

### **10.7.2 Virginia Transportation Research Council Method**

The main aim of the project undertaken by Virginia Transportation Research Council was to develop a software package to determine guardrail prioritisation by assessing a number of factors including crash severities, traffic exposure and cost. As the Virginia model was primarily a base to develop software, it is comprised of several complex calculations and is reasonably difficult to master.

### **10.7.3 Comparison of Methods**

The method that has been developed for this project is considered to be much easier to use than the Virginia Model as it does not require any complex calculations to be performed. As the developed method uses a similar scoring type approach to the Iowa method it is considered to be comparable with regard to the degree of difficulty of use.

Unlike the Iowa method, the developed method has the ability to encompass the assessment guardrail and bridge rail and therefore makes it more versatile in its use. With a slight modification of the 'rail standard' assessment criterion, the assessment tool could be easily adapted to assess any type of crash barrier system. Additionally the developed method does not stipulate required upgrading works upon determination of a score for each site. This has been omitted to ensure that the road authority evaluates all of its options with regard to the extent of works required to align the section of guardrail with the current standards.

The assessment criteria of both the Iowa and Virginia models included accident history. This criterion is determined to be of relevance to the improvement of the developed model and further work on the developed method should include the integration of accident history.

In summary it is determined that the developed method is similar to the Iowa method with regard to ease of use and is much simpler to use than the Virginia method. The developed method is a versatile tool for the assessment of crash barrier systems which produces equitable and logical results. The developed method may be further enhanced by the incorporation of accident history as an assessment criterion.

## **10.8 Conclusion**

The results of the developed prioritisation procedure upon a selection of state controlled roads within Southern District have been detailed within this chapter. In addition to the results of the study the common problems and regular deficiencies that were encountered in the use of the procedure in the trail area have been discussed to allow the user to appreciate the method used and the associated findings.

## 11.0 Conclusion

This project has developed a suitable system to enable the prioritisation of guard rail remediation works throughout the Southern District of Queensland Department of Main Roads, with the focus being upon the shires of Esk, Gatton and Laidley.

The system has been developed based upon the evaluation of individual guard rail sites using an assessment tool consisting of 3 criteria:

- Traffic volume
- Traffic composition (% Heavy Vehicles)
- Rail Standard

### 11.1 Achievement of Aims and Objectives

With reference to the project study aims detailed within Appendix A the achievements of the project are detailed below.

***Develop a database of all road safety barriers on state controlled roads within the shires of Esk, Gatton and Laidley.***

A database was developed which detailed all state controlled road guard rail sites within the shires of Esk, Gatton and Laidley. The database was configured to enable a wide range of data relating to each individual site to be entered into the database, thus providing a database which is comprehensive for each site. This database is located within Appendix B. This database was systematically expanded to enable prioritisation results and relevant data from the prioritisation procedure to be added and therefore create an inclusive database.

***Conduct field inspections of all barrier locations within Laidley Shire and randomly selected roads from within Esk and Gatton Shires and assess against current Australian Standards to enable deficiencies to be recorded.***

Field inspections of all selected sites were undertaken and the relevant data was recorded within the developed crash barrier database.

***Formulate a strategy for road safety barrier systems remediation works to state controlled roads within the Local Authority areas of Esk, Gatton and Laidley.***

A method has been developed for the prioritisation of guard rail remedial works and has been trialled upon all state controlled roads within Laidley Shire and upon a selection of state controlled roads within Esk and Gatton Shires. The method uses a formulated tool to aid in the provision of an evaluation of each individual guardrail site against 3 specified criteria. The result of each assessment presents a score for each location which is then used to generate a prioritisation listing.

***Develop a priority listing for remedial works upon the inspected roads.***

A remedial works priority listing for all inspected roads has been developed using the data and relevant information gathered from inspections in conjunction with the developed method. The priority listing (prioritisation database) is located with Appendix I.

## 11.2 Findings of Project

The developed method produces a system by which remedial works can be programmed. It must be noted that the developed procedure it is a tool and must be utilised in conjunction with good engineering judgement.

The project produced the following major findings:

- To eliminate the need of continually conducting field inspections of infrastructure, all data held by the road authority pertaining to crash barriers is to be contained within a singular database and must be kept current. Additionally results of road safety audits and other similar inspections are to be reflected in the database.
- The designation of traffic data collection locations shall be reviewed in order to provide accurate data of varying traffic volumes and compositions along the entire length of each road.
- Guardrail locations that were assessed in the study area were generally of similar vintage upon each road, therefore possessing the same deficiencies. In these circumstances the prioritisation tool produced equal prioritisation scores for a majority of locations. Final prioritisation of these sites shall be performed by undertaking a risk analysis of each individual site.
- Where it has been determined that a length of guard rail is no longer required or a roadside hazard can be removed or reduced, these locations shall receive highest priority in the prioritisation of works.
- Remedial works to retrofit the districts entire non compliant guardrail systems will be a major financial implication to Department of Main Roads – Southern District. Consequently the required works will have to be undertaken within a specified timeframe to ensure the provision of adequate funding for the works.

### **11.3 Suitability and Further Work**

The developed method and associated prioritisation tool are relatively simple in their use and are perceived to be suitable for use upon Federal, State and Local Government controlled roads. Although the method has not been tested upon highways, freeways or local roads the assessment elements used are common to all classifications of roads and therefore should produce logical and equitable results for all road types. From the obtained results, it is evident that the method provides a suitable level of discrimination toward the infrastructure and does not provide an influenced result for a particular classification of road.

Although successful, the method of developing the final prioritisation list by manually entering results and numerically sorting is time consuming. A possible solution to this issue is the investigation of the manner in which the prioritisation score is entered into the database. Investigations and further work with relation to this matter should be focused upon:

- The possibility of providing an automated update or link from the prioritisation tool to the database; and
- Reconfiguration of the database with regard to its input parameters from the prioritisation tool and the ability to automate the sorting process of the prioritisation score.

The developed method is successful in the fact that it produces a prioritisation listing for remedial guard rail works. However, as stated previously the introduction of an additional assessment element and development of risk management severity indexes would enable further refinement of a prioritisation listing. Due to time restraints, the inclusion of these identified elements was not able to be fully investigated for use within the project. Discussion regarding these elements is detailed in sections 11.3.1 and 11.3.2.

### **11.3.1 Inclusion of Crash Data**

As discussed within Chapter 6 the prioritisation tool has been developed with the ability to incorporate crash data. The extent of Department of Main Roads - Southern District crash data is unknown beyond that of fatal traffic accidents. It is assumed that crash data which details personal injury and property damage would be available from the Department. It is predicted that the data is most likely to be more conclusive for major roads as opposed to minor roads.

Further work with regard to the incorporation of crash data into the prioritisation tool should concentrate upon the development of a rating system for when crash data is available and the ability to use a default score or similar when the data is not available.

### **11.3.2 Development of Severity Indexes**

As discussed within Chapter 10 appropriate severity indexes are required to be developed for use in the risk analysis process to enable the production of equitable prioritisation results. Reference should be made to the existing Main Roads severity indexes and their suitability for use with the developed method be determined.



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# **Appendix A**

## **Project Specification**

**UNIVERSITY OF SOUTHERN QUEENSLAND  
FACULTY OF ENGINEERING AND SURVEYING**

**ENG4111/ENG4112 RESEARCH PROJECT**

**PROJECT SPECIFICATION**

**Version B – 5 September 2005**

**Student:** Troy Anderson  
**Project Topic:** Prioritisation of guard rail remedial works  
**Supervisor:** Associate Professor Ron Ayers (USQ)

**Aim**

To develop a suitable system for prioritising guard rail remedial works throughout Queensland Department of Main Roads - Southern District.

**Background**

Road Safety Barrier Systems standards have changed over time. Department of Main Roads - Southern District has a variety of barrier systems within their jurisdiction and it is difficult to determine which barriers create greatest risk and therefore determining a priority list for remedial treatments.

This project will review design standards and strategies employed and proposed by other state and overseas road authorities, formulate a strategy that would be applicable to apply remediation works to state controlled roads within the Local Authority areas of Esk, Gatton and Laidley. The project will then create a priority listing for remedial works for a selection of roads within the shires of Esk, Gatton and Laidley.

**Program**

1. Review existing literature, with particular regard to:
  - Design standards of Australian State Road Authorities and several overseas authorities;
  - Australian Standards for Road Safety Barrier Systems;
  - Previously developed or attempted prioritisation strategies for remedial works by other road authorities.
2. Develop a database of all road safety barriers on state controlled roads within the shires of Esk, Gatton and Laidley.
3. Conduct field inspections of all barrier locations within Laidley Shire and randomly selected roads from within Esk and Gatton Shires and assess against current Australian Standards to enable deficiencies to be recorded.

4. Evaluate and Analyse collected data.
5. Formulate a strategy for road safety barrier systems remediation works to state controlled roads within the Local Authority areas of Esk, Gatton and Laidley.
6. Develop a priority listing for remedial works upon the inspected roads.
7. Report findings and developed strategy though oral presentation at the project conference and in the required written format.

.....  
R. Ayers  
Date

.....  
T. Anderson  
Date



# **Appendix B**

## **Crash Barrier Database**

Crash Barrier Database  
Esk, Gatton Laidley Shires

Shire	Road No.	Thru (km)	L/R	Struct. ID	Location/Description	AADT	% Heavy Vehicles	Comments
52	18A	29.2	R			16822	16.35	STRUCTURAL DAMAGE TO 2 LENGTHS OF RAIL AND 4 POSTS, EMBANKMENT REQUIRES FILL, END ANCHORAGES - LOOSE
52	18A	29.3	L			16822	16.35	
	18A	30.49	R	338	Plain Creek	16822	16.35	Not to current standard. Not attached to bridge
	18A	30.49	L	338	Plain Creek	16822	16.35	Not to current standard. Not attached to bridge
	18A	30.732	R	339	Plain Creek	16822	16.35	Not to current standard. Not attached to bridge
	18A	30.732	L	339	Plain Creek	16822	16.35	Not to current standard. Not attached to bridge
52	18A	31.95	R			16822	16.35	STRUCTURAL DAMAGE - TIMBER BLOCKS AND RAIL LAP JOINT BOLTS ARE MISSING, END ANCHORAGES - TIMBER POSTS NOT DRILLED
52	18A	32.05	L			16822	16.35	STRUCTURAL DAMAGE - 8 POSTS REQUIRE STRAIGHTENING
52	18A	32.46	?			16822	16.35	KERBING PRESENT, STRUCTURAL DAMAGE - SOME TIMBER POSTS AND BLOCKS REQUIRE REPLACEMENT
52	18A	33.6	?			16822	16.35	
52	18A	33.9	R			16822	16.35	
52	18A	34.2	R			16822	16.35	END ANCHORAGES - REQUIRE BREAKAWAY POSTS
52	18A	34.3	L			16822	16.35	STRUCTURAL DAMAGE - SOME POSTS AND LENGTHS OF RAIL TO BE REPLACED. END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING
75	18A	37.46	?			16822	16.35	
75	18A	46.96	R			14745	17.45	HOLES IN MELT POSTS NOT DRILLED
75	18A	47.02	R			14745	17.45	HOLES IN MELT POSTS NOT DRILLED
75	18A	47.87	R	340	Jack Martin Bridge	16503	18.5	Not to current standard. Not attached to bridge. Length & Height
75	18A	47.87	L	340	Jack Martin Bridge	16503	18.5	Not to current standard. Not attached to bridge. Length & Height
75	18A	48.03	R	341	Jack Martin Bridge	16503	18.5	Not to current standard. Not attached to bridge. Length & Height
75	18A	48.03	L	341	Jack Martin Bridge	16503	18.5	Not to current standard. Not attached to bridge. Length & Height
114	18A	53.2	R	941	Qacc Overpass - Gatton College	16503	18.5	Not to current standard. Length & Height
114	18A	53.2	L	941	Qacc Overpass - Gatton College	16503	18.5	Not to current standard. Length & Height
114	18A	56.45	R	342	Lockyer Creek	10200	16.37	Not to current standard. Timber Posts
114	18A	56.45	L	342	Lockyer Creek	10200	16.37	Not to current standard. Timber Posts
114	18A	59.32	R	343	Allan Street	10200	16.37	Not to current standard. Length & Height
114	18A	59.32	L	343	Allan Street	10200	16.37	Not to current standard. Length & Height
114	18A	60.41	R			10200	16.37	
114	18A	62.46	R			10200	16.37	OVER CULVERT - WOODEN POSTS ARE BROKEN AT ROAD LEVEL, INADEQUATE FLARE RATE ON DEPARTURE
114	18A	62.46	L			10200	16.37	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	66.56	L			10200	16.37	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	66.56	R			10200	16.37	SCOUR NORTHSIDE OF ABUTMENT B, KERBING PRESENT, INADEQUATE FLARE RATE ON DEPARTURE
114	18A	66.82	R	346	Service Road "C"	10200	16.37	Not to current standard. Length & Height
114	18A	66.82	L	346	Service Road "C"	10200	16.37	Not to current standard. Length & Height
114	18A	69.5	R			10200	16.37	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	69.5	L			10200	16.37	END ANCHORAGES - 2ND WOODEN POSTS NOT DRILLED, MINOR DAMAGE TO ONE LENGTH OF RAIL, INADEQUATE FLARE RATE ON DEPARTURE
114	18A	69.69	R	344	Sandy Creek	10200	16.37	Not to current standard. Length & Height
114	18A	69.69	L	344	Sandy Creek	10200	16.37	Not to current standard. Length & Height
114	18A	70.13	L			10200	16.37	KERBING PRESENT, WASHERS PRESENT ON OLD SECTION ONLY, END ANCHORAGES - WOODEN POSTS NOT DRILLED FOR BREAKAWAY, INADEQUATE FLARE RATE ON DEPARTURE
114	18A	70.28	R			10200	16.37	DAMAGE TO ONE LENGTH OF RAIL, KERBING PRESENT, END ANCHORAGES - WOODEN POSTS NOT DRILLED
114	18A	71.16	B			10200	16.37	STRUCTURAL DAMAGE TO THREE LENGTHS OF RAIL, END ANCHORAGES - TIMBER POSTS NOT DRILLED, INADEQUEATE FLARE RATE ON DEPARTURE
114	18A	71.17	B			10200	16.37	END ANCHORAGES - TIMBER POSTS NOT DRILLED, KERBING PRESENT
114	18A	72.9	L			10200	16.37	KERBING PRESENT
114	18A	74.5	L			10200	16.37	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	74.5	R			10200	16.37	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	75.01	R	345	Western Railway	10200	16.37	Not to current standard.
114	18A	75.01	L	345	Western Railway	10200	16.37	Not to current standard.
114	18A	75.29	L			10200	16.37	STRUCTURAL DAMAGE AT MELT
114	18A	75.43	R			14597	14.1	STRUCTURAL DAMAGE AT MELT
114	18A	75.56				14597	14.1	INADEQUATE ANCHORAGE AT TRANSITION,
114	18A	75.69		8671	Lockyer Creek	14597	14.1	Not to current standard.
114	18A	75.69		8671	Lockyer Creek	14597	14.1	Not to current standard.
114	18A	76.25	R			14597	14.1	STRUCTURAL DAMAGE ON ANCHOR
114	18A	76.6	L			14597	14.1	NO ANCHOR BOLTS PRESENT, SOME RAIL JOINING BOLTS MISSING
114	18A	76.66	R			14597	14.1	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	78.06	R			14597	14.1	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	80.53	L			14597	14.1	GOOD - TOO LOW
114	18A	81.18	L			14597	14.1	HERBING IS PRESENT AND IS INSIDE TERMINAL END
114	18A	81.33	R			14597	14.1	KERBING PRESENT
114	18A	82.07	L			14597	14.1	2 X RAILS - 2 X POSTS DAMAGED
114	18A	82.78	R			14597	14.1	INADEQUATE FLARE RATE
114	18A	83.08	R			14597	14.1	KERB PRESENT - MAY LEAD TO RAMPING
114	18A	83.37	L			18223	12.5	INADEQUATE FLARE RATE ON DEPARTURE
114	18A	87.22	L			18223	12.5	2ND POSTS NOT DRILLED FOR BREAKAWAY
52	40B	11.97	R			2637	11.6	
52	40B	22.67	B			2637	11.6	
52	40B	22.991		396	Brisbane River	2637	11.6	NTCS, only 8m long, timber posts, incorrect spacing. Replace to current specs. next maint prog. (75101/4a)
52	40B	22.991		396	Brisbane River	2637	11.6	NTCS Replace next maintenance program
52	40B	23.07	B			2637	11.6	
52	40B	23.97	L			2504	15.9	BRIDGE
52	40B	23.97	R			2504	15.9	BRIDGE
52	40B	24.15	R			2504	15.9	SHOULDER
52	40B	24.15	L			2504	15.9	SHOULDER
52	40B	24.72	L			2504	15.9	SHOULDER
52	40B	24.72	R			2504	15.9	SHOULDER
52	40B	25.3	R			2504	15.9	SHOULDER
52	40B	25.3	L			2504	15.9	SHOULDER
52	40B	25.6	L			2504	15.9	SHOULDER
52	40B	27.17	B			2504	15.9	SHOULDER
52	40B	27.485		394	Emu Creek	2504	15.9	Non Standard height
52	40B	29.93	L			2504	15.9	SHOULDER
52	40B	30.22	L			2504	15.9	SHOULDER

Crash Barrier Database  
Esk, Gatton Laidley Shires

Shire	Road No.	Thru (km)	L/R	Struct. ID	Location/Description	AADT	% Heavy Vehicles	Comments
52	40B	30.6	B			2504	15.9	SHOULDER
52	40B	31.126	?			2504	15.9	TREE
52	40B	31.429		363	Wallaby Creek	2504	15.9	AB one RHS needs a new block of timber
52	40B	31.429		363	Wallaby Creek	2504	15.9	length & height, timber psots, wooden spacer where gr joins bridge split and rotten renew
52	40B	31.96	?			2504	15.9	SHOULDER
52	40B	32.65	B			2386	15.9	INTERSECTION
52	40B	35.474	R			2386	15.7	SHOULDER
52	40B	35.82	B			2386	15.7	BRIDGE
52	40B	36.01	R			2386	15.7	SHOULDER, STRUCTURAL DAMAGE TO TWO LENGTHS OF RAIL
52	40B	36.038		364	Wallaby Creek	2386	15.7	NTCS, height & length melt ends. RTCS to replace under local district safety policy guidelines asap.
52	40B	38.42	B			2386	15.7	CULVERT
52	40B	39.17	B			2386	15.7	BRIDGE
52	40B	39.313		365	Wallaby Creek	2386	15.7	Melt ends. NTCS. RTCS to replace under l ocal district safety policy guidelines asap.
52	40B	41.93	?			2386	15.7	SHOULDER
52	40B	42.17	?			2386	15.7	SHOULDER
52	40B	42.36	?			2386	15.7	SHOULDER
52	40B	42.47	?			2386	15.7	
52	40B	42.55	?			2386	15.7	
52	40B	42.63	?			2386	15.7	
52	40B	42.85	?			2386	15.7	SHOULDER
52	40B	43.03	?			2386	15.7	STRUCTURAL DAMAGE TO ONE POST AND TWO LENGTHS OF RAIL
52	40B	43.165	?			2386	15.7	SHOULDER
52	40B	43.42	?			2386	15.7	SHOULDER
52	40B	43.47	?			2386	15.7	STRUCTURAL DAMAGE - THREE TIMBER POSTS REQUIRE REPLACEMENT
52	40B	43.61	?			2386	15.7	SHOULDER
52	40B	43.77	L			2386	15.7	STRUCTURAL DAMAGE - FOUR LENGTHS OF RAIL REQUIRE REPLACEMENT
52	40B	44.27	L			2386	15.7	SHOULDER
52	40B	44.77	L			2386	15.7	SHOULDER
52	40B	44.87	B			2386	15.7	BRIDGE
52	40B	44.97		368	Blackbutt Creek	2386	15.7	not to spec wooden posts rotten ,loose ,wooden spacers are loose
52	40B	44.97		368	Blackbutt Creek	2386	15.7	not to spec wooden posts rotten ,loose ,wooden spacers are loose
52	42A	5.2		333	Sandy Creek (South Branch)	5789	9.9	Sub Standard height and length 1 side missing
52	42A	5.2		333	Sandy Creek (South Branch)	5789	9.9	AP1 LHS end protection barrier crushed
52	42A	6.4	R			5789	9.9	STRUCTURAL DAMAGE - BARRIER STRUCTURALLY UNSOUND AND REQUIRES REPLACEMENT, 11 TIMBER POSTS REQUIRE REPLACEMENT
52	42A	6.4	L			5789	9.9	END ANCHORAGES - NO BLOCK AT 2ND BLOCK
52	42A	6.538		334	Sandy Creek (North Branch)	5789	9.9	Sub Standard in urgent need of replacement not attached to bridge
52	42A	6.538		334	Sandy Creek (North Branch)	5789	9.9	Sub Standard in urgent need of replacement not attached to bridge
52	42A	7.9	L			5789	9.9	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING, STRUCTURAL DAMAGE - ONE LENGTH OF RAIL REQUIRES REPLACEMENT
52	42A	7.9	R			5789	9.9	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING AND THERE ARE NO BLOCKS PRESENT
52	42A	10.9	L			5789	9.9	END ENACHORAGES - TIMBER POSTS REQUIRE DRILLING
52	42A	10.9	R			5789	9.9	
52	42A	11.122		401	Fairney Brook	5789	9.9	Non Standard posts height and length
52	42A	11.3	L			5789	9.9	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING
52	42A	11.9	L			5789	9.9	END ANCHORAGES - NO BLOCKS ON 2ND POST, STRUCTURAL DAMAGE - ONE 2ND POST DESTROYED
52	42A	11.9	R			5789	9.9	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING AND BLOCKS
52	42A	18.09		397	Brisbane River	2394	16	Non Standard height and length
52	42A	18.09		397	Brisbane River	2394	16	AB! RHS loose connection
52	42A	22.31	R			2394	16	END ANCHORAGES - TIMBER BLOCKS REQUIRED
52	42A	22.31	L			2394	16	
52	42A	23.4		388	Wivenhoe Dam Spillway	2394	16	The guardrail is not attached to the bridge see photo 11. This should be connected to bridge rail
52	42A	25.21	R			2394	16	INADEQUATE FLARE RATE ON DEPARTURE
52	42A	25.21	L			2394	16	END ANCHORAGES - HOLES REQUIRED FOR BREAKAWAY
52	42A	26.21	R			2394	16	INADEQUATE FLARE RATE ON DEPARTURE
52	42A	26.51	R			2394	16	
52	42A	27.01	R			2394	16	INADEQUATE FLARE RATE ON DEPARTURE
52	42A	27.01	L			2394	16	
52	42A	28.31	R			2394	16	
52	42A	36.21	R			1959	18.2	EXTENSIVE SCOURING EVIDENT
52	42A	36.21	L			1959	18.2	
52	42A	36.81	R			1959	18.2	BRIDGE
52	42A	36.81	L			1959	18.2	BRIDGE
52	42A	36.93		387	Logan Creek	1959	18.2	Non standard needs replacing
52	42A	38.51	L			1959	18.2	BRIDGE
52	42A	38.51	R			1959	18.2	BRIDGE
52	42A	38.648		385	Ti-Tree Gully	1959	18.2	Non standard require replacement
52	42A	40.11	L			1959	18.2	
52	42A	40.11	R			1959	18.2	
52	42A	41.46		384	Five Mile Creek	1959	18.2	Non Standard height and length
52	42A	42.36	R			1959	18.2	
52	42A	43.66	L			1959	18.2	BRIDGE
52	42A	43.66	R			1959	18.2	BRIDGE
52	42A	43.796		386	Ti-Tree Gully	1959	18.2	Non standard require replacement
52	42A	46.66		383	Paddy Creek	1959	18.2	Meets current standard - upgraded 2005
52	42A	46.66	R			1959	18.2	Meets current standard - upgraded 2005
52	42A	46.66	L			1959	18.2	Meets current standard - upgraded 2005
52	42A	53.76	L			3781	11.96	Non standard require replacement
52	42A	53.76	R			3781	11.96	Non standard require replacement
52	42A	63.16	L	381	Railway At Ottaba	2586	14.6	Non standard require replacement
52	42A	63.16	R	381	Railway At Ottaba	2586	14.6	Non standard require replacement
52	42A	64.65	R			2586	14.6	
52	42A	64.65	L			2586	14.6	
52	42A	70.39	L	380	Camp Creek	2586	14.6	Non standard require replacement
52	42A	70.39	R	380	Camp Creek	2586	14.6	Non standard require replacement

Crash Barrier Database  
Esk, Gatton Laidley Shires

Shire	Road No.	Thru (km)	L/R	Struct. ID	Location/Description	AADT	% Heavy Vehicles	Comments
52	42A	70.79	L	379	Cressbrook Creek	2586	14.6	Non standard require replacement
52	42A	70.79	R	379	Cressbrook Creek	2586	14.6	Non standard require replacement
52	42A	81.1	L	402	Railway At Timbun	2586	14.6	Non standard require replacement
52	42A	81.1	R	402	Railway At Timbun	2586	14.6	Non standard require replacement
52	42A	85.22	L	400	Ivory Creek	2586	14.6	Non standard require replacement Accident damage
52	42A	85.22	R	400	Ivory Creek	2586	14.6	Non standard require replacement Accident damage
52	42A	86.51	L			2586	14.6	BRIDGE
52	42A	86.51	R			2586	14.6	BRIDGE
52	42A	86.62	B			2586	14.6	
52	42A	87.48		328	Jimmy Gully	2586	14.6	Nons standard height and length
75	308	19.31	B			1145	9.26	incorrect post spacing, timber posts, no end treatment, incorrect height & length
75	308	21.68	B	25567		1145	9.26	incorrect post spacing, timber posts, no end treatment, incorrect height & length, no connection to bridge
75	311	0	L	215	Lagoon Gully No 1	4915	5.5	BARRIER REQUIRES UPGRADE (PEDESTRIANS), INADEQUATE FLARE RATE ON DEPARTURE
75	311	0	R	215	Lagoon Gully No 1	4915	5.5	not joined to bridge END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING AND BLOCKS, Power pole within clear zone (app), terminal damaged in vehicle collision
75	311	0.8	B			4915	5.5	BCT on ends but no flare - therefor no end treatment, rail complinant with standard
75	311	1.2	B			4915	5.5	BCT on ends but no flare - therefor no end treatment, rail complinant with standard
75	312	7	L			1733	5.8	NOT REQUIRED REMOVE - NTCS - Adequate clear zone - Short section 20m length @ int of 412. Posts being supported by old railway track
75	312	10.96	L			1733	5.8	BARRIER REQUIRES URGENT UPGRADE - non existant due to accident damage - photographs
75	312	14.329	L	216	Laidley Creek	1733	5.8	Non standard height & length - terminals req'd
75	312	14.4	R	216	Laidley Creek	1733	5.8	Non standard height & length - terminals req'd
114	313	8.2	L			621	15.74	CULVERT
114	313	12.4	B	217	Dry Creek	621	15.74	Not to current standards, length and condition no terminals
114	313	19.611		222	Ma Ma Creek	621	15.74	No guardrail.
114	313	19.611		222	Ma Ma Creek	621	15.74	
114	313	22.61	B			621	15.74	
114	313	23.29	B	223	Heifer Creek No 1	621	15.74	CULVERT - not to current spec - however good condition replace if damaged
114	313	26.117	B	224	Heifer Creek No 2	621	15.74	Non-std height and length. Replace.
114	314	2.92	R	235	Railway Overpass At Gatton	9913	8.78	Compliant with Standard - Gatton railway overpass
114	314	2.92	L	236	Railway Overpass At Gatton	9913	8.78	Compliant with Standard - Gatton railway overpass
114	314	3.04	R	237	Railway Overpass At Gatton	9913	8.78	Meet current standard - upgraded May 2004
114	314	3.04	L	237	Railway Overpass At Gatton	9913	8.78	Meet current standard - upgraded May 2004
114	314	5.66	R			6051	11.06	Require end terminals
114	314	5.66	L			6051	11.06	Require end terminals
114	314	5.95	L			6051	11.06	REMOVE NOT REQUIRED - NCTS - ADEQUATE CLEAR ZONE BEHIND RAIL
114	314	6.86	R	231	Robinsons Bridge	6051	11.06	END ANCHORAGES - REQUIRES BLOCKS - TERMINALS no run out area behind use Et
114	314	6.86	L	231	Robinsons Bridge	6051	11.06	END ANCHORAGES - REQUIRES BLOCKS - TERMINALS no run out area behind use Et
114	314	9.553	R	230	Lockyer Creek	5721	10.8	Non Standard height and length - - Require ET ends no run out area behind rail
114	314	9.553	L	230	Lockyer Creek	5721	10.8	Non Standard height and length - - Require ET ends no run out area behind rail
114	314	9.97	L			5721	10.8	END ANCHORAGES - REQUIRES BLOCKS - TERMINALS
114	314	9.97	R			5721	10.8	END ANCHORAGES - REQUIRES BLOCKS - TERMINALS
114	314	13.02	R	25616		5721	10.8	Guardrail not to standard and still has timber posts
114	314	13.02	L	25616		5721	10.8	Guardrail not to new standard and still attached to timber posts
114	314	17.27	L			5721	10.8	NTCS - incorrect height, incorrect post spacing, no terminals
114	314	17.27	R			5721	10.8	NTCS - incorrect height, incorrect post spacing, no terminals
114	314	21.34	R			5721	10.8	END ANCHORAGES - NON STANDARD - TERMINAL REQUIRED
114	314	21.34	L			5721	10.8	STRUCTURAL DAMAGE TO MELT, KERB UBDER RAILING PROTRUDING INTO CARRIAGEWAY
52	405	4.458	B	255	Coal Creek	409	7.87	Non standard height and length, terminal ends
52	405	5.46	L			409	7.87	SHOULDER
52	405	5.98	B			409	7.87	SHOULDER
52	405	7.38	B	256	Meiers Gully	409	7.87	Non standard height and length, no connection to bridge
52	405	14.464	B	257	Brisbane River	409	7.87	non standard height & length wooden posts no connection to bridge
52	405	14.65	R			409	7.87	SHOULDER
52	405	16.95	R			409	7.87	SHOULDER
52	405	18.53	L			409	7.87	SHOULDER
52	405	20.6	R			409	7.87	SHOULDER
52	405	21.38	R			409	7.87	STRUCTURAL DAMAGE - ONE LENGTH OF RAIL REQUIRES REPLACEMENT
52	405	21.757	L	258	Silverton Creek	409	7.87	Non standard height width and material, damaged, no connection to bridge
52	405	22.98	L			409	7.87	SHOULDER
52	405	23.13	B			409	7.87	SHOULDER
52	405	23.58	B			409	7.87	SHOULDER
52	405	23.65	B			409	7.87	SHOULDER
52	405	24.022	R			409	7.87	SHOULDER
52	405	25.38	B	259	Waterfall Gully	409	7.87	STRUCTURAL DAMAGE - incorrec legnth and height, MELTS timber posts
52	405	25.52	L			409	7.87	SHOULDER
52	410	0.4	B			363	6.15	CULVERT
52	410	1.176		8676	Pryde Creek	363	6.15	Meets current standard - upgraded Apr 2005
52	410	1.6	L			363	6.15	SHOULDER
52	410	1.9	B			363	6.15	SHOULDER
52	410	2.2	B			363	6.15	SHOULDER
52	410	2.3	B			363	6.15	SHOULDER
52	410	2.797		8677	Pryde Creek	363	6.15	Meets current standard - upgraded Apr 2005
52	410	2.948		8678	Pryde Creek	363	6.15	Meets current standard - upgraded Apr 2005
52	410	3.685		8679	Pryde Creek	363	6.15	Meets current standard - upgraded Apr 2005
52	410	4.1	B			363	6.15	CULVERT
52	410	4.4	B			363	6.15	CULVERT
52	410	5.1	B			363	6.15	SHOULDER
52	410	5.3	B			363	6.15	CULVERT

Crash Barrier Database  
Esk, Gatton Laidley Shires

Shire	Road No.	Thru (km)	L/R	Struct. ID	Location/Description	AADT	% Heavy Vehicles	Comments
52	410	5.4	B	8680	Branch Ck	363	6.15	SHOULDER SHOULDER SHOULDER SHOULDER, OVERGROWN SHOULDER SHOULDER SHOULDER SHOULDER SHOULDER
52	410	5.6	R			363	6.15	
52	410	5.9	B			363	6.15	
52	410	6.5	B			363	6.15	
52	410	6.8	B			363	6.15	
52	410	7.3	R			363	6.15	
52	410	7.7	L			363	6.15	
52	410	7.9	B			363	6.15	
52	410	8.1	L			363	6.15	
52	410	8.53	L			363	6.15	
52	410	8.73				363	6.15	Meets current standard - upgraded Apr 2005
52	410	9.13	B			363	6.15	CULVERT
52	410	9.53	B			363	6.15	SHOULDER
52	410	9.63	L			363	6.15	SHOULDER SHOULDER SHOULDER SHOULDER SHOULDER SHOULDER SHOULDER SHOULDER SHOULDER
52	410	9.93	L			363	6.15	
52	410	10.43	B			363	6.15	
52	410	10.83	B			363	6.15	
52	410	11.23	L			363	6.15	
52	410	11.233	B			363	6.15	
52	410	11.83	L			363	6.15	
52	410	12.03	L			363	6.15	
52	410	12.33	B			363	6.15	
52	410	12.63	L		363	6.15	SHOULDER	
52	410	13.098		8682	Kipper Ck	363	6.15	Meets current standard - upgraded Apr 2005
52	410	13.73	B			363	6.15	SHOULDER
52	410	14.23	B			363	6.15	SHOULDER
52	410	14.63	B			363	6.15	SHOULDER
52	410	14.73	L			363	6.15	SHOULDER
52	410	15.51	R			363	6.15	SHOULDER
52	410	15.81	L			363	6.15	SHOULDER
52	410	16.01	L			363	6.15	SHOULDER
52	410	16.23	L			363	6.15	SHOULDER
52	410	16.51	L			363	6.15	SHOULDER
52	410	16.61	B			363	6.15	SHOULDER
52	410	16.71	B		363	6.15	SHOULDER	
52	410	17.11	B		363	6.15	SHOULDER	
52	410	17.71	B	8681	Deep Creek	363	6.15	SHOULDER
52	410	23.11	B			363	6.15	SHOULDER
52	410	23.407				363	6.15	Meets current standard - upgraded Apr 2005
52	410	27.41	B			363	6.15	SHOULDER
52	410	27.469		8683	Sandy Creek	363	6.15	Meets current standard - upgraded Apr 2005
52	410	33.31	R			363	6.15	SHOULDER
52	410	35.31	B			363	6.15	SHOULDER
52	410	37.31	R			363	6.15	SHOULDER
52	410	37.542		8684	Reedy Creek	363	6.15	Meets current standard - upgraded Apr 2005
52	410	38.786		8685	Stanley River	363	6.15	Meets current standard - upgraded Apr 2005
114	412	0.38	B	261	Laidley Creek	912	7.6	Non standard length and height, non standard connection to bridge, no end treatment
114	412	8.38	B	262	Lockyer Creek	1169	12.12	Non standard height and length, no connection to bridge, no end treatment
52	412	18.08	B	263	Blind Gully	1169	12.12	Requires breakaways and terminal ends at all approaches, non std height & length
52	412	25.15	B	264	Lockyer Creek	1221	9.2	Meets current standard - upgraded 2005
52	412	32.27	B			1221	9.2	Non standard length and height, terminal ends
52	412	32.5	B			1221	9.2	Non standard length and height, terminal ends
52	414	0.45	B	266	Redbank Creek No 1	620	8.19	Non standard height and length
52	414	0.85	B			620	8.19	CULVERT
52	414	3.2	B	267	Redbank Creek No 2	620	8.19	Non Standard height and length, some rail missin
52	414	10.55	B	268	Redbank Creek No 3	620	8.19	Not to current specs, incorrect length and height. Photo028.
52	414	12.066		269	Redbank Creek No 4	620	8.19	No guardrail.
52	414	12.258		270	Redbank Creek No 5	620	8.19	approaches ntcs length 7 height, terminals No bridge rail.
52	414	13.62	L			620	8.19	SHOULDER
52	414	15.22	L			620	8.19	SHOULDER
52	414	16.52	L			620	8.19	SHOULDER
52	414	16.62	L			620	8.19	SHOULDER
52	414	17.12	L			620	8.19	SHOULDER
52	414	17.34	R			620	8.19	SHOULDER
75	3083	0.8	B	303	Campbell Bridge	801	8.4	BCT on ends, compliant with previous standard.
75	3083	2.518		25730	Coopers Bridge	801	8.4	No delination
75	3083	12.2	L			801	8.4	Non standard rail, non standard height & length, timber posts
75	3083	25.175		301	Peacock Bridge	801	8.4	Non Standard Armco and rail, no connection to bridge, length & height
52	4023	12.36	B			228	2.38	SHOULDER
52	4023	12.46	B			228	2.38	SHOULDER
52	4023	12.66	B			228	2.38	SHOULDER
52	4023	13.06	B			228	2.38	SHOULDER
52	4023	13.26	B			228	2.38	SHOULDER
52	4023	13.65	B			228	2.38	SHOULDER
52	4023	13.94	B			228	2.38	SHOULDER
52	4023	14.26	B			228	2.38	SHOULDER
52	4023	14.46	B			228	2.38	SHOULDER
52	4023	14.66	B			228	2.38	SHOULDER
52	4023	15.06	B			228	2.38	SHOULDER
52	4023	15.418	B			228	2.38	CULVERT

## Crash Barrier Database Esk, Gatton Laidley Shires

Shire	Road No.	Thru (km)	L/R	Struct. ID	Location/Description	AADT	% Heavy Vehicles	Comments
52	4023	15.5	B	309	Northbrook Creek No 1	228	2.38	SHOULDER
52	4023	15.65	B			228	2.38	Non standard height and length
52	4023	16.05	B			228	2.38	SHOULDER
52	4023	16.15	B			228	2.38	SHOULDER
52	4023	16.45	B			228	2.38	SHOULDER
52	4023	16.75	B			228	2.38	SHOULDER
52	4023	17.05	B			228	2.38	SHOULDER
52	4023	17.45	B	310	Northbrook Creek No 2	228	2.38	SHOULDER
52	4023	17.524	B			228	2.38	Non standard height and length
52	4023	17.65	B			228	2.38	CULVERT
52	4023	17.771	B	311	Northbrook Creek No 3	228	2.38	Non standard height and length
52	4023	17.95	B			228	2.38	
52	4023	18.65	B			228	2.38	
52	4023	19.65	B			228	2.38	SHOULDER
52	4023	20.05	B			228	2.38	SHOULDER
52	4023	21.75	B			228	2.38	SHOULDER
52	4023	22.07	B			228	2.38	CUTTING
52	4023	22.25	B			228	2.38	SHOULDER
52	4023	23.38	B	25457		228	2.38	Concrete block broken and reo exposed (needs to be replaced)
52	4023	23.6	B	25458		228	2.38	Concrete block broken and reo exposed (needs to be replaced with new)
52	4023	24.657	B	312	Northbrook Creek No 4	228	2.38	Non Standard height and length
52	4023	24.55	B			228	2.38	BRIDGE
52	4023	24.85	B			228	2.38	SHOULDER
52	4023	25.55	B			228	2.38	SHOULDER
52	4023	26.25	B			228	2.38	SHOULDER
52	4023	26.45	B			228	2.38	SHOULDER
52	4023	26.95	B			228	2.38	SHOULDER
114	4104	0.15	L	25459		1161	6.35	Culvert
114	4104	0.15	R	25459		1161	6.35	Culvert
114	4104	3.1	L			1161	6.35	INADEQUATE FLARE RATE ON DEPARTURE
114	4104	3.1	R			1161	6.35	END ANCHORAGES - BEARING PLATE LOOSE & ANCHOR BOLTS MISSING, INADEQUATE FLARE RATE ON DEPARTURE
114	4104	22.65	B			1000	5.5	
114	4104	22.8	R	314	Railway Overpass At Ballard	1000	5.5	STRUCTURAL DAMAGE AT MELT, END ANCHORAGES - 2ND POST NOT INSTALLED CORRECTLY no connection to bridge
114	4104	22.8	L			1000	5.5	STRUCTURAL DAMAGE - DET DESTROYED AND ROTTERN POSTS, INADEQUATE FLARE RATE ON DEPARTURE
114	4144	0.7	R	315	Lockyer Creek	1351	12.16	Non standard requires replacement MELT no connection to bridge
114	4144	0.7	L	315	Lockyer Creek	1351	12.16	Non standard requires replacement MELT no connection to bridge
75	4144	16.13	L	316	Yellow Gully	1351	12.16	guard rail wooden posts badly split rotten ,burnt some spaceers don't exist
75	4144	16.13	R	316	Yellow Gully	1351	12.16	Sub Standard (wooden posts, height,length)
52	4144	19.83	L			1351	12.16	
52	4144	19.83	R	317	Buaraba Creek	1351	12.16	
52	4144	20.06				12.16	Non standard height and length	
52	4144	20.12	R			1351	12.16	
52	4144	20.12	L			1351	12.16	
	Legend				Shire Identification			
					Shire Name	DMR Number		
		Inspected			Esk	52		
		Compliant with Standard			Gatton	114		
		Fatality			Laidley	75		
		Barrier not required - remove						
		Rail severely damaged require replacement						

# **Appendix C**

## **Original Guard Rail Databases**



Southern District Guardrail Audit							Inspected												Date of Compilation	07/26/99	
Shire	Road	Chainage	AADT	% Light Vehicle	% Heavy Vehicle	Carriageway	Left / Right	Fishtail Y/N	Bridge Connection	Runout Length Y/N	Offset Dist Y/N	Posts (Number)	Washers (Number)	End Anchor Correct Y/N	Slip Washers Correct Y/N	Structural Damage Y/N	Flare Y/N	Issue / Hazard	Est Cost	Priority	
75	308	19.31	1145	90.57	9.26	1	B	Y	N			21	?			Y		SHOULDER, STRUCTURAL DAMAGE TO SOME LENGTHS OF RAIL AND POSTS			
75	308	21.68	1145	90.57	9.26	1	B	Y	Y		?	8	0			N		BRIDGE			
75	311	0	4915	94.5	5.5	1	L	Y	Y	Y	Y	19	17	N		N	Y	BARRIER REQUIRES UPGRADE (PEDESTRIANS), INADEQUATE FLARE RATE ON DEPARTURE			
75	311	0	4915	94.5	5.5	1	R	N	Y	N/A	N	27	27	N		Y	Y	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING AND BLOCKS, BARRIER REQUIRES UPGRADE (PEDESTRIANS)			
75	311	0.8	4915	94.5	5.5	1	B	N	N		Y	58	54			N		CULVERT			
75	311	1.2	4915	94.5	5.5	1	B	N	N		Y	60	56			N		CULVERT			
75	312	7	1733	93.6	6.4	1	L	N				4					N	NOT REQUIRED REMOVE - NTCS - Adequate clear zone - Short section 20m length @ int of 412. Posts being supported by old railway track			
75	312	10.96	1733	94.2	5.8	1	L	N										BARRIER REQUIRES URGENT UPGRADE - non existant due to accident damage - photographs		1	
75	312	14.329	1733	94.2	5.8	1	L	N	Y	Y	Y	26	26	?		N	Y	BRIDGE - Refer Level 1 & 2 inspection			
75	312	14.4	1733	94.2	5.8	1	R	N	Y	Y	N	28	24	?		N	Y	BRIDGE - Refer Level 1 & 2 inspection			
114	313	8.2	621	84.26	15.74	1	L	N	N		Y	12				N		CULVERT			
114	313	12.4	621	84.26	15.74	1	B	N	N		Y	92				N					
114	313	22.61	621	84.26	15.74	1	B	N	?		Y	68				?					
114	313	23.29	621	84.26	15.74	1	B	N	N		?	75				?		CULVERT			
114	313	26	621	84.26	15.74	1	B	N	N		N	98				Y		CULVERT			
114	314	2.92	9913	91.22	8.78	1	R	N	N	Y	Y	160	?	N		Y	Y	Compliant with Standard - Gatton railway overpass			
114	314	2.92	9913	91.22	8.78	1	L	N	Y	Y	Y	104	?	N		N	Y	Compliant with Standard - Gatton railway overpass			
114	314	5.66	6051	88.94	11.06	1	R	N	N	Y	Y	5	5	N		N	Y	Require end terminals			
114	314	5.66	6051	88.94	11.06	1	L	N	N	Y	N	17	?	N		N	Y	Require end terminals			
114	314	5.95	6051	88.94	11.06	1	L	N	N	Y	Y	25	25	N		N	Y	REMOVE NOT REQUIRED - NCTS - ADEQUATE CLEAR ZONE BEHIND RAIL			
114	314	6.86	6051	88.94	11.06	1	R	N	Y	Y	N	28	28	N		N	Y	END ANCHORAGES - REQUIRES BLOCKS - TERMINALS			
114	314	6.86	6051	88.94	11.06	1	L	N	Y	Y	Y	28	?	N		N	Y	END ACHHORAGES - REQUIRES BLOCKS, TERMINALS & SCOURING			
114	314	9.97	5721	89.2	10.8	1	L	N	Y	Y	Y	28	?	N		N	Y	END ANCHORAGES - REQUIRES BLOCKS - TERMINALS			
114	314	9.97	5721	89.2	10.8	1	R	N	Y	Y	Y	28	24	N		N	Y	END ANCHORAGES - REQUIRES BLOCKS - TERMINALS			
114	314	13.27	5721	89.2	10.8	1	L	N	N	Y	Y	20	?	?		N	Y	BRIDGE - Refer Level 2 inspection			
114	314	17.27	5721	89.2	10.8	1	L	N	N	Y	N	9	?	N		Y	Y	NTCS - incorrect height, incorrect post spacing, no terminals		1	
114	314	17.27	5721	89.2	10.8	1	R	N	N	Y	N	8	?	N		Y	Y	NTCS - incorrect height, incorrect post spacing, no terminals		1	
114	314	21.34	5721	89.2	10.8	1	R	Y	Y	Y	Y	40	40	N		N	N	END ANCHORAGES - NON STANDARD - TERMINAL REQUIRED			
114	314	21.34	5721	89.2	10.8	1	L	N	N	N	Y	32	28	N		Y	Y	STRUCTURAL DAMAGE TO MELT, KERB UBDER RAILING PROTRUDING INTO CARRIAGEWAY			
52	405	4.458	409	92.13	7.87	1	B	N	Y	Y	Y	39	?	N		N	Y	BRIDGE			
52	405	5.46	409	92.13	7.87	1	L	N	N	Y	Y	58	?	N		N	Y	SHOULDER			
52	405	5.98	409	92.13	7.87	1	B	Y	N	Y	Y	12	?	N		N	Y	SHOULDER			
52	405	7.38	409	92.13	7.87	1	B	N	Y	Y	Y	68	16	N		N	Y	BRIDGE			
52	405	14.464	409	92.13	7.87	1	B	Y	Y	Y	Y	36	4	N		N	Y	BRIDGE			
52	405	14.65	409	92.13	7.87	1	R	Y	N	Y	Y	48	?	?		N	Y	SHOULDER			
52	405	16.95	409	92.13	7.87	1	R	Y	N	Y	Y	36	?	N		N	Y	SHOULDER			
52	405	18.53	409	92.13	7.87	1	L	N	N	Y	Y	30	?	Y		N	Y	SHOULDER			
52	405	20.6	409	92.13	7.87	1	R	N	N	Y	Y	107	105	N		N	Y	SHOULDER			
52	405	21.38	409	92.13	7.87	1	R	N	N	Y	Y	?	?	N		Y	Y	STRUCTURAL DAMAGE - ONE LENGTH OF RAIL REQUIRES REPLACEMENT			
52	405	21.757	409	92.13	7.87	1	L	N	Y	Y	Y	118	110	N		N	Y	BRIDGE			
52	405	22.98	409	92.13	7.87	1	L	Y	N	Y	N	?	10	N		N	N	SHOULDER			
52	405	23.13	409	92.13	7.87	1	B	Y	N	Y	Y	?	?	N		N	Y	SHOULDER			
52	405	23.58	409	92.13	7.87	1	B	N	N	Y	Y	?	?	N		N	Y	SHOULDER			
52	405	23.65	409	92.13	7.87	1	B	Y	N	Y	Y	18	?	N		N	Y	SHOULDER			
52	405	24.022	409	92.13	7.87	1	R	N	N	Y	Y	31	?	N		N	Y	SHOULDER			
52	405	25.38	409	92.13	7.87	1	B	N	Y	Y	Y	57	?	N		Y	Y	BRIDGE, STRUCTURAL DAMAGE - 4 LENGTHS OF RAIL REQUIRE REPLACEMENT			
52	405	25.52	409	92.13	7.87	1	L	Y	N	Y	Y	54	?	N		N	Y	SHOULDER			
52	410	0.4	363	93.85	6.15	1	B	Y	N		Y	62				Y		CULVERT			
52	410	1.1	363	93.85	6.15	1	B	Y	N		Y	24				N		CULVERT			
52	410	1.6	363	93.85	6.15	1	L	Y	N		Y	52				?		SHOULDER			
52	410	1.9	363	93.85	6.15	1	B	Y	N		Y	25				N		SHOULDER			
52	410	2.2	363	93.85	6.15	1	B	Y	N		Y	45				Y		SHOULDER			
52	410	2.3	363	93.85	6.15	1	B	Y	N		Y	5				N		SHOULDER			
52	410	2.6	363	93.85	6.15	1	B	Y	N		Y	15				N		CULVERT			
52	410	2.7	363	93.85	6.15	1	B	Y	N		Y	27				N		CULVERT			
52	410	2.9	363	93.85	6.15	1	B	Y	N		Y	36				N		CULVERT			
52	410	3.2	363	93.85	6.15	1	L	Y	N		Y	75				?		SHOULDER			
52	410	3.6	363	93.85	6.15	1	B	Y	N		Y	52				N		CULVERT			
52	410	3.9	363	93.85	6.15	1	B	Y	N		Y	23				N		CULVERT			
52	410	4.1	363	93.85	6.15	1	B	Y	N		Y	66				N		CULVERT			
52	410	4.4	363	93.85	6.15	1	B	Y	N		Y	71				N		CULVERT			
52	410	5.1	363	93.85	6.15	1	B	Y	N		Y	88				N		SHOULDER			
52	410	5.3	363	93.85	6.15	1	B	Y	N		Y	25				N		CULVERT			
52	410	5.4	363	93.85	6.15	1	B	Y	N		Y	16				N					
52	410	5.6	363	93.85	6.15	1	R	Y	N		Y	22				N		SHOULDER			
52	410	5.9	363	93.85	6.15	1	B	Y	N		Y	90				N		SHOULDER			
52	410	6.5	363	93.85	6.15	1	B	Y	N		Y	48				N		SHOULDER			
52	410	6.8	363	93.85	6.15	1	B	Y	N		Y	103				?		SHOULDER, OVERGROWN			
52	410	7.3	363	93.85	6.15	1	R	Y	N		Y	4				N					
52	410	7.7	363	93.85	6.15	1	L	Y	N		Y	42				N		SHOULDER			
52	410	7.9	363	93.85	6.15	1	B	Y	N		Y	22				N		SHOULDER			
52	410	8.1	363	93.85	6.15	1	L	Y	N		Y	34				N		SHOULDER			
52	410	8.53	363	93.85	6.15	1	L	Y	N		Y	47				?		SHOULDER			
52	410	8.73	363	93.85	6.15	1	B	Y	Y		Y	79				N		BRIDGE, BARB WIRE ON TOP OF RAIL			
52	410	8.93	363	93.85	6.15	1	B	Y	N		Y	31				N		BRIDGE, BARB WIRE ON TOP OF RAIL			
52	410	9.13	363	93.85	6.15	1	B	Y	N		Y	40				N		CULVERT			
52	410	9.53	363	93.85	6.15	1	B	Y	N		Y	75				?		SHOULDER			
52	410	9.63	363	93.85	6.15	1	L	Y	N		Y	56				N					
52	410	9.93	363	93.85	6.15	1	L	Y	N		Y	27				N		SHOULDER			
52	410	10.43	363	93.85	6.15	1	B	Y	N		Y	131				N		SHOULDER			
52	410	10.83	363	93.85	6.15	1	B	Y	N		Y	62				N		SHOULDER			
52	410	11.23	363	93.85	6.15	1	L	Y	N		Y	6				?		CULVERT			
52	410	11.233	363	93.85	6.15	1	B	Y	N		Y	67				N		CULVERT			
52	410	11.83	363	93.85	6.15	1	L	Y	N		Y	28				?		SHOULDER			
52	410	12.03	363	93.85	6.15	1	L	Y	N		Y	10				N		CUTTING			
52	410	12.33	363	93.85	6.15	1	B	Y	N		Y	31				N		SHOULDER			



Guard Rail Database

Esk - 52  
Laidley - 75  
Gatton - 114

Southern District Guardrail Audit							Inspected												Date of Compilation	07/26/99	
Shire	Road	Chainage	AADT	% Light Vehicle	% Heavy Vehicle	Carriageway	Left / Right	Fishtail Y/N	Bridge Connection	Runout Length Y/N	Offset Dist Y/N	Posts (Number)	Washers (Number)	End Anchor Correct Y/N	Slip Washers Correct Y/N	Structural Damage Y/N	Flare Y/N	Issue / Hazard	Est Cost	Priority	
52	410	12.63	363	93.85	6.15	1	L	Y	N		Y	18				?		SHOULDER			
52	410	12.93	363	93.85	6.15	1	B	Y	Y		Y	140				?		BRIDGE			
52	410	13.73	363	93.85	6.15	1	B	Y	N		Y	73				N		SHOULDER			
52	410	14.23	363	93.85	6.15	1	B	Y	N		Y	63				N		SHOULDER			
52	410	14.63	363	93.85	6.15	1	B	Y	N		Y	14				N		SHOULDER			
52	410	14.73	363	93.85	6.15	1	L	Y	N		Y	49				N		SHOULDER			
52	410	15.51	363	93.85	6.15	1	R	Y	N		Y	22				N		SHOULDER			
52	410	15.81	363	93.85	6.15	1	L	Y	N		Y	14				N					
52	410	16.01	363	93.85	6.15	1	L	Y	N		Y	23				N		SHOULDER			
52	410	16.23	363	93.85	6.15	1	L	Y	N		Y	28				?		SHOULDER			
52	410	16.51	363	93.85	6.15	1	L	Y	N		Y	9				N		SHOULDER			
52	410	16.61	363	93.85	6.15	1	B	Y	N		Y	8				N		SHOULDER			
52	410	16.71	363	93.85	6.15	1	B	Y	N		Y	25				N		SHOULDER			
52	410	17.11	363	93.85	6.15	1	B	Y	N		Y	104				N		SHOULDER			
52	410	17.71	363	93.85	6.15	1	B	Y	N		Y	33				?		SHOULDER			
52	410	23.11	363	93.85	6.15	1	B	Y	N		Y	128				N		SHOULDER			
52	410	27.41	363	93.85	6.15	1	B	Y	N		Y	16				N		BARB WIRE ON RAIL, NO SIGNAGE			
52	410	32.81	363	93.85	6.15	1	L	Y	N		Y	19				N		SHOULDER			
52	410	33.31	363	93.85	6.15	1	R	Y	N		Y	23				N		SHOULDER			
52	410	35.31	363	93.85	6.15	1	B	Y	N		Y	75				Y		SHOULDER			
52	410	37.31	363	93.85	6.15	1	R	Y	Y		?	112				?		BRIDGE			
52	410	38.01	363	93.85	6.15	1	B	Y	N		Y	211				?		CULVERT			
52	410	39.71	363	93.85	6.15	1	B	Y	Y		Y	110				?		BRIDGE			
114	412	0.38	912	92.4	7.6	1	B	N	Y		Y	56	0			?		BRIDGE/CULVERT			
114	412	8.38	1169	87.88	12.12	1	B	N	N		Y	8	0			?		BRIDGE/CULVERT			
52	412	18.08	1169	87.88	12.12	1	B	N	Y		?	64	56			N		BRIDGE/CULVERT			
52	412	25.15	1221	90.8	9.2	1	B	N	Y		N	55	48			?		BRIDGE/CULVERT			
52	412	32.27	1221	90.8	9.2	1	B	Y	N		?	124	0			N		SHOULDER			
52	412	32.5	1221	90.8	9.2	1	B	N	N		?	26	0			?		CUTTING			
52	414	0.45	620	91.81	8.19	1	B	N	Y		Y	49	45			N		BRIDGE			
52	414	0.85	620	91.81	8.19	1	B	N	N		Y	38	?			N		CULVERT			
52	414	3.2	620	91.81	8.19	1	B	N	Y		Y	41	?			N		BRIDGE			
52	414	10.55	620	91.81	8.19	1	B	N	N		?	94	?			N		CULVERT			
52	414	13.62	620	91.81	8.19	1	L	N	N		Y	33	?			?		SHOULDER			
52	414	15.22	620	91.81	8.19	1	L	N	N		Y	21	?			Y		SHOULDER			
52	414	16.52	620	91.81	8.19	1	L	N	N		Y	13	?			N		SHOULDER			
52	414	16.62	620	91.81	8.19	1	L	N	N		Y	48	?			N		SHOULDER			
52	414	17.12	620	91.81	8.19	1	L	N	N		Y	32	?			?		SHOULDER			
52	414	17.34	620	91.81	8.19	1	R	N	N		Y	31	?			N		SHOULDER			
75	3083	0.8	801	91.6	8.4	1	B	N	Y		N	64				?		BRIDGE			
75	3083	2.4	801	91.6	8.4	1	B	Y	N		?	74				N		SHOULDER			
75	3083	12.2	801	91.6	8.4	1	L	Y	N		Y	10				?		SHOULDER			
75	3083	25.1	801	91.6	8.4	1	?	Y	N		?	9				N		CULVERT			
52	4023	12.36	228	97.62	2.38	1	B	N	N		Y	19	15			N		SHOULDER			
52	4023	12.46	228	97.62	2.38	1	B	N	N		Y	45	41			N		SHOULDER			
52	4023	12.66	228	97.62	2.38	1	B	N	N		Y	59	?			N		SHOULDER			
52	4023	13.06	228	97.62	2.38	1	B	N	N		Y	43	39			?		SHOULDER			
52	4023	13.26	228	97.62	2.38	1	B	N	N		Y	54	52			N		SHOULDER			
52	4023	13.65	228	97.62	2.38	1	B	N	N		Y	28	?			Y		SHOULDER			
52	4023	13.94	228	97.62	2.38	1	B	N	N		Y	43	?			N		SHOULDER			
52	4023	14.26	228	97.62	2.38	1	B	N	N		Y	31	29			?		SHOULDER			
52	4023	14.46	228	97.62	2.38	1	B	N	N		Y	47	0			N		SHOULDER			
52	4023	14.66	228	97.62	2.38	1	B	N	N		Y	86	82			?		SHOULDER			
52	4023	15.06	228	97.62	2.38	1	B	N	N		Y	43	41			N		SHOULDER			
52	4023	15.418	228	97.62	2.38	1	B	N	N		Y	71	?			?		CULVERT			
52	4023	15.5	228	97.62	2.38	1	B	N	N		Y	31	29			Y		SHOULDER			
52	4023	15.76	228	97.62	2.38	1	B	N	N		Y	41	37			N		SHOULDER			
52	4023	16.05	228	97.62	2.38	1	B	N	N		Y	39	37			N		SHOULDER			
52	4023	16.15	228	97.62	2.38	1	B	N	N		Y	34	30			Y		SHOULDER			
52	4023	16.45	228	97.62	2.38	1	B	N	Y		Y	103	101			?		SHOULDER			
52	4023	16.75	228	97.62	2.38	1	B	N	N		Y	63	61			?		SHOULDER			
52	4023	17.05	228	97.62	2.38	1	B	N	N		Y	38	35			N		SHOULDER			
52	4023	17.45	228	97.62	2.38	1	B	N	Y		Y	77	0			N		SHOULDER			
52	4023	17.65	228	97.62	2.38	1	B	N	N		Y	44	?			N		CULVERT			
52	4023	17.95	228	97.62	2.38	1	B	N	N		Y	34	30			N					
52	4023	18.65	228	97.62	2.38	1	B	?	?		Y	?	?			N					
52	4023	19.65	228	97.62	2.38	1	B	N	N		Y	15	?			N		SHOULDER			
52	4023	20.05	228	97.62	2.38	1	B	N	N		Y	27	23			N		SHOULDER			
52	4023	21.75	228	97.62	2.38	1	B	N	N		Y	45	42			N		SHOULDER			
52	4023	22.07	228	97.62	2.38	1	B	N	N		Y	?	?			N		CUTTING			
52	4023	22.25	228	97.62	2.38	1	B	N	N		Y	?	?			N		SHOULDER			
52	4023	24.55	228	97.62	2.38	1	B	N	Y		Y	78	62			N		BRIDGE			
52	4023	24.85	228	97.62	2.38	1	B	N	N		Y	25	24			N		SHOULDER			
52	4023	25.55	228	97.62	2.38	1	B	N	N		Y	27	25			N		SHOULDER			
52	4023	26.25	228	97.62	2.38	1	B	N	N		Y	13	9			N		SHOULDER			
52	4023	26.45	228	97.62	2.38	1	B	N	N		Y	45	43			N		SHOULDER			
52	4023	26.95	228	97.62	2.38	1	B	N	N		Y	11	9			N		SHOULDER			
114	4104	0.15	1161	93.65	6.35	1	L	N	N	Y	N	17	?	Y		N	Y				
114	4104	0.15	1161	93.65	6.35	1	R	N	N	Y	N	17	?	Y		N	Y				
114	4104	3.1	1161	93.65	6.35	1	L	N	N	Y	Y	55	55	Y		N	N	INADEQUATE FLARE RATE ON DEPARTURE			
114	4104	3.1	1161	93.65	6.35	1	R	N	N	N	N	55	55	N		N	N	END ANCHORAGES - BEARING PLATE LOOSE & ANCHOR BOLTS MISSING, INADEQUATE FLARE RATE ON DEPARTURE			
114	4104	22.65	1000	94.5	5.5	1	B	N	N	Y	Y	15	?	Y		N	N				
114	4104	22.8	1000	94.5	5.5	1	R	N	Y	Y	N	13	?	N		Y	N	STRUCTURAL DAMAGE AT MELT, END ANCHORAGES - 2ND POST NOT INSTALLED CORRECTLY			
114	4104	22.8	1000	94.5	5.5	1	L	N	Y	Y	N	22	?	N		Y	N	STRUCTURAL DAMAGE - DET DESTROYED AND ROTTERN POSTS, INADEQUATE FLARE RATE ON DEPARTURE			
114	4144	0.7	1351	87.84	12.16	1	R	N	Y	Y	N	20	?	N		N	Y				
114	4144	0.7	1351	87.84	12.16	1	L	N	Y	Y	N	28	?	N		N	Y	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING			
75	4144	16.13	1351	87.84	12.16	1	L	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			
75	4144	16.13	1351	87.84	12.16	1	R	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			

Southern District Guardrail Audit							Inspected												Date of Compilation	07/26/99	
Shire	Road	Chainage	AADT	% Light Vehicle	% Heavy Vehicle	Carriageway	Left / Right	Fishtail Y/N	Bridge Connection	Runout Length Y/N	Offset Dist Y/N	Posts (Number)	Washers (Number)	End Anchor Correct Y/N	Slip Washers Correct Y/N	Structural Damage Y/N	Flare Y/N	Issue / Hazard	Est Cost	Priority	
52	4144	19.83	1351	87.84	12.16	1	L	Y	N	Y	N	33	33	N		N	N				
52	4144	19.83	1351	87.84	12.16	1	R	Y	N	Y	N	33	33	N		N	N				
52	4144	20.12	1351	87.84	12.16	1	R	N	Y	Y	N	28	26	Y		N	Y				
52	4144	20.12	1351	87.84	12.16	1	L	N	Y	Y	N	28	26	Y		N	Y				
52	18A	29.2	16822	83.65	16.35	2	R	N	N	Y	Y	433	?	N		Y	N	STRUCTURAL DAMAGE TO 2 LENGTHS OF RAIL AND 4 POSTS, EMBANKMENT REQUIRES FILL, END ANCHORAGES - LOOSE			
52	18A	29.3	16822	83.65	16.35	1	L	N	N	N	Y	31	?	Y		Y	Y				
52	18A	31.95	16822	83.65	16.35	2	R	N	N	Y	Y	10	?	N		Y	Y	STRUCTURAL DAMAGE - TIMBER BLOCKS AND RAIL LAP JOINT BOLTS ARE MISSING, END ANCHORAGES - TIMBER POSTS NOT DRILLED			
52	18A	32.05	16822	83.65	16.35	1	L	N	N	Y	Y	65	?	Y		Y	Y	STRUCTURAL DAMAGE - 8 POSTS REQUIRE STRAIGHTENING			
52	18A	32.46	16822	83.65	16.35	?	?	N	N	Y	Y	127	?	?		Y	N	KERBING PRESENT, STRUCTURAL DAMAGE - SOME TIMBER POSTS AND BLOCKS REQUIRE REPLACEMENT			
52	18A	33.6	16822	83.65	16.35	?	?	N	N	Y	Y	71	?	Y		N	Y				
52	18A	33.9	16822	83.65	16.35	2	R	N	N	Y	Y	51	?	Y		N	Y				
52	18A	34.2	16822	83.65	16.35	2	R	N	N	?	Y	325	?	N		N	Y	END ANCHORAGES - REQUIRE BREAKAWAY POSTS			
52	18A	34.3	16822	83.65	16.35	1	L	N	N	Y	N	189	?	N		Y	N	STRUCTURAL DAMAGE - SOME POSTS AND LENGTHS OF RAIL TO BE REPLACED. END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING			
75	18A	37.46	16822	83.65	16.35	?	?	N	N	Y	Y	544	?	Y		N	Y				
75	18A	46.96	14745	82.55	17.45	2	R	N	N	N	N	13	0	Y		N	N	HOLES IN MELT POSTS NOT DRILLED			
75	18A	47.02	14745	82.55	17.45	2	R	N	N	N	N		0	N		N	N	HOLES IN MELT POSTS NOT DRILLED			
114	18A	60.41	10200	83.3	16.7	1	R	N	N	Y	Y	64	64	Y		N	Y				
114	18A	62.46	10200	83.3	16.7	1	R	N	N	N	Y	34	34	Y		Y	N	OVER CULVERT - WOODEN POSTS ARE BROKEN AT ROAD LEVEL, INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	62.46	10200	83.3	16.7	1	L	N	N	N	Y	34	34	Y		N	N	INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	66.56	10200	83.3	16.7	1	L	N	Y	N	Y	14	12	Y		N	Y	INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	66.56	10200	83.3	16.7	1	R	N	Y	N	Y	14	12	Y		N	N	SCOUR NORTHSIDE OF ABUTMENT B, KERBING PRESENT, INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	69.5	10200	83.3	16.7	1	R	N	Y	Y	Y	14	12	Y		N	Y	INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	69.5	10200	83.3	16.7	1	L	N	Y	Y	Y	93	93	N		Y	N	END ANCHORAGES - 2ND WOODEN POSTS NOT DRILLED, MINOR DAMAGE TO ONE LENGTH OF RAIL, INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	70.13	10200	83.3	16.7	1	L	N	N	N	Y	221	?	N		N	N	KERBING PRESENT, WASHERS PRESENT ON OLD SECTION ONLY, END ANCHORAGES - WOODEN POSTS NOT DRILLED			
114	18A	70.28	10200	83.3	16.7	1	R	N	N	Y	Y	113	109	N		Y	Y	FOR BREAKAWAY, INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	71.16	10200	83.3	16.7	1	B	N	N	N	Y	129	125	N		Y	N	DAMAGE TO ONE LENGTH OF RAIL, KERBING PRESENT, END ANCHORAGES - WOODEN POSTS NOT DRILLED			
114	18A	71.17	10200	83.3	16.7	1	B	N	N	Y	Y	133	129	N		N	Y	STRUCTURAL DAMAGE TO THREE LENGTHS OF RAIL, END ANCHORAGES - TIMBER POSTS NOT DRILLED, INADEQUEATE FLARE RATE ON DEPARTURE			
114	18A	72.9	10200	83.3	16.7	2	L	N	N	N	N	107	10	Y		N	N	END ANCHORAGES - TIMBER POSTS NOT DRILLED, KERBING PRESENT			
114	18A	74.5	10200	83.3	16.7	1	L	N	Y	N	Y	237	233	Y		N	N	KERBING PRESENT		4	
114	18A	74.5	10200	83.3	16.7	1	R	N	Y	N	Y	237	233	Y		N	N	INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	75.29	10200	83.3	16.7	1	L	N	Y	N/A	Y	88	88	Y		Y	Y	INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	75.43	14597	85.9	14.1	1	R	N	Y	N/A	N	20	18	Y		Y	Y	STRUCTURAL DAMAGE AT MELT			
114	18A	75.56	14597	85.9	14.1	2	R	N	N	N/A	Y	54	54	N		N	Y	STRUCTURAL DAMAGE AT MELT			
114	18A	76.25	14597	85.9	14.1	1	R	N	N	Y	Y	79	79	N		Y	Y	INADEQUATE ANCHORAGE AT TRANSITION,			
114	18A	76.6	14597	85.9	14.1	1	L	N	N	Y	Y	39	39	N		N	Y	STRUCTURAL DAMAGE ON ANCHOR			
114	18A	76.66	14597	85.9	14.1	2	R	N	N	Y	Y	39	39	Y		N	Y	NO ANCHOR BOLTS PRESENT, SOME RAIL JOINING BOLTS MISSING			
114	18A	78.06	14597	85.9	14.1	2	R	N	N	Y	Y	50	50	Y		N	Y	INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	80.53	14597	85.9	14.1	2	L	N	N	Y	Y	98	94	Y		N	Y	INADEQUATE FLARE RATE ON DEPARTURE			
114	18A	81.18	14597	85.9	14.1	2	L	N	N	Y	N	29	29	Y		N	N	GOOD - TOO LOW		4	
114	18A	81.33	14597	85.9	14.1	1	R	N	N	Y	N	139	139	Y		N	N	HERBING IS PRESENT AND IS INSIDE TERMINAL END			
114	18A	82.07	14597	85.9	14.1	2	L	N	N	N	N	87	87	Y		Y	Y	KERBING PRESENT			
114	18A	82.78	14597	85.9	14.1	2	R	N	N	N	N	87	87	N		N	N	2 X RAILS - 2 X POSTS DAMAGED	\$1,000.00	2	
114	18A	83.08	14597	85.9	14.1	2	R	N	N	N	N	41	41	Y		N	N	INADEQUATE FLARE RATE			
114	18A	83.37	18223	87.5	12.5	1	L	N	N	Y	Y	13	0	Y		N	Y	KERB PRESENT - MAY LEAD TO RAMPING		3	
114	18A	87.22	18223	87.5	12.5	2	L	N	N	Y	Y	27	27	N		N	Y	INADEQUATE FLARE RATE ON DEPARTURE			
52	40B	11.97	2637	88.4	11.6	1	R	N	N	Y	N	115	115	?		N	Y	2ND POSTS NOT DRILLED FOR BREAKAWAY			
52	40B	22.67	2637	88.4	11.6	1	B	N	N	Y	N	29	27	Y		N	Y				
52	40B	23.07	2637	88.4	11.6	1	B	N	N	Y	N	35	33	Y		N	Y				
52	40B	23.97	2504	84.1	15.9	1	L	N	Y	Y	N	10	8	Y		N	Y	BRIDGE			
52	40B	23.97	2504	84.1	15.9	1	R	N	Y	Y	N	8	8	Y		N	Y	BRIDGE			
52	40B	24.15	2504	84.1	15.9	1	R	N	N	Y	Y	51	?	Y		N	Y	SHOULDER			
52	40B	24.15	2504	84.1	15.9	1	L	N	N	Y	Y	51	?	Y		N	Y	SHOULDER			
52	40B	24.72	2504	84.1	15.9	1	L	N	N	Y	Y	34	?	Y		N	Y	SHOULDER			
52	40B	24.72	2504	84.1	15.9	1	R	N	N	Y	Y	34	?	Y		N	Y	SHOULDER			
52	40B	25.3	2504	84.1	15.9	1	R	N	N	Y	Y	126	124	Y		N	Y	SHOULDER			
52	40B	25.3	2504	84.1	15.9	1	L	N	N	Y	Y	38	36	Y		N	Y	SHOULDER			
52	40B	25.6	2504	84.1	15.9	1	L	N	N	Y	Y	36	?	Y		N	Y	SHOULDER			
52	40B	27.17	2504	84.1	15.9	1	B	N	Y	Y	Y	40	?	Y		N	Y	SHOULDER			
52	40B	29.93	2504	84.1	15.9	1	L	N	N	Y	Y	31	29	Y		N	Y	SHOULDER			
52	40B	30.22	2504	84.1	15.9	1	L	N	N	Y	Y	14	12	Y		N	Y	SHOULDER			
52	40B	30.6	2504	84.1	15.9	1	B	N	N	Y	Y	254	248	Y		N	Y	SHOULDER			
52	40B	31.126	2504	84.1	15.9	1	?	Y	N	Y	Y	9	?	N		N	Y	TREE			
52	40B	31.2	2504	84.1	15.9	1	B	N	Y	Y	Y	56	?	Y		N	Y	BRIDGE			
52	40B	31.96	2504	84.1	15.9	1	?	N	N	Y	Y	141	139	Y		N	Y	SHOULDER			
52	40B	32.65	2386	84.3	15.7	1	B	N	N	Y	Y	133	121	Y		N	Y	INTERSECTION			
52	40B	35.474	2386	84.3	15.7	1	R	Y	N	Y	Y	28	?	?		N	Y	SHOULDER			
52	40B	35.82	2386	84.3	15.7	1	B	N	Y	Y	Y	104	?	N		N	Y	BRIDGE			
52	40B	36.01	2386	84.3	15.7	1	R	Y	N	Y	Y	34	?	N		Y	Y	SHOULDER, STRUCTURAL DAMAGE TO TWO LENGTHS OF RAIL			
52	40B	38.42	2386	84.3	15.7	1	B	N	N	Y	Y	34	30	Y		N	Y	CULVERT			
52	40B	39.17	2386	84.3	15.7	1	B	N	Y	Y	Y	96	88	Y		N	Y	BRIDGE			
52	40B	41.93	2386	84.3	15.7	1	?	Y	N	Y	Y	81	?	N		Y	Y	SHOULDER			
52	40B	42.17	2386	84.3	15.7	1	?	Y	N	Y	Y	51	51	N		N	Y	SHOULDER			
52	40B	42.36	2386	84.3	15.7	1	?	Y	N	Y	N	9	?	N		N	Y	SHOULDER			
52	40B	42.47	2386	84.3	15.7	1	?	Y	N	Y	N	27	?	N		N	Y				
52	40B	42.55	2386	84.3	15.7	1	?	Y	N	Y	Y	21	?	N		N	Y				
52	40B	42.63	2386	84.3	15.7	1	?	Y	N	Y	Y	67	?	N		N	Y				
52	40B	42.85	2386	84.3	15.7	1	?	Y	N	Y	Y	61	61	N		N	Y				
52	40B	43.03	2386	84.3	15.7	1	?	Y	N	Y	Y	21	21	N		Y	Y	SHOULDER			
52	40B	43.165	2386	84.3	15.7	1	?	Y	N	Y	Y	45	?	N		N	Y	STRUCTURAL DAMAGE TO ONE POST AND TWO LENGTHS OF RAIL			
52	40B	43.42	2386	84.3	15.7	1	?	Y	N	Y	Y	51	49	N		N	Y	SHOULDER			
52	40B	43.47	2386	84.3	15.7	1	?	Y	N	Y	N	31	?	N		Y	Y	STRUCTURAL DAMAGE - THREE TIMBER POSTS REQUIRE REPLACEMENT			
52	40B	43.61	2386	84.3	15.7	1	?	Y	N	Y	Y	33	?	N		Y	Y	SHO			

Guard Rail Database

Esk - 52  
Laidley - 75  
Gatton - 114

Southern District Guardrail Audit						Inspected													Date of Compilation	07/26/99	
Shire	Road	Chainage	AADT	% Light Vehicle	% Heavy Vehicle	Carriageway	Left / Right	Fishtail Y/N	Bridge Connection	Runout Length Y/N	Offset Dist Y/N	Posts (Number)	Washers (Number)	End Anchor Correct Y/N	Slip Washers Correct Y/N	Structural Damage Y/N	Flare Y/N	Issue / Hazard	Est Cost	Priority	
52	40B	44.27	2386	84.3	15.7	1	L	Y	N	Y	Y	91	?	N		Y	Y	SHOULDER			
52	40B	44.77	2386	84.3	15.7	1	L	Y	N	Y	Y	35	35	N		N	Y	SHOULDER			
52	40B	44.87	2386	84.3	15.7	1	B	N	Y	Y	Y	44	44	N		N	Y	BRIDGE			
52	42A	6.4	5789	90.1	9.9	1	R	Y	Y	Y	Y	11	?	N		Y	Y	STRUCTURAL DAMAGE - BARRIER STRUCTURALLY UNSOUND AND REQUIRES REPLACEMENT, 11 TIMBER POSTS REQUIRE REPLACEMENT			
52	42A	6.4	5789	90.1	9.9	1	L	N	Y	Y	N	28	?	N		N	Y	END ANCHORAGES - NO BLOCK AT 2ND BLOCK			
52	42A	7.9	5789	90.1	9.9	1	L	Y	N	Y	Y	67	?	N		Y	Y	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING, STRUCTURAL DAMAGE - ONE LENGTH OF RAIL REQUIRES REPLACEMENT			
52	42A	7.9	5789	90.1	9.9	1	R	N	N	Y	Y	57	?	N		N	Y	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING AND THERE ARE NO BLOCKS PRESENT			
52	42A	10.9	5789	90.1	9.9	1	L	N	Y	Y	Y	34	?	N		N	Y	END ENACHORAGES - TIMBER POSTS REQUIRE DRILLING			
52	42A	10.9	5789	90.1	9.9	1	R	N	Y	Y	Y	31	?	?		?	Y				
52	42A	11.3	5789	90.1	9.9	1	R	N	N	Y	Y	31	?	Y		N	Y	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING			
52	42A	11.3	5789	90.1	9.9	1	L	N	N	Y	Y	35	?	N		N	Y	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING			
52	42A	11.9	5789	90.1	9.9	1	L	N	N	Y	Y	45	?	N		Y	Y	END ANCHORAGES - NO BLOCKS ON 2ND POST, STRUCTURAL DAMAGE - ONE 2ND POST DESTROYED			
52	42A	11.9	5789	90.1	9.9	1	R	N	N	Y	Y	33	?	N		N	Y	END ANCHORAGES - TIMBER POSTS REQUIRE DRILLING AND BLOCKS			
52	42A	22.31	2394	84	16	1	R	Y	Y	Y	Y	8	9	N		N	Y	END ANCHORAGES - TIMBER BLOCKS REQUIRED			
52	42A	22.31	2394	84	16	1	L	N	N	Y	Y	907	?	?		N	Y				
52	42A	25.21	2394	84	16	1	R	N	N	Y	Y	91	91	Y		Y	N	INADEQUATE FLARE RATE ON DEPARTURE			
52	42A	25.21	2394	84	16	1	L	N	N	Y	Y	43	43	Y		N	N	END ANCHORAGES - HOLES REQUIRED FOR BREAKAWAY			
52	42A	26.21	2394	84	16	1	R	N	N	Y	Y	64	56	Y		N	N	INADEQUATE FLARE RATE ON DEPARTURE			
52	42A	26.51	2394	84	16	1	R	N	N	Y	Y	49	45	Y		N	Y				
52	42A	27.01	2394	84	16	1	R	N	N	Y	Y	28	24	Y		N	N	INADEQUATE FLARE RATE ON DEPARTURE			
52	42A	27.01	2394	84	16	1	L	N	N	Y	Y	39	35	?		N	N				
52	42A	28.31	2394	84	16	1	R	N	N	Y	Y	13	9	Y		N	N				
52	42A	36.21	1959	81.8	18.2	1	R	Y	N	Y	Y	34	32	?		N	Y	EXTENSIVE SCOURING EVIDENT		1	
52	42A	36.21	1959	81.8	18.2	1	L	Y	N	Y	Y	26	24	Y		N	Y				
52	42A	36.81	1959	81.8	18.2	1	R	Y	Y	Y	Y	21	19	N		N	Y	BRIDGE			
52	42A	36.81	1959	81.8	18.2	1	L	Y	Y	Y	Y	20	18	?		N	Y	BRIDGE			
52	42A	38.51	1959	81.8	18.2	1	L	Y	Y	Y	Y	12	10	N		N	Y	BRIDGE			
52	42A	38.51	1959	81.8	18.2	1	R	Y	Y	Y	Y	14	13	N		N	Y	BRIDGE			
52	42A	40.11	1959	81.8	18.2	1	L	Y	N	Y	Y	31	29	?		N	Y				
52	42A	40.11	1959	81.8	18.2	1	R	Y	N	Y	Y	47	45	?		N	Y				
52	42A	42.36	1959	81.8	18.2	1	R	Y	N	Y	Y	24	24	?		N	N				
52	42A	43.66	1959	81.8	18.2	1	L	N	Y	Y	N	27	23	Y		N	Y	BRIDGE			
52	42A	43.66	1959	81.8	18.2	1	R	N	Y	Y	Y	28	28	Y		N	Y	BRIDGE			
52	42A	46.66	1959	81.8	18.2	1	R	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			
52	42A	46.66	1959	81.8	18.2	1	L	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			
52	42A	53.76	3781	88.04	11.96	1	L	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			
52	42A	53.76	3781	88.04	11.96	1	R	N	Y	Y	N	30	28	Y		N	Y	BRIDGE			
52	42A	63.16	2586	85.4	14.6	1	L	N	Y	Y	N	105	103	Y		N	Y	BRIDGE			
52	42A	63.16	2586	85.4	14.6	1	R	N	Y	Y	Y	72	68	Y		N	Y	BRIDGE			
52	42A	64.65	2586	85.4	14.6	1	R	N	N	Y	N	23	19	Y		N	Y				
52	42A	64.65	2586	85.4	14.6	1	L	N	N	Y	N	35	31	Y		N	Y				
52	42A	70.39	2586	85.4	14.6	1	L	N	Y	Y	N	28	28	Y		N	Y	BRIDGE			
52	42A	70.39	2586	85.4	14.6	1	R	N	Y	Y	N	24	24	Y		N	N	BRIDGE			
52	42A	70.79	2586	85.4	14.6	1	L	N	Y	Y	N	28	28	Y		N	Y	BRIDGE			
52	42A	70.79	2586	85.4	14.6	1	R	N	Y	Y	N	28	28	Y		N	Y	BRIDGE			
52	42A	81.1	2586	85.4	14.6	1	L	N	Y	Y	N	28	28	Y		N	Y	BRIDGE			
52	42A	81.1	2586	85.4	14.6	1	R	N	Y	Y	N	28	28	Y		N	Y	BRIDGE			
52	42A	85.22	2586	85.4	14.6	1	L	N	Y	Y	N	28	28	Y		N	Y	BRIDGE			
52	42A	85.22	2586	85.4	14.6	1	R	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			
52	42A	86.51	2586	85.4	14.6	1	L	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			
52	42A	86.51	2586	85.4	14.6	1	R	N	Y	Y	N	28	26	Y		N	Y	BRIDGE			
52	42A	86.62	2586	85.4	14.6	1	B	N	?	?	?	?	?	?		?	?				

## Level 1 Bridge Inspections

Road	Start	AADT	% Light Vehicle s	% Heavy Vehicle s	Struct_ID	STRUCTURE_NAME	Inspect_Date DMR Inspection	Element_Group	Inspect_Element	ELEMENT_TEXT
18A	30.49	16822	83.65	16.35	338	Plain Creek	02-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard height and length and rail damaged
18A	30.49	16822	83.65	16.35	338	Plain Creek	02-NOV-99	2 Guardrail	Connection To Bridge	Not attached to Bridge
18A	30.49	16822	83.65	16.35	338	Plain Creek	11-MAR-04	2 Guardrail	Accident Damage	1m damage to end 1
18A	30.49	16822	83.65	16.35	338	Plain Creek	11-MAR-04	2 Guardrail	Accident Damage	1m damage to end 1
18A	30.732	16822	83.65	16.35	339	Plain Creek	02-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
18A	30.732	16822	83.65	16.35	339	Plain Creek	02-NOV-99	2 Guardrail	Connection To Bridge	Armco not connected to bridge requires replacement
18A	30.732	16822	83.65	16.35	339	Plain Creek	02-NOV-99	2 Guardrail	Delineators	
18A	30.732	16822	83.65	16.35	339	Plain Creek	11-MAR-04	2 Guardrail	Delineators	Missing on upstream
18A	30.732	16822	83.65	16.35	339	Plain Creek	11-MAR-04	2 Guardrail	Delineators	Missing on upstream
18A	30.732	16822	83.65	16.35	339	Plain Creek	03-FEB-05	2 Guardrail	Accident Damage	ap1 gr 2 damage
18A	30.732	16822	83.65	16.35	339	Plain Creek	03-FEB-05	2 Guardrail	Incorrect Alignment	incorrect alignment because of accident damage
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	02-NOV-99	2 Guardrail	Accident Damage	Abuttment 2 requires 7 new posts 1 fish tail and 1 length of armco rail
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	02-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	02-NOV-99	2 Guardrail	Connection To Bridge	Abuttment 1 guardrail 1 and 2 require attaching to bridge
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	15-MAR-04	2 Guardrail	Accident Damage	Minor damage
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	15-MAR-04	2 Guardrail	Accident Damage	Minor damage
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	03-MAR-05	2 Guardrail	Accident Damage	posts are bent
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	03-MAR-05	2 Guardrail	Incorrect Alignment	posts are bent
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	03-MAR-05	2 Guardrail	Connection To Bridge	posts are bent
18A	47.87	16503	81.5	18.5	340	Jack Martin Bridge	03-MAR-05	2 Guardrail	Delineators	replace with new
18A	48.03	16503	81.5	18.5	341	Jack Martin Bridge	02-NOV-99	2 Guardrail	Incorrect Alignment	Fishtails required on away ends
18A	48.03	16503	81.5	18.5	341	Jack Martin Bridge	26-NOV-99	2 Guardrail	Incorrect Alignment	non standard height and length, (timber shear posts)
18A	56.45	10200	83.3	16.7	342	Lockyer Creek	09-APR-01	2 Guardrail	Incorrect Alignment	Substandard length and height
18A	56.45	10200	83.3	16.7	342	Lockyer Creek	09-APR-01	2 Guardrail	Connection To Bridge	wooden posts
18A	59.32	10200	83.3	16.7	343	Allan Street	09-APR-01	2 Guardrail	Incorrect Alignment	Sub standard length and height
18A	59.32	10200	83.3	16.7	343	Allan Street	15-MAR-04	2 Guardrail	Accident Damage	Guardrail has come loose
18A	66.82	10200	83.3	16.7	346	Service Road "C"	09-APR-01	2 Guardrail	Incorrect Alignment	Substandard height and length.
18A	66.82	10200	83.3	16.7	346	Service Road "C"	09-APR-01	2 Guardrail	Connection To Bridge	
18A	69.69	10200	83.3	16.7	344	Sandy Creek	09-APR-01	2 Guardrail	Incorrect Alignment	Substandard height and length, wooden posts at ends
18A	75.01	10200	83.3	16.7	345	Western Railway	29-OCT-99	2 Guardrail	Incorrect Alignment	Non standard height and length. Also 3 armco rails required abutment 1
18A	75.69	14597	85.9	14.1	8671	Lockyer Creek	10-APR-01	2 Guardrail	Incorrect Alignment	Substandard length and height
18A	75.7	14597	85.9	14.1	347	Lockyer Creek	10-APR-01	2 Guardrail	Incorrect Alignment	Substandard length and height
3083	0.785	801	91.6	8.4	303	Laidley Creek	28-SEP-01	2 Guardrail	Incorrect Alignment	Non-standard height and length.
3083	2.518	801	91.6	8.4	25730	Coopers Bridge	05-FEB-03	2 Guardrail	Delineators	No delienation
3083	2.518	801	91.6	8.4	25730	Coopers Bridge	05-FEB-03	2 Guardrail	Delineators	No delienation
3083	2.518	801	91.6	8.4	25730	Coopers Bridge	14-MAR-04	2 Guardrail	Delineators	Missing delineators
3083	2.518	801	91.6	8.4	25730	Coopers Bridge	14-MAR-04	2 Guardrail	Delineators	Missing delineators
3083	25.175	801	91.6	8.4	301	Laidley Creek	02-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard Armco and rail
3083	25.175	801	91.6	8.4	301	Laidley Creek	05-FEB-03	2 Guardrail	Incorrect Alignment	
3083	25.175	801	91.6	8.4	301	Laidley Creek	05-FEB-03	2 Guardrail	Connection To Bridge	
3083	25.175	801	91.6	8.4	301	Laidley Creek	14-MAR-04	2 Guardrail	Accident Damage	1 metre damage
3083	25.175	801	91.6	8.4	301	Laidley Creek	14-MAR-04	2 Guardrail	Accident Damage	1 metre damage
311	0.017	4915	94.5	5.5	215	Lagoon Gully No 1	02-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
311	0.017	4915	94.5	5.5	215	Lagoon Gully No 1	05-FEB-03	2 Guardrail	Accident Damage	Minor AP one RHS
312	14.363	1733	94.2	5.8	216	Laidley Creek	02-NOV-99	2 Guardrail	Accident Damage	Requires terminal ends
312	14.363	1733	94.2	5.8	216	Laidley Creek	02-NOV-99	2 Guardrail	Incorrect Alignment	Require terminal ends
313	12.447	621	84.26	15.74	217	Dry Creek	21-SEP-01	2 Guardrail	Incorrect Alignment	Non standard length and height
313	19.611	621	84.26	15.74	222	Ma Ma Creek	21-SEP-01	2 Guardrail	Incorrect Alignment	No guardrail.
313	19.611	621	84.26	15.74	222	Ma Ma Creek	21-SEP-01	2 Guardrail	Connection To Bridge	
313	23.29	621	84.26	15.74	223	Heifer Creek No 1	21-SEP-01	2 Guardrail	Accident Damage	4m of guardrail damage
313	23.29	621	84.26	15.74	223	Heifer Creek No 1	21-SEP-01	2 Guardrail	Incorrect Alignment	Non-standard height and length
313	23.29	621	84.26	15.74	223	Heifer Creek No 1	22-NOV-02	2 Guardrail	Accident Damage	MINOR AB 1 LHS

## Level 1 Bridge Inspections

Road	Start	AADT	% Light Vehicle s	% Heavy Vehicle s	Struct_ID	STRUCTURE_NAME	Inspect_Date DMR Inspection	Element_Group	Inspect_Element	ELEMENT_TEXT
313	26.117	621	84.26	15.74	224	Heifer Creek No 2	21-SEP-01	2 Guardrail	Accident Damage	Guardrail being struck by trucks due to width of radius.
313	26.117	621	84.26	15.74	224	Heifer Creek No 2	21-SEP-01	2 Guardrail	Incorrect Alignment	Non-standard height and length
3131	8.91	647	93.01	6.99	305	Tenthill Creek	29-OCT-99	2 Guardrail	Incorrect Alignment	Gaurd rail nil. Requires replacement
3131	8.91	647	93.01	6.99	305	Tenthill Creek	19-AUG-02	2 Guardrail	Incorrect Alignment	
3131	8.91	647	93.01	6.99	305	Tenthill Creek	19-AUG-02	2 Guardrail	Connection To Bridge	
3131	8.91	647	93.01	6.99	305	Tenthill Creek	19-AUG-02	2 Guardrail	Delineators	Guardrail non existing.
3131	8.91	647	93.01	6.99	305	Tenthill Creek	16-MAR-04	2 Guardrail	Delineators	No delineators
3131	8.91	647	93.01	6.99	305	Tenthill Creek	16-MAR-04	2 Guardrail	Delineators	No delineators
3131	14.729	647	93.01	6.99	306	Blackfellow Creek	29-OCT-99	2 Guardrail	Incorrect Alignment	There is no gaurd rail present. Needs installing
314	3.04	9913	91.22	8.78	237	Railway Overpass At Gatton	09-APR-01	2 Guardrail		Meet current standard - upgraded May 2004
314	3.04	9913	91.22	8.78	237	Railway Overpass At Gatton	16-MAR-04	2 Guardrail		Meet current standard - upgraded May 2004
314	3.04	9913	91.22	8.78	237	Railway Overpass At Gatton	16-MAR-04	2 Guardrail		Meet current standard - upgraded May 2004
314	6.749	6051	88.94	11.06	231	Robinsons Bridge	29-OCT-99	2 Guardrail	Incorrect Alignment	Non standard - Require ET ends no run out area behind rail
314	9.553	5721	89.2	10.8	230	Lockyer Creek	29-OCT-99	2 Guardrail	Incorrect Alignment	Non Standard height and length - - Require ET ends no run out area behind rail
314	9.553	5721	89.2	10.8	230	Lockyer Creek	16-MAR-04	2 Guardrail	Accident Damage	3m on LHS at AP2 - Require ET ends no run out area behind rail
314	9.553	5721	89.2	10.8	230	Lockyer Creek	16-MAR-04	2 Guardrail	Accident Damage	3m on LHS at AP2 - Require ET ends no run out area behind rail
4023	15.65	228	97.62	2.38	309	Northbrook Creek No 1	04-NOV-99	2 Guardrail	Incorrect Alignment	
4023	15.65	228	97.62	2.38	309	Northbrook Creek No 1	05-NOV-99	2 Guardrail	Incorrect Alignment	
4023	17.524	228	97.62	2.38	310	Northbrook Creek No 2	04-NOV-99	2 Guardrail	Incorrect Alignment	
4023	17.771	228	97.62	2.38	311	Northbrook Creek No 3	04-NOV-99	2 Guardrail	Incorrect Alignment	
4023	24.657	228	97.62	2.38	312	Northbrook Creek No 4	04-NOV-99	2 Guardrail	Incorrect Alignment	
405	4.5	409	92.13	7.87	255	Coal Creek	05-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
405	4.5	409	92.13	7.87	255	Coal Creek	21-AUG-02	2 Guardrail	Accident Damage	Terminal ends damaged.
405	4.5	409	92.13	7.87	255	Coal Creek	21-AUG-02	2 Guardrail	Connection To Bridge	Incorrect connection to bridge.
405	4.5	409	92.13	7.87	255	Coal Creek	04-MAR-05	2 Guardrail	Incorrect Alignment	too low
405	4.5	409	92.13	7.87	255	Coal Creek	04-MAR-05	2 Guardrail	Delineators	delinators missing ap1 and ap2
405	7.603	409	92.13	7.87	256	Meiers Gully	04-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
405	7.603	409	92.13	7.87	256	Meiers Gully	21-AUG-02	2 Guardrail	Accident Damage	
405	7.603	409	92.13	7.87	256	Meiers Gully	21-AUG-02	2 Guardrail	Incorrect Alignment	
405	7.603	409	92.13	7.87	256	Meiers Gully	21-AUG-02	2 Guardrail	Connection To Bridge	
405	7.603	409	92.13	7.87	256	Meiers Gully	21-AUG-02	2 Guardrail	Delineators	Incorrect connections to bridge.
405	14.48	409	92.13	7.87	257	Brisbane River	05-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard height and length
405	14.48	409	92.13	7.87	257	Brisbane River	07-MAR-05	2 Guardrail	Incorrect Alignment	ap1 gr wooden posts rotten ap2 gr drum end on wooden post loose
405	14.48	409	92.13	7.87	257	Brisbane River	07-MAR-05	2 Guardrail	Connection To Bridge	no connection with bridge
405	21.88	409	92.13	7.87	258	Silverton Creek	05-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height width and material
405	21.88	409	92.13	7.87	258	Silverton Creek	21-AUG-02	2 Guardrail	Accident Damage	Vehicle has hit G/R twice, badly damaged.
405	21.88	409	92.13	7.87	258	Silverton Creek	21-AUG-02	2 Guardrail	Incorrect Alignment	
405	21.88	409	92.13	7.87	258	Silverton Creek	21-AUG-02	2 Guardrail	Connection To Bridge	Incorrect connection to bridge.
405	21.88	409	92.13	7.87	258	Silverton Creek	21-AUG-02	2 Guardrail	Delineators	No delineators.
405	21.88	409	92.13	7.87	258	Silverton Creek	07-MAR-05	2 Guardrail	Accident Damage	ap1 gr
405	21.88	409	92.13	7.87	258	Silverton Creek	07-MAR-05	2 Guardrail	Incorrect Alignment	due to accident damage
405	21.88	409	92.13	7.87	258	Silverton Creek	07-MAR-05	2 Guardrail	Connection To Bridge	bolt loose at connection with bridge ap1 gr
405	21.88	409	92.13	7.87	258	Silverton Creek	07-MAR-05	2 Guardrail	Delineators	missing and cracked
405	25.38	409	92.13	7.87	259	Waterfall Gully	25-SEP-01	2 Guardrail	Incorrect Alignment	Non-standard length and height. On a poor alignment.
405	25.38	409	92.13	7.87	259	Waterfall Gully	12-NOV-03	2 Guardrail	Accident Damage	AP2 side one
40B	22.991	2637	88.4	11.6	396	Brisbane River	05-NOV-99	2 Guardrail	Incorrect Alignment	Not to standard length or height, timber shear posts
40B	22.991	2637	88.4	11.6	396	Brisbane River	04-DEC-02	2 Guardrail	Incorrect Alignment	
40B	22.991	2637	88.4	11.6	396	Brisbane River	04-DEC-02	2 Guardrail	Incorrect Alignment	
40B	27.485	2504	84.1	15.9	394	Emu Creek	22-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard height
40B	31.429	2504	84.1	15.9	363	Wallaby Creek	23-NOV-99	2 Guardrail	Incorrect Alignment	Substandard length and height
40B	31.429	2504	84.1	15.9	363	Wallaby Creek	04-DEC-02	2 Guardrail	Connection To Bridge	AB one RHS needs a new block of timber
40B	31.429	2504	84.1	15.9	363	Wallaby Creek	22-MAR-05	2 Guardrail	Connection To Bridge	wooden spacer where gr joins bridge split and rotten renew

## Level 1 Bridge Inspections

Road	Start	AADT	% Light Vehicle s	% Heavy Vehicle s	Struct_ID	STRUCTURE_NAME	Inspect_Date DMR Inspection	Element_Group	Inspect_Element	ELEMENT_TEXT
40B	36.038	2386	84.3	15.7	364	Wallaby Creek	01-OCT-01	2 Guardrail	Incorrect Alignment	Non-standard height and length.
40B	39.313	2386	84.3	15.7	365	Wallaby Creek	01-OCT-01	2 Guardrail	Incorrect Alignment	Non-standard height and length.
40B	44.97	2386	84.3	15.7	368	Blackbutt Creek	23-NOV-99	2 Guardrail	Incorrect Alignment	Sub Standard (height, length, timber posts
40B	44.97	2386	84.3	15.7	368	Blackbutt Creek	22-MAR-05	2 Guardrail	Incorrect Alignment	not to spec wooden posts rotten ,loose ,wooden spacers are loose
40B	44.97	2386	84.3	15.7	368	Blackbutt Creek	22-MAR-05	2 Guardrail	Incorrect Alignment	not to spec wooden posts rotten ,loose ,wooden spacers are loose
410	1.176	363	93.85	6.15	8676	Pryde Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	1.176	363	93.85	6.15	8676	Pryde Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	1.176	363	93.85	6.15	8676	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	1.176	363	93.85	6.15	8676	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	1.176	363	93.85	6.15	8676	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	19-JAN-05	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.948	363	93.85	6.15	8678	Pryde Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.948	363	93.85	6.15	8678	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.948	363	93.85	6.15	8678	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.948	363	93.85	6.15	8678	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	2.948	363	93.85	6.15	8678	Pryde Creek	08-MAR-05	2 Guardrail		Meets current standard - upgraded Apr 2005
410	3.685	363	93.85	6.15	8679	Pryde Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	3.685	363	93.85	6.15	8679	Pryde Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	3.685	363	93.85	6.15	8679	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	3.685	363	93.85	6.15	8679	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	3.685	363	93.85	6.15	8679	Pryde Creek	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	3.685	363	93.85	6.15	8679	Pryde Creek	08-MAR-05	2 Guardrail		Meets current standard - upgraded Apr 2005
410	8.73	363	93.85	6.15	8680	Branch Ck	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	8.73	363	93.85	6.15	8680	Branch Ck	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	8.73	363	93.85	6.15	8680	Branch Ck	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	8.73	363	93.85	6.15	8680	Branch Ck	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	8.73	363	93.85	6.15	8680	Branch Ck	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	8.73	363	93.85	6.15	8680	Branch Ck	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	13.098	363	93.85	6.15	8682	Kipper Ck	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	13.098	363	93.85	6.15	8682	Kipper Ck	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	13.098	363	93.85	6.15	8682	Kipper Ck	09-AUG-02	2 Guardrail		Meets current standard - upgraded Apr 2005
410	13.098	363	93.85	6.15	8682	Kipper Ck	09-AUG-02	2 Guardrail		Meets current standard - upgraded Apr 2005
410	13.098	363	93.85	6.15	8682	Kipper Ck	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	13.098	363	93.85	6.15	8682	Kipper Ck	11-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	23.407	363	93.85	6.15	8681	Deep Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	23.407	363	93.85	6.15	8681	Deep Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	23.407	363	93.85	6.15	8681	Deep Creek	09-AUG-02	2 Guardrail		Meets current standard - upgraded Apr 2005
410	27.469	363	93.85	6.15	8683	Sandy Creek	05-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	27.469	363	93.85	6.15	8683	Sandy Creek	05-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	27.469	363	93.85	6.15	8683	Sandy Creek	12-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	27.469	363	93.85	6.15	8683	Sandy Creek	12-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	37.542	363	93.85	6.15	8684	Reedy Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	37.542	363	93.85	6.15	8684	Reedy Creek	12-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
410	38.786	363	93.85	6.15	8685	Stanley River	05-NOV-99	2 Guardrail		Meets current standard - upgraded Apr 2005
410	38.786	363	93.85	6.15	8685	Stanley River	12-FEB-03	2 Guardrail		Meets current standard - upgraded Apr 2005
4104	22.799	1000	94.5	5.5	314	Railway Overpass At Ballard	18-OCT-01	2 Guardrail	Incorrect Alignment	Non standard height and length althouhg the rail is in good condition
4104	22.799	1000	94.5	5.5	314	Railway Overpass At Ballard	18-OCT-01	2 Guardrail	Connection To Bridge	



## Level 1 Bridge Inspections

Road	Start	AADT	% Light Vehicle s	% Heavy Vehicle s	Struct_ID	STRUCTURE_NAME	Inspect_Dat e DMR Inspection	Element_Group	Inspect_Element	ELEMENT_TEXT
4104	22.799	1000	94.5	5.5	314	Railway Overpass At Ballard	23-MAR-04	2 Guardrail	Delineators	No delienation
412	0.461	912	92.4	7.6	261	Laidley Creek	02-NOV-99	2 Guardrail	Accident Damage	Require terminal ends
412	0.461	912	92.4	7.6	261	Laidley Creek	02-NOV-99	2 Guardrail	Incorrect Alignment	Non standard length and height
412	8.523	1169	87.88	12.12	262	Lockyer Creek	02-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
412	8.523	1169	87.88	12.12	262	Lockyer Creek	02-NOV-99	2 Guardrail	Connection To Bridge	1 approach rail not connected to bridge
412	8.523	1169	87.88	12.12	262	Lockyer Creek	28-JAN-03	2 Guardrail	Accident Damage	Not to standard
412	8.523	1169	87.88	12.12	262	Lockyer Creek	13-MAR-04	2 Guardrail	Connection To Bridge	Guardrail does nto connect to bridge
412	8.523	1169	87.88	12.12	262	Lockyer Creek	13-MAR-04	2 Guardrail	Connection To Bridge	Guardrail does nto connect to bridge
412	8.523	1169	87.88	12.12	262	Lockyer Creek	02-MAR-05	2 Guardrail	Incorrect Alignment	
412	8.523	1169	87.88	12.12	262	Lockyer Creek	02-MAR-05	2 Guardrail	Connection To Bridge	
412	8.523	1169	87.88	12.12	262	Lockyer Creek	02-MAR-05	2 Guardrail	Delineators	
412	18.007	1169	87.88	12.12	263	Blind Gully	02-NOV-99	2 Guardrail	Accident Damage	Requires breakaways and terminal ends at all approaches
412	18.007	1169	87.88	12.12	263	Blind Gully	02-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
412	25.382	1221	90.8	9.2	264	Lockyer Creek	25-SEP-01	2 Guardrail		Meets current standard - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	25-SEP-01	2 Guardrail		Meets current standard - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	29-JAN-03	2 Guardrail		Meets current standard - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	29-JAN-03	2 Guardrail		Meets current standard - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	29-JAN-03	2 Guardrail		Meets current standard - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	29-JAN-03	2 Guardrail		Meets current standard - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	29-JAN-03	2 Guardrail		Meets current standard - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	29-JAN-03	2 Guardrail		Meets current standard - upgraded 2005
412	33.231	1221	90.8	9.2	265	Slip Gully	25-SEP-01	2 Guardrail	Incorrect Alignment	Poor alignment of guardrail. Built to current standards.
414	0.601	620	91.81	8.19	266	Redbank Creek No 1	04-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
414	0.601	620	91.81	8.19	266	Redbank Creek No 1	24-SEP-01	2 Guardrail	Incorrect Alignment	Non-standard height and length.
414	3.329	620	91.81	8.19	267	Redbank Creek No 2	03-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard height and length
414	3.329	620	91.81	8.19	267	Redbank Creek No 2	29-JUL-02	2 Guardrail	Connection To Bridge	Incorrect terminal end
414	3.329	620	91.81	8.19	267	Redbank Creek No 2	12-NOV-02	2 Guardrail	Delineators	Some missing on RHS
414	3.329	620	91.81	8.19	267	Redbank Creek No 2	15-MAR-04	2 Guardrail	Delineators	Some missing on LHS
414	3.329	620	91.81	8.19	267	Redbank Creek No 2	15-MAR-04	2 Guardrail	Delineators	Some missing on LHS
414	10.55	620	91.81	8.19	268	Redbank Creek No 3	26-SEP-01	2 Guardrail	Incorrect Alignment	Non-standard
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	26-SEP-01	2 Guardrail	Incorrect Alignment	No guardrail.
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	26-SEP-01	2 Guardrail	Connection To Bridge	
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	12-NOV-02	2 Guardrail	Accident Damage	
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	12-NOV-02	2 Guardrail	Incorrect Alignment	
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	12-NOV-02	2 Guardrail	Connection To Bridge	
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	12-NOV-02	2 Guardrail	Delineators	
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	26-SEP-01	2 Guardrail	Incorrect Alignment	No guardrail.
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	26-SEP-01	2 Guardrail	Connection To Bridge	
4144	0.71	1351	87.84	12.16	315	Lockyer Creek	03-OCT-99	2 Guardrail	Incorrect Alignment	Non standard requires replacement
4144	0.71	1351	87.84	12.16	315	Lockyer Creek	03-OCT-99	2 Guardrail	Delineators	Require replacement
4144	15.837	1351	87.84	12.16	316	Yellow Gully	03-NOV-99	2 Guardrail	Incorrect Alignment	Sub Standard (wooden posts, height,length)
4144	15.837	1351	87.84	12.16	316	Yellow Gully	10-DEC-02	2 Guardrail	Accident Damage	Fire damage posts AB one & two RHS
4144	15.837	1351	87.84	12.16	316	Yellow Gully	10-DEC-02	2 Guardrail	Delineators	
4144	15.837	1351	87.84	12.16	316	Yellow Gully	28-FEB-05	2 Guardrail	Incorrect Alignment	guard rail wooden posts badly split rotten ,burnt some spaceers don't exist
4144	20.06	1351	87.84	12.16	317	Buaraba Creek	03-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
42A	5.2	5789	90.1	9.9	333	Sandy Creek (South Branch)	02-MAY-01	2 Guardrail	Incorrect Alignment	Sub Standard height and length
42A	5.2	5789	90.1	9.9	333	Sandy Creek (South Branch)	19-MAR-04	2 Guardrail	Accident Damage	AP1 LHS end protection barrier crushed
42A	5.2	5789	90.1	9.9	333	Sandy Creek (South Branch)	19-MAR-04	2 Guardrail	Accident Damage	AP1 LHS end protection barrier crushed
42A	5.2	5789	90.1	9.9	333	Sandy Creek (South Branch)	09-MAR-05	2 Guardrail	Delineators	missing /damaged
42A	6.538	5789	90.1	9.9	334	Sandy Creek (North Branch)	02-MAY-01	2 Guardrail	Accident Damage	
42A	6.538	5789	90.1	9.9	334	Sandy Creek (North Branch)	02-MAY-01	2 Guardrail	Incorrect Alignment	Sub Standard in urgent need of replacement
42A	11.122	5789	90.1	9.9	401	Fairney Brook	02-MAY-01	2 Guardrail	Incorrect Alignment	Non Standard posts height and length
42A	18.09	2394	84	16	397	Brisbane River	03-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard height and length

## Level 1 Bridge Inspections

Road	Start	AADT	% Light Vehicle s	% Heavy Vehicle s	Struct_ID	STRUCTURE_NAME	Inspect_Date DMR Inspection	Element_Group	Inspect_Element	ELEMENT_TEXT
42A	18.09	2394	84	16	397	Brisbane River	19-MAR-04	2 Guardrail	Connection To Bridge	AB! RHS loose connection
42A	36.93	1959	81.8	18.2	387	Logan Creek	04-NOV-99	2 Guardrail	Incorrect Alignment	Non standard needs replacing
42A	38.648	1959	81.8	18.2	385	Ti-Tree Gully	03-NOV-99	2 Guardrail	Incorrect Alignment	Non standard require replacement
42A	41.46	1959	81.8	18.2	384	Five Mile Creek	03-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard height and length
42A	43.796	1959	81.8	18.2	386	Ti-Tree Gully	04-NOV-99	2 Guardrail	Incorrect Alignment	Non standard require replacement
42A	46.67	1959	81.8	18.2	383	Paddy Creek	04-NOV-99	2 Guardrail		Meets current standard - upgraded 2005
42A	53.75	3781	88.04	11.96	382	Esk Creek	03-NOV-99	2 Guardrail	Incorrect Alignment	Non standard
42A	53.75	3781	88.04	11.96	382	Esk Creek	10-MAR-05	2 Guardrail	Accident Damage	ap1 drum damaged
42A	53.75	3781	88.04	11.96	382	Esk Creek	10-MAR-05	2 Guardrail	Delineators	delinators broken
42A	63.16	2586	85.4	14.6	381	Railway At Ottaba	05-NOV-99	2 Guardrail	Incorrect Alignment	Non standard
42A	70.485	2586	85.4	14.6	380	Camp Creek	05-NOV-99	2 Guardrail	Incorrect Alignment	Non standard
42A	70.485	2586	85.4	14.6	380	Camp Creek	10-MAR-05	2 Guardrail	Delineators	damaged and missing
42A	70.956	2586	85.4	14.6	379	Cressbrook Creek	05-NOV-99	2 Guardrail	Incorrect Alignment	Non standard height and length
42A	70.956	2586	85.4	14.6	379	Cressbrook Creek	10-MAR-05	2 Guardrail	Delineators	replace missing delinators
42A	81.1	2586	85.4	14.6	402	Railway At Timbun	05-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard
42A	85.308	2586	85.4	14.6	400	Ivory Creek	05-NOV-99	2 Guardrail	Incorrect Alignment	Non Standard requires replacement
42A	85.308	2586	85.4	14.6	400	Ivory Creek	28-SEP-04	2 Guardrail	Connection To Bridge	3 of 4 connections been hit
42A	87.48	2586	85.4	14.6	328	Jimmy Gully	05-NOV-99	2 Guardrail	Incorrect Alignment	Nons standard height and length



Level 2 Bridge Inspections

Road	Start	AADT	% Light Vehicles	& Heavy Vehicles	STRUCTURE ID	STRUCTURE_NAME	INSPECTION_DATE (DMR Inspection)	COMPONENT CODE	DEFICIENCY_TEXT
18A	30.49	16822	83.65	16.35	338	Plain Creek	20-MAR-01	GR	Non-std height and length. Management are aware of this.
18A	30.49	16822	83.65	16.35	338	Plain Creek	20-MAR-01	GR	Non-std height and length. Management are aware of this.
18A	30.732	16822	83.65	16.35	339	Plain Creek	20-MAR-01	GR	Non-std. Management is aware of this.
18A	30.732	16822	83.65	16.35	339	Plain Creek	20-MAR-01	GR	Non-std.
18A	53.2	16503	81.5	18.5	941	Qacc Overpass - Gatton College	02-APR-01	GR	Non-std height and length.
18A	53.2	16503	81.5	18.5	941	Qacc Overpass - Gatton College	02-APR-01	GR	Non-std height and length.
18A	56.45	10200	83.3	16.7	342	Lockyer Creek	19-SEP-01	GR	20m of rail each side non-std height and should be placed on maintenance program to up grade..
18A	56.45	10200	83.3	16.7	342	Lockyer Creek	19-SEP-01	GR	20m of rail each side non-std height and should be placed on maintenance program to up grade.
18A	59.32	10200	83.3	16.7	343	Allan Street	21-APR-01	GR	Non-std height and length.
18A	59.32	10200	83.3	16.7	343	Allan Street	21-APR-01	GR	Non-std, management told
18A	66.82	10200	83.3	16.7	346	Service Road "C"	22-MAR-01	GR	Non-std height and length.
18A	66.82	10200	83.3	16.7	346	Service Road "C"	22-MAR-01	GR	Non-std height and length.
18A	66.82	10200	83.3	16.7	346	Service Road "C"	22-MAR-01	GR	Non-std height and length.
18A	69.69	10200	83.3	16.7	344	Sandy Creek	28-MAR-01	GR	Non-std height and length.
18A	69.69	10200	83.3	16.7	344	Sandy Creek	28-MAR-01	GR	Non-std height and length.
18A	75.01	10200	83.3	16.7	345	Western Railway	04-APR-01	GR	Non-std height and length, has been noted in maintenance program.
18A	75.01	10200	83.3	16.7	345	Western Railway	04-APR-01	GR	Non-std height and length, has been noted in maintenance program.
18A	75.69	14597	85.9	14.1	8671	Lockyer Creek	06-APR-01	GR	Non-std height and length and should be placed on maintenance program to be upgraded.
18A	75.69	14597	85.9	14.1	8671	Lockyer Creek	06-APR-01	GR	Non-std height and length and should be placed on maintenance program to be upgraded.
18A	75.7	14597	85.9	14.1	347	Lockyer Creek	03-APR-01	GR	Non-std height and length, needs to be placed on budget so as money is allocated for new standards.
18A	75.7	14597	85.9	14.1	347	Lockyer Creek	03-APR-01	GR	Non-std height and length, needs to be placed on budget so as money is allocated for new standards.
308	21.6	1145	90.57	9.26	25567		27-SEP-01	GR	The guardrail is too short and is not joined to the bridge rail in any way. These should be replaced with the new type of guardrail in the nest guardrail works in this district. This can be seen in photo 2
308	21.6	1145	90.57	9.26	25567		27-SEP-01	GR	The guardrail is too short and is not joined to the bridge rail in any way. These should be replaced with the new type of guardrail in the nest guardrail works in this district. This can be seen in photo 5
308	21.6	1145	90.57	9.26	25567		23-APR-04	GR	Guardrail not to standard. Single 4m length L/RHS
308	21.6	1145	90.57	9.26	25567		23-APR-04	GR	Guardrail not to standard. Single 4m length L/RHS (Photo 1)
3083	0.785	801	91.6	8.4	303	Laidley Creek	13-SEP-01	GR	NTCS, incorrect melt ends.
3083	0.785	801	91.6	8.4	303	Laidley Creek	17-JUL-03	GR	NTCS incorrect melt ends. Non standard guardrail approaches only
3083	0.785	801	91.6	8.4	303	Laidley Creek	17-JUL-03	GR	NTCS incorrect melt ends. Non standard guardrail approaches only
3083	0.785	801	91.6	8.4	303	Laidley Creek	13-SEP-01	GR	NTCS, incorrect melt ends.
3083	25.175	801	91.6	8.4	301	Laidley Creek	04-OCT-01	GR	The guardrail on the LHS is to short as can be seen in Photo 4. Both rails are to high and not joined to the bridge in any way. These should be replaced in the next guardrail job in this district.
3083	25.175	801	91.6	8.4	301	Laidley Creek	04-OCT-01	GR	The guardrail on the LHS is to short as can be seen in Photo 2. Both rails are to high and not joined to the bridge in any way. These should be replaced in the next guardrail job in this district.
311	0.017	4915	94.5	5.5	215	Lagoon Gully No 1	26-SEP-01	GR	Not to current standard
311	0.017	4915	94.5	5.5	215	Lagoon Gully No 1	10-APR-02	GR	These are not to the current standard with the LHS one not jointed to the bridge rail and the RHS is in good condition.
311	0.017	4915	94.5	5.5	215	Lagoon Gully No 1	10-APR-02	GR	These are not to the current standard with the LHS one not jointed to the bridge rail and the RHS is in good condition.
311	0.017	4915	94.5	5.5	215	Lagoon Gully No 1	26-SEP-01	GR	Not to current standard
313	12.447	621	84.26	15.74	217	Dry Creek	04-OCT-04	GR	Approach guard railing in reasonable condition but not to current specifications. Monitor and replace to current specification after any major damage.
313	12.447	621	84.26	15.74	217	Dry Creek	04-OCT-04	GR	Approach guard railing in reasonable condition but not to current specifications. Monitor and replace to current specification after any major damage.
313	12.447	621	84.26	15.74	217	Dry Creek	04-OCT-04	GR	Not to current specification length, cutting takes over were railing ends. Monitor.
313	12.447	621	84.26	15.74	217	Dry Creek	04-OCT-04	GR	Not to current specification length, cutting takes over were railing ends. Monitor.
313	23.29	621	84.26	15.74	223	Heifer Creek No 1	06-OCT-04	GR	Approach guard railing both sides not to current specification. LHS guard railing traffic damaged. Damaged guard railing LHS should be replaced to current specifications. Photo 001.
313	23.29	621	84.26	15.74	223	Heifer Creek No 1	06-OCT-04	GR	RHS guard railing in reasonable condition but not to current specification length. RHS should be monitored and replaced to current specifications when traffic damage occurs. Refer repairs LHS railing. Photo 002.
313	23.29	621	84.26	15.74	223	Heifer Creek No 1	06-OCT-04	GR	Approach guard railing not to current specification. Guard railing in reasonable condition except for not being to current specification, should be replaced to current specification or monitored closely and replaced to specification when needed.
313	23.29	621	84.26	15.74	223	Heifer Creek No 1	06-OCT-04	GR	Approach guard railing not to current specification. Guard railing in reasonable condition except for not being to current specification, should be replaced to current specification or monitored closely and replaced to specification when needed.
313	26.117	621	84.26	15.74	224	Heifer Creek No 2	20-AUG-01	GR	Non-std height and length. Replace.
313	26.117	621	84.26	15.74	224	Heifer Creek No 2	20-AUG-01	GR	Non-std height and length. Replace.
3131	8.91	647	93.01	6.99	305	Tenthill Creek	09-OCT-01	GR	The guardrail has been removed to stop the debray from hang up on them. These should be replaced with the new standard of guardrail. Photo 16 shows the Guardrail on the RHS. It is to short and to low.
3131	8.91	647	93.01	6.99	305	Tenthill Creek	26-MAR-03	GR	ONE PANEL ONLY ON S/BOUND SIDE N.T.C.S.
314	3.04	9913	91.22	8.78	237	Railway Overpass At Gatton	05-OCT-01	GR	The guardrail is in very poor condition as it is not jointed to the bridge and is showing a lot of rust as can be seen in Photo 3. This should be replaced as soon as possible. - REPLACED MAY 2004 COMPLIANT WITH STANDARD
314	13.02	5721	89.2	10.8	25616		26-AUG-04	GR	Guardrail not to standard and still has timber posts
314	13.02	5721	89.2	10.8	25616		26-AUG-04	GR	Guardrail not to new standard and still attached to timber posts
4023	15.65	228	97.62	2.38	309	Northbrook Creek No 1	18-SEP-01	GR	Non-std height and length, to be placed on maintenance program to be upgraded to specifications.
4023	15.65	228	97.62	2.38	309	Northbrook Creek No 1	18-SEP-01	GR	Non-std height and length, to be placed on maintenance program to be upgraded to specifications.
4023	23.38	228	97.62	2.38	25457		20-APR-04	GR	Concrete block broken and reo exposed (needs to be replaced)
4023	23.6	228	97.62	2.38	25458		20-APR-04	GR	Concrete block broken and reo exposed (needs to be replaced with new)
4023	17.524	228	97.62	2.38	310	Northbrook Creek No 2	19-SEP-01	GR	Non-std height and length, to be placed on maintenance program to be up graded.
4023	17.524	228	97.62	2.38	310	Northbrook Creek No 2	19-SEP-01	GR	Non-std height and length, to be placed on maintenance program to be up graded.
4023	17.771	228	97.62	2.38	311	Northbrook Creek No 3	19-SEP-01	GR	Non-std height and length, and to be placed on maintenance program to be upgraded.
4023	17.771	228	97.62	2.38	311	Northbrook Creek No 3	19-SEP-01	GR	Non-std height and length, and to be placed on maintenance program to be upgraded.
4023	24.657	228	97.62	2.38	312	Northbrook Creek No 4	21-SEP-01	GR	Non-std height and length. Need upgrading and should be placed on maintenance program for money allocation.
4023	24.657	228	97.62	2.38	312	Northbrook Creek No 4	13-OCT-03	GR	N.T.C.S. but sound. RoadTek maintenance to replace under local district safety policy guidelines ASAP
4023	24.657	228	97.62	2.38	312	Northbrook Creek No 4	21-SEP-01	GR	Non-std height and length. Need upgrading and should be placed on maintenance program for money allocation.
405	14.48	409	92.13	7.87	257	Brisbane River	20-DEC-01	GR	The guardrail is not connected to the bridge as can be seen in Photo 2. This should be connected as soon as possible.
405	14.48	409	92.13	7.87	257	Brisbane River	20-DEC-01	GR	The guardrail is not connected to the bridge as can be seen in Photo 13. This should be connected as soon as possible.
405	25.38	409	92.13	7.87	259	Waterfall Gully	12-NOV-03	GR	NTCS
405	25.38	409	92.13	7.87	259	Waterfall Gully	04-JUN-01	GR	NTCS, melt ends, timber posts length. RTCS to rectify under local district safety policy guidelines asap.
405	25.38	409	92.13	7.87	259	Waterfall Gully	04-JUN-01	GR	NTCS, melt ends, timber posts length. RTCS to rectify under local district safety policy guidelines asap.
405	25.38	409	92.13	7.87	259	Waterfall Gully	12-NOV-03	GR	NTCS
40B	22.991	2637	88.4	11.6	396	Brisbane River	18-JAN-01	GR	NTCS, only 8m long, timber posts, incorrect spacing. Replace to current specs. next maint prog. (75101/4a)
40B	22.991	2637	88.4	11.6	396	Brisbane River	29-OCT-03	GR	NTCS Replace next maintenance program
40B	22.991	2637	88.4	11.6	396	Brisbane River	03-MAY-02	GR	N.T.C.S.(ONLY 8m LONG,TIMBER POSTS).IN SOUND CONDITION.UPGRADE AT NEXT MAINT PROGRAM.
40B	22.991	2637	88.4	11.6	396	Brisbane River	29-OCT-03	GR	NTCS. Replace next maintenance program
40B	22.991	2637	88.4	11.6	396	Brisbane River	18-JAN-01	GR	NTCS, only 8m long, timber posts, incorrect spacing. Replace to current specs. next maint prog. (75101/4a)
40B	22.991	2637	88.4	11.6	396	Brisbane River	03-MAY-02	GR	SEE AP1 GR.
40B	36.038	2504	84.1	15.9	364	Wallaby Creek	05-JUN-01	GR	NTCS,melt ends. RTCS to replace under local district safety policy guidelines asap.
40B	39.313	2386	84.3	15.7	365	Wallaby Creek	02-MAY-02	GR	ntcs
40B	39.313	2386	84.3	15.7	365	Wallaby Creek	05-JUN-01	GR	Melt ends. NTCS. RTCS to replace under local district safety policy guidelines asap.
410	1.176	363	93.85	6.15	8676	Pryde Creek	24-SEP-01	GR	Meets current Standards - upgraded Apr 2005
410	1.176	363	93.85	6.15	8676	Pryde Creek	24-SEP-01	GR	Meets current Standards - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	26-SEP-01	GR	Meets current Standards - upgraded Apr 2005
410	2.797	363	93.85	6.15	8677	Pryde Creek	26-SEP-01	GR	Meets current Standards - upgraded Apr 2005
410	2.948	363	93.85	6.15	8678	Pryde Creek	28-SEP-01	GR	Meets current Standards - upgraded Apr 2005
410	2.948	363	93.85	6.15	8678	Pryde Creek	28-SEP-01	GR	Meets current Standards - upgraded Apr 2005

Level 2 Bridge Inspections

Road	Start	AADT	% Light Vehicles	& Heavy Vehicles	STRUCTURE ID	STRUCTURE_NAME	INSPECTION_DATE (DMR Inspection)	COMPONENT CODE	DEFICIENCY_TEXT
410	3.685	363	93.85	6.15	8679	Pryde Creek	01-OCT-01	GR	Meets current Standards - upgraded Apr 2005
410	3.685	363	93.85	6.15	8679	Pryde Creek	01-OCT-01	GR	Meets current Standards - upgraded Apr 2005
410	13.098	363	93.85	6.15	8682	Kipper Ck	19-DEC-01	GR	Meets current Standards - upgraded Apr 2005
410	23.407	363	93.85	6.15	8681	Deep Creek	19-DEC-01	GR	Meets current Standards - upgraded Apr 2005
410	23.407	363	93.85	6.15	8681	Deep Creek	19-DEC-01	GR	Meets current Standards - upgraded Apr 2005
410	27.469	363	93.85	6.15	8683	Sandy Creek	06-NOV-01	GR	Meets current Standards - upgraded Apr 2005
410	27.469	363	93.85	6.15	8683	Sandy Creek	06-NOV-01	GR	Meets current Standards - upgraded Apr 2005
4104	0.13	1161	93.65	6.35	25459		21-APR-04	GR	
4104	0.13	1161	93.65	6.35	25459		21-APR-04	GR	
412	8.523	1169	87.88	12.12	262	Lockyer Creek	10-OCT-01	GR	The guardrail is to short and not attached to the bridge rail as can be seen in Photo 8. This should be replaced with the new standard of guardrail in the next programmed guardrail job in this district.
412	8.523	1169	87.88	12.12	262	Lockyer Creek	10-OCT-01	GR	The guardrail is to short and not attached to the bridge rail as can be seen in Photo 3. This should be replaced with the new standard of guardrail in the next programmed guardrail job in this district.
412	25.382	1221	90.8	9.2	264	Lockyer Creek	09-APR-04	GR	Meets current Standards - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	13-SEP-01	GR	Meets current Standards - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	09-APR-04	GR	Meets current Standards - upgraded 2005
412	25.382	1221	90.8	9.2	264	Lockyer Creek	13-SEP-01	GR	Meets current Standards - upgraded 2005
414	10.55	620	91.81	8.19	268	Redbank Creek No 3	21-FEB-05	GR	Not to current specs, incorrect length and height. Photo028.Needs to be upgraded to new standard
414	10.55	620	91.81	8.19	268	Redbank Creek No 3	21-FEB-05	GR	Not to current specs, incorrect length and height. Photo028.
414	10.55	620	91.81	8.19	268	Redbank Creek No 3	21-FEB-05	GR	Same as app 1. Guardrail should be replaced to new specs.
414	10.55	620	91.81	8.19	268	Redbank Creek No 3	21-FEB-05	GR	Same as app 1.
414	10.55	620	91.81	8.19	268	Redbank Creek No 3	06-AUG-01	GR	Non-std height and length, other wise in good condition.
414	10.55	620	91.81	8.19	268	Redbank Creek No 3	06-AUG-01	GR	Non-std height and length, other wise in good condition.
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	21-FEB-05	GR	Not to current specs. LHS rail steps out where connected to bridge, hazard to traffic. No Bridge Rail
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	21-FEB-05	GR	Not to current specs. LHS rail steps out where connected to bridge, hazard to traffic. Guardrail should be replaced to current specs, making sure connection to structure is correct to avoid rail from protruding into traffic. No bridge rail
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	07-AUG-01	GR	Non-std length and height. Requires new GR. No bridge rail
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	07-AUG-01	GR	Non-std length and height. Requires new GR. No bridge rail
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	09-MAR-04	GR	N.T.C.S. and minor damage to end. No bridge rail
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	09-MAR-04	GR	N.T.C.S. but sound. No bridge rail
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	21-FEB-05	GR	Not to current specs, accident damage LHS terminal end. Guardrail should be replaced to current specs. No Bridge rail
414	12.066	620	91.81	8.19	269	Redbank Creek No 4	21-FEB-05	GR	Not to current specs, accident damage LHS terminal end. No bridge rail
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	03-MAR-04	GR	N.T.C.S. BUT SOUND.
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	03-MAR-04	GR	N.T.C.S. BUT SOUND.
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	09-AUG-01	GR	Non-std length and height. Requires new GR.
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	09-AUG-01	GR	Non-std length and height. Requires new GR.
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	03-MAR-04	GR	N.T.C.S. BUT SOUND.
414	12.258	620	91.81	8.19	270	Redbank Creek No 5	03-MAR-04	GR	N.T.C.S. BUT SOUND.
42A	6.538	5789	90.1	9.9	334	Sandy Creek (North Branch)	23-OCT-01	GR	The LHS one is not to the new standard but is in good condition. The RHS guardrail is in very poor condition as can be see in Photos 2, 3 & 4. Photo 4 also shows that the rail is not attached to the bridge. This rail should be replaced
42A	6.538	5789	90.1	9.9	334	Sandy Creek (North Branch)	23-OCT-01	GR	The LHS one is not to the new standard but is in good condition. The RHS guardrail is in very poor condition as can be see in Photos 7 & 8. Photo 7 also shows that the rail is not attached to the bridge. This rail should be replaced
42A	23.4	2394	84	16	388	Wivenhoe Dam Spillway	12-NOV-01	GR	The guardrail is not attached to the bridge see photo 11. This should be connected to bridge rail
42A	85.308	2586	85.4	14.6	400	Ivory Creek	06-NOV-01	GR	These are not to the new standard and the LHS rail has had a little impact damage as can be seen in Photo 12, but overall they are in good condition.

RSECT_ID	TDIST	INTER	ACC_NO	SEVERITY	STREET1	STREET2	DATE	DAY	TIME	ROAD_FEATU	DCA_CODE	"NATURE_OF_"	HORIZONTAL	SPEED_LI	TRAFFIC_CO	DIVIDED_RO	"AREA"	DISTANCE	DIST_UNIT	DIRECTION	LANDMARK	"LONGITUDE"	LATITUDE	NUMBER_OF_VEHICL	NO_FATALS	Year	Month
18A	30.4	0	980010710	Fatal	Warrego Hwy		21/05/1998	THU	22	99	805	7	2	100	99	Y	MARBURG	2	KM	W	MARBURG ON RAMP (OR 500M WEST T	152.5605216	-27.5659821	1	1	1998	May
18A	32.09	0	2000007685	Fatal	Mountain View Dr	Warrego Hwy	11/04/2000	TUE	17	11	201	6	3	100	99	Y	MINDEN	0	M			152.535915	-27.553709	2	1	2000	Apr
18A	34.95	0	20010002490	Fatal	Warrego Hwy		2/02/2001	FRI	14	99	404	3	3	100	99	Y	PRENZLAU	100	M	E	HERMANN'S RD	152.5081338	-27.55243009	2	1	2001	Feb
18A	35.49	0	20030007540	Fatal	Warrego Hwy		31/03/2003	MON	13	99	301	3	1	80	99	Y	HATTON VALE	98	M	E	JOSEPH ROAD	152.5042203	-27.55223057	2	1	2003	Mar
18A	40.02	0	20000017671	Fatal	Warrego Hwy		15/08/2000	TUE	21	99	3	10	2	100	99	Y	HATTON VALE	200	M	E	SUMMERHOLM ROAD	152.461972	-27.568541	2	1	2000	Aug
18A	44.2	47	950006038	Fatal	Gehrke Rd	Warrego Hwy	18/03/1995	SAT	13	10	101	2	1	80	9	Y	LAIDLEY	0	M			152.4220852	-27.5665928	2	1	1995	Mar
18A	44.2	47	970020520	Fatal	Laidley - Plainland Rd	Warrego Hwy	17/09/1997	WED	20	10	101	2	1	80	8	Y	PLAINLAND	0	M			152.4220444	-27.5666284	2	4	1997	Sep
18A	45.29	592	970019551	Fatal	Cametery Rd	Warrego Hwy	5/09/1997	FRI	15	10	101	2	1	100	9	Y	PLAINLAND	0	M			152.4116203	-27.5663859	2	1	1997	Sep
18A	46.83	0	930004552	Fatal	Warrego Hwy		5/03/1993	FRI	22	99	702	7	1	100	99	Y	GLENORE GROVE	1	KM	E	GLENORE GROVE RD	152.397255	-27.56075436	1	1	1993	Mar
18A	49.57	461	950000947	Fatal	Crowley Vale Rd	Warrego Hwy	14/01/1995	SAT	10	10	303	3	1	100	99	Y	CROWLEY VALE	0	M			152.376552	-27.54550182	2	1	1995	Jan
18A	49.57	461	950022630	Fatal	Lake Clarendon Rd	Warrego Hwy	29/09/1995	FRI	19	10	3	10	1	100	9	Y	GATTON	0	M			152.3187782	-27.55157722	2	1	1995	Sep
18A	50.27	0	960021599	Fatal	Warrego Hwy		11/09/1996	WED	9	99	3	10	2	100	99	Y	GLENORE GROVE	700	M	W	CROWLEY VALE RD	152.3707388	-27.5430583	2	1	1996	Sep
18A	53.2	0	20040027158	Fatal	Warrego Hwy		23/10/2004	SAT	15	99	201	6	1	100	99	Y	GATTON	300	M	W	VILLIS ROAD	152.340504	-27.546588	2	1	2004	Oct
18A	53.47	0	970017570	Fatal	Warrego Hwy		12/08/1997	TUE	18	99	3	10	1	100	99	Y	GATTON	50	M	W	VILLIS RD	152.3319513	-27.549394	3	2	1997	Aug
18A	53.85	0	20000005808	Fatal	Warrego Hwy		19/03/2000	SUN	23	99	201	6	1	100	99	Y	GATTON	500	M	W	COLLEGE OVERPASS	152.3348102	-27.54831517	3	5	2000	Mar
18A	55.37	0	920011578	Fatal	Warrego Hwy		24/05/1992	SUN	0	99	702	7	1	100	99	Y	GATTON (LAWES)	150	M	E	GATTON - ESK ROAD	152.3174507	-27.55130018	1	1	1992	May
18A	55.95	0	20020017734	Fatal	Gatton - Helidon Rd	Warrego Hwy	21/07/2002	SUN	16	11	104	2	1	80	8	Y	GATTON	0	M			152.3158582	-27.55097733	2	1	2002	Jul
18A	56.27	0	970006134	Fatal	Warrego Hwy		21/03/1997	FRI	1	99	803	6	3	100	99	Y	GATTON	750	M	E	GATTON/ESK RD	152.3255664	-27.5519362	1	1	1997	Mar
18A	57.83	0	970023966	Fatal	Warrego Hwy		2/11/1997	SUN	1	99	201	4	1	100	99	Y	GATTON	1	KM	W	EASTERN DRIVE	152.3083821	-27.5462069	2	1	1997	Nov
18A	58.43	0	20000024745	Fatal	Warrego Hwy		16/11/2000	THU	15	99	201	4	1	100	99	N	GATTON	3	KM	W	GATTON ESK RD	152.2933565	-27.54244486	2	3	2000	Nov
18A	59.95	0	20020025920	Fatal	Warrego Hwy		18/10/2002	FRI	5	99	506	2	1	80	99	N	GATTON	4	KM	W	EASTERN DR	152.280741	-27.54038863	2	1	2002	Oct
18A	62.64	0	980000344	Fatal	Warrego Hwy		6/01/1998	TUE	11	99	703	6	1	100	99	N	GATTON	0	M	E	ALLAN ST OVERPASS	152.2830158	-27.5407502	1	1	1998	Jan
18A	62.69	0	930017514	Fatal	Warrego Hwy		15/08/1993	SUN	7	99	804	6	3	100	99	N	GATTON	7	KM	E	SANDY CREEK BRIDGE	152.2432283	-27.54087227	1	1	1993	Aug
18A	62.95	0	990006217	Fatal	Warrego Hwy		26/03/1999	FRI	17	99	703	6	1	100	99	N	GATTON	7	KM	W	GATTON - HELIDON I/S (500-750 METRE	152.2426603	-27.5412511	1	1	1999	Mar
18A	64.5	0	20010029910	Fatal	Warrego Hwy		14/12/2001	FRI	14	99	308	2	1	100	99	N	GATTON	20	M	E	SMITHFIELD RD OVERPASS	152.2488002	-27.53872571	2	1	2001	Dec
18A	65.37	0	20000028248	Fatal	Warrego Hwy		29/12/2000	FRI	11	99	201	4	1	100	99	N	GATTON	10	KM	E	WESTERN END GATTON BYPASS	152.2197533	-27.55031919	2	1	2000	Dec
18A	67.63	0	930007980	Fatal	Warrego Hwy		19/04/1993	MON	7	99	301	3	1	100	99	N	GATTON	5	KM	W	SMITHFIELD RD OVERPASS	152.2062194	-27.55351463	7	2	1993	Apr
18A	70.09	0	950022386	Fatal	Warrego Hwy		27/09/1995	WED	9	99	201	4	1	100	99	N	HELIDON	200	M	W	SANDY CREEK BRIDGE	152.1800256	-27.55576726	2	1	1995	Sep
18A	70.39	0	980017183	Fatal	Warrego Hwy		8/08/1998	SAT	23	99	201	4	1	100	99	N	HELIDON	5	KM	E	HELIDON	152.1679217	-27.5541424	2	2	1998	Aug
18A	72.35	0	20040000020	Fatal	Warrego Hwy		1/01/2004	THU	6	99	700	6	1	100	99	N	HELIDON	3	KM	E	HELIDON	152.1534344	-27.55353165	1	1	2004	Jan
18A	72.37	0	970008388	Fatal	Warrego Hwy		19/04/1997	SAT	13	99	201	5	1	100	99	N	HELIDON	1	KM	E	HELIDON	152.136874	-27.5531557	3	1	1997	Apr
18A	74.37	0	20000016336	Fatal	Warrego Hwy		29/07/2000	SAT	17	99	502	6	1	100	99	N	HELIDON	1	KM	E	HELIDON EXIT	152.1387792	-27.55321613	1	1	2000	Jul
18A	76.68	0	990013705	Fatal	Warrego Hwy		30/06/1999	WED	20	99	301	3	1	100	99	Y	HELIDON	400	M	E	KELLYS RD	152.1111554	-27.55122451	2	1	1999	Jun
18A	77.08	850	970028548	Fatal	Kellys Rd	Warrego Hwy	30/12/1997	TUE	16	11	201	4	1	100	99	Y	HELIDON	0	M			152.107521	-27.550734	2	1	1997	Dec
18A	79.69	0	20040017902	Fatal	Warrego Hwy		17/07/2004	SAT	11	99	800	6	3	100	99	Y	HELIDON	1400	M	W	HELIDON SPA	152.0836544	-27.54793684	1	1	2004	Jul
18A	83.35	154	920009266	Fatal	Murphys Creek Rd	Warrego Hwy	26/04/1992	SUN	13	11	104	2	1	100	9	Y	WITHCOTT	0	M			152.0465056	-27.54610664	2	1	1992	Apr
18A	83.85	0	930016920	Fatal	Warrego Hwy		8/08/1993	SUN	0	99	609	11	1	100	99	Y	WITHCOTT	50	M	W	I/SECTION MURPHY'S CREEK RD	152.17953	-27.55570708	2	2	1993	Aug
18A	87.62	0	920012363	Fatal	Warrego Hwy		1/06/1992	MON	17	99	800	6	3	100	99	Y	WITHCOTT	600	M	E	TABLETOP RD	152.0064477	-27.56011782	1	1	1992	Jun
18A	87.82	0	980023817	Fatal	Warrego Hwy		31/10/1998	SAT	6	99	4	10	3	100	99	Y	WITHCOTT	400	M	E	TABLETOP ROAD	152.0052959	-27.5615158	2	1	1998	Oct
18A	88.62	0	20040022892	Fatal	Warrego Hwy		8/09/2004	WED	5	99	305	5	1	100	99	Y	TOOWOOMBA	400	M	W	TABLE TOP ROAD	151.999959	-27.56571097	4	1	2004	Sep
					18A																				53	1	
40B	16.2	0	20030019786	Fatal	D'Aguilar Hwy		12/08/2003	TUE	0	99	704	6	1	100	99	N	HARLIN	16	KM	W	KILCOY	152.4221551	-26.9348041	1	1	2003	Aug
40B	24.66	0	990019216	Fatal	D'Aguilar Hwy		6/09/1999	MON	15	99	301	3	1	100	99	N	HARLIN	1200	M	W	BRISBANE VALLEY HWY	152.3438581	-26.9418814	6	1	1999	Sep
40B	25.36	0	980024649	Fatal	D'Aguilar Hwy		11/11/1998	WED	13	99	201	4	3	100	99	N	COLINTON	3000	M	W	BRISBANE VALLEY HIGHWAY	152.3308214	-26.9340164	3	1	1998	Nov
40B	39.65	0	930010415	Fatal	D'Aguilar Hwy		20/05/1993	THU	1	99	601	1	1	100	99	N	MOORE	6500	M	W	MAIN ST MOORE	152.2316836	-26.90043159	2	1	1993	May
42A	7.75	0	990004215	Fatal	Brisbane Valley Hwy		28/02/1999	SUN	15	50	201	5	2	100	99	N	WANORA	300	M	S	GLAMORGANVALE-WANORA RD	152.6696195	-27.5161236	3	2	1999	Feb
42A	8.05	1026	970012114	Fatal	Brisbane Valley Hwy	Glamorgan Val	5/06/1997	THU	7	11	104	2	3	100	9	N	WANORA	0	M			152.6683811	-27.513668	2	1	1997	Jun
42A	8.77	0	20040002694	Fatal	Brisbane Valley Hwy	Pine Mountain	1/02/2004	SUN	17	10	101	2	1	100	9	N	WANORA	0	M			152.6688939	-27.50525029	2	1	2004	Feb
42A	14.89	0	940019494	Fatal	Brisbane Valley Hwy		28/08/1994	SUN	18	99	3	10	1	60	99	N	FERNVALE	70	M	N	SIMPSON ST	152.6498957	-27.45546565	2	1	1994	Aug
42A	29.48	829	960028079	Fatal	Brisbane Valley Hwy	Logan Inlet Rd	28/11/1996	THU	9	11	107	2	1	100	8	N	WIVENHOE DAM	0	M			152.5543253	-27.3768434	2	2	1996	Nov
42A	32.5	99	20020024655	Fatal	Brisbane Valley Hwy	Coominya Con	3/10/2002	THU	6	10	102	2	1	100	8	N	COOMINYA	0	M			152.5241394	-27.37262351	2	1	2002	Oct
42A	32.5	99	990002023	Fatal	Brisbane Valley Hwy	Coominya Con	30/01/1999	SAT	13	10	104	2	1	100	8	N	COOMINYA	0	M			152.5241177	-27.3726841	2	1	1999	Jan
42A	37.196	0	20020022028	Fatal	Brisbane Valley Hwy		4/09/2002	WED	8	99	201	4	3	100	99	N	COOMINYA	400	M	N	CAPTAIN LOGAN BRIDGE	152.4988464	-27.34034292	2	2	2002	Sep

Esk - 52  
Gatton - 114  
Laidley - 75

### Fatals 1992-2004 Sth District

# **Appendix D**

## **Road Reference Codes**

# Southern District Road Reference Codes

- 31 May 2004



# 18A

## WARREGO HIGHWAY IPSWICH - TOOWOOMBA

Ref Point	Description	P.R.P.	Thru Dist
10D	IPSWICH CITY / ESK BD Y		28.9
12	INT 18A / Tallegalla Rd	MQ551516B	31.09
14A	ESK / LAIDLEY BDY		36.58
15	WOOLSHED CK CULVERT	MQ495521D	36.87
16	INT 18A / 311 (Laidley-Plainlands Rd)	MQ429507G	44.26
17	INT 18A / 412 (Forest Hill-Fernvale Rd)	MQ398519A	47.86
18	LAIDLEY / GATTON BDY		52.91
18D	LOCKYER CREEK EAST ABUT		56.45
21A	SANDY CREEK EAST ABUT	MQ193518C	69.69
22A	INT 18A / 314 (Gatton-Helidon Rd) WEST INT	MQ137518F	75.37
25	INT 18A / 4104 (Murphy's Creek Rd)	MQ059526H	83.35
26	GATTON / TOOWOOMBA CITY BDY		88.83
27A	INT 18A / East St		91.9
28	INT 18A (James St) / Cohoe St		92.76
29	INT 18A (James St) / Kitchener St		93.76
30	INT 22A (Hume St) / 18A (James St)	LQ969499F	94.58
31A	INT 18A / 18B (James St) / 22B (Ruthven St)	LQ964499G	95.01

# 18B

## WARREGO HIGHWAY TOOWOOMBA - DALBY

Ref Point	Description	P.R.P.	Thru Dist
1	INT 18B / 18A (James St) / 22B (Ruthven St)	LQ964499G	0
2	INT 18B (James St) / West St		0.99
3	INT 18B (James St) / 28A Gore Hwy	LQ942502G	2.24
4	INT 18B (Tor St) / Hursley Rd		2.91
5	INT 18B (Tor St) / 324 (Taylor St)	LQ942516J	3.74
6	INT 18B (Tor St) / Bridge St		4.52
7	INT 18B (Tor St) / McDougall St		6.63
8	TOOWOOMBA CITY / JONDARYAN BDY		7.28
9	INT 18B / 320 (Charlton Connection Rd)	LQ886543G	10.62
10	INT 18B / Kingsthorpe Rd	LQ820576F	18.04
11	East Abt Gowrie Ck Bridge	LQ755606C	25.26
11D	INT 18B / 326 (Oakey Connection Rd) EAST		27.18
12A	INT 18B / 323 (Oakey-Pittsworth Rd) EAST		28.77
12B	INT 18B / 323 (Oakey-Pittsworth Rd) WEST		28.86
13D	INT 18B / 326 (Oakey Connection Rd) WEST		33.62
14A	INT 18B / Kearney's Rd		33.84
15	DOCTOR'S CK CULVERT	LQ633700A	40.95
16	INT 18B / Jondaryan-Nungil Rd	LQ610716C	43.82
17	INT 18B / MALU QUARRY T/O	LQ576739E	47.99
18	INT 18B / 3203 (Bowenville-Norwin Rd)	LQ501784S	56.77
19	CULV 22/2100 X 12	LQ423804T	65.05
20	JONDARYAN / WAMBO BDY		74.61
21	WAMBO / DALBY TOWN BDY		78.48
22	INT 18B / 325 (Dalby-Cecil Plains Rd)	LQ295893C	80.82
23	INT 18B / 45A (Bunya Hwy) / 18C (Warrego Hwy)	LQ277921J	84.19



# 18C

## WARREGO HIGHWAY DALBY - MILES

Ref Point	Description	P.R.P.	Thru Dist
1	INT 18C/18B (Warrego Hwy) / 45A (Bunya Hwy)	LQ277921J	0
2	INT 18C / 35A (Moonie Hwy)	LQ274924T	0.46
3A	INT 18C / 421 (Dalby-Jandowae Rd)	LQ267926A	1.21
4A	DALBY TOWN / WAMBO BDY		3.7
4D	INT 18C/ 340 (Dalby-Kogan Rd)		5.6
5B	INT 18C/ Gradel Rd (R)		16.63
6	INT 18C / 422 (Macalister-Bell Rd)	LR092071S	25.115
7	INT 18C / Tully Rd (The Mead)	LR030128H	33.435
8	INT 18C / 4201 (Warra-Canaga Ck Rd)	KR934194L	45.195
9	INT 18C / 3403 (Warra-Kogan Rd)	KR933195H	45.315
10	WAMBO / CHINCHILLA BDY		48.645
11	INT 18C / Brigalow-Canaga Ck Rd	KR804287G	61.205
12	INT 18C / Chinchilla-Kogan Rd	KR715350P	72.055
12D	INT 18C / 341 (Chinchilla-Tara Rd)	KR648395F	80.175
13	INT 18C / 426 (Chinchilla-Wondai Rd)	KR640401B	81.255
14	INT 18C / Heeney St (Right)	KR638403B	81.505
15	INT 18C / 4261 (Auburn Rd)	KR623412M	83.155
16	STOCKYARD CK CULVERT	KR543439P	91.665
17	RYWUNG SIDING OLC	KR488456P	97.425
18	CHINCHILLA / MURILLA BDY		106.355

## 22A

### NEW ENGLAND HIGHWAY YARRAMAN-TOOWOOMBA

Ref Point	Description	P.R.P.	Thru Dist
1	INT 22A / 40B (D'Aguilar Hwy) / 40C (D'Aguilar Hwy)	LR986304D	0
2	INT 22A / Upper Yarraman Rd (L)	LR891250P	11.39
4	INT 22A / 419 (Kingaroy-Cooyar Rd)	LR820203G	20.1
5	COOYAR CREEK NORTH ABUT	LR839149D	27.34
6	INT 22A / 417 (Oakey-Cooyar Rd)	LR818097N	33.19
7	ROSALIE / CROWS NEST BDY		36.1
8	INT 22A / Schicks Rd	LR849061A	38.66
9	INT 22A / Coal Bank Rd	LR925024N	47.74
10	INT 22A / Emu Ck Rd	LQ959972N	54.41
11	ROCKY GORGE CK CULVERT	MQ007911J	61.93
12	INT 22A / Pierce Ck Rd	MQ060843H	73.54
13	INT 22A / 418 (Pechey-Maclagan Rd)	MQ051794S	78.91
14	INT 22A / 414 (Esk-Hampton Rd)	MQ078735M	86
15	GEHAM CK CULVERT	MQ007685G	95.34
16	INT 22A / Highfields Rd	LQ965616M	104.78
17	INT 22A / 4104 (Murphy's Creek Rd)	LQ968570H	110.44
18	CROWS NEST / TOOWOOMBA BDY		110.58
19	INT 22A / Jellicoe St		115.46
20	INT 22A / Bridge St	LQ967518F	116.11
21	INT 22A / Campbell St		116.54
22	INT 22A / Neil St		116.92
23	INT 22A / Hume & Chalk Drive		117.19
24	INT 22A / 18A (Warrego Hwy)	LQ969499F	118.27

## 22B

### NEW ENGLAND HIGHWAY TOOWOOMBA-WARWICK

Ref Point	Description	P.R.P.	Thru Dist
1	INT 22B / 18A / 18B (Warrego Hwy)	LQ964499G	0
1A	INT 22B / South St		1.08
1B	INT 22B / Alderley St		1.81
2	INT 22B / Stenner St		2.73
3	INT 22B / Nelson St	LQ958452H	4.79
4	TOOWOOMBA CITY / GATTON BDY		6.13
4A	GATTON / CAMBOOYA (Mid Point)		6.31
5	HODGSON CK NORTH ABUT	LQ947407A	9.61
6	INT 22B / 321 (Drayton Connection Rd)	LQ920374K	14.31
7	INT 22B / 3304 (Cambooya Connection Rd)	LQ926334D	18.42
8	INT 22B / 3341 (Greenmount Connection Rd)	LQ957268B	26.24
9	INT 22B / 3102 (Greenmount-Hirstvale Rd)	LQ964234P	29.81
10	INT 22B / 3308 (Nobby Connection Rd)	LQ957188M	34.45

## 28A

### GORE HIGHWAY TOOWOOMBA-MILLMERRAN

Ref Point	Description	P.R.P.	Thru Dist
1	INT 28A / 18B ( Warrego Hwy)	LQ942502G	0
2	INT 28A / Alderley St		1.92
3	INT 28A / 321 (Drayton Connection Rd)	LQ926472L	3.52
4	INT 28A / 331 (Toowoomba-Karara Rd)	LQ907457E	5.59
4D	TWMBA CITY / CAMBOOYA SBS		6.71
5	CAMBOOYA/ TWMBA CITY (Midpoint)		6.82
5B	TWMBA CITY/ JONDARYAN		6.93
6A	JONDARYAN/ CAMBOOYA (Midpoint)		7.315
6D	CAMBOOYA/ JONDARYAN		8.45
7	WESTBROOK CK EAST ABUT	LQ813449A	15.52
8	INT 28A / BIDDESTON T/O	LQ748414F	23.28
9	JONDARYAN / PITTSWORTH		23.94
10	INT 28A / Linthorpe Rd	LQ688357H	31.97
11A	INT 28A / 332 (Pittsworth-Felton Rd)		36.786
12A	INT 28A / 323 (Oakey-Pittsworth Rd)		36.876
13	INT 28A / TUMMAVILLE T/O	LQ562291C	46.76
14A	INT 28A / 3221 (Brookstead-Norwin Rd)	LQ465286N	56.62
15	PITTSWORTH / MILLMERRAN BDY		59.98
16	INT 28A / 327 (Pampas-Horrane Rd)	LQ425245F	62.54
17	INT 28A / 335 (Millmerran-Leyburn Rd)	LQ376209K	68.8
17D	28A / 337 (Millmerran- Inglewood Rd )		77.44
18	INT 28A / 3251 (Millmerran-Cecil Plains Rd)	LQ300155M	78.56
19	INT 28A / 28B (Millmerran- Goondiwindi)	LQ295148G	79.54

## 28B

### GORE HIGHWAY MILLMERRAN-GOONDIWINDI

Ref Point	Description	P.R.P.	Thru Dist
1	INT 28B/28A (Gore Hwy)	LQ295148G	0
2	INT 28B / ROAD 11 (Moffatts Rd)	LQ133040L	21.2
3	SCRUBBY CK CULVERT	LQ025041S	32.08
4	MILLMERRAN / WAGGAMBA BDY	KP867973G	49.92

## 35A

### MOONIE HIGHWAY DALBY - ST. GEORGE

Ref Point	Description	P.R.P.	Thru Dist
1	INT 35A / 18C (Warrego Hwy)	LQ274924T	0
2	DALBY TOWN / WAMBO BDY		3.7
3	INT 35A / 3401 (Daandine - Nandi Rd)	LQ185878T	11
4	INT 35A / BROADWATER RD	LQ126835E	18.54
7	INT 35A / HALLIFORD RD	LQ025771P	31.77
8	INT 35A / 86B (Surat Developmental Rd)	KQ867745N	48.14
8A	WAMBO / TARA BDY ( MidPoint)		50.37

## 40B

### DÁGUILAR HIGHWAY KILCOY - YARRAMAN

Ref Point	Description	P.R.P.	Thru Dist
3A	KILCOY / ESK BDY		10.55
4	NEARA CK CULVERT	MR465203B	11.57
5	INT 40B / 42A (Brisbane Valley Hwy)	MR360194M	23.46
6	INT 40B / Linville Rd	MR296249B	32.65
7	BLACKBUTT CK NORTH ABUT	MR193269J	44.97
8	ESK / NANANGO BDY		45.34
9	NANANGO / ESK BDY		47.03
9A	ESK / NANANGO BDY		50.05
10	NORTH ABUT BENARKIN RLY	MR147256J	50.19
11	EAST ABUT NUKKU RAIL SB	MR072261P	58.03
11A	NANANGO / ROSALIE BDY		58.15
12	INT 40B / 40C / 22A (New England Hwy)	LR987304D	68.72

## 40C

### D'AGUILAR HIGHWAY YARRAMAN - KINGAROY

Ref Point	Description	P.R.P.	Thru Dist
1	INT 40C / 40B / 22A (New England Hwy)	LR987304D	0
2	ROSALIE / NANANGO BDY		4.72
3	SOUTH ABUT ROCKY CK	LR966353J	5.59
4	INT 40C / 429 (Nanango-Tarong Rd)	LR983471E	17.65
5A	INT 40C / 41A (Burnett Hwy)		20.883
6A	NANANGO / KINGAROY BDY	LR917557P	32.53
7	INT 40C / 419 (Kingaroy-Cooyar Rd)	LR844615J	42.97
8	INT 40C / 4202 (Kingaroy-Barker's Creek Rd)	LR843638B	45.42
9	INT 40C / 45A / 45B (Bunya Hwy)	LR840638F	45.72

# 41A

## BURNETT HIGHWAY

### NANANGO - GOOMERI

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 41A / 40C (D'Aguilar Hwy)		0
2	INT 41A / Manumbar Rd	MR014580G	8.845
3	INT 41A / 4202 (Kingaroy-Barker's Creek Rd)	MR018659G	17.178
4	INT 41A / Memerambi-Barkers Ck Rd	MR056747G	28.308
5	NANANGO / KILKIVAN BDY		35.418
6	KILKIVAN / MURGON BDY		38.718
7	INT 41A / 437 (Murgon-Barambah Rd)	MR060857D	39.748
8	MURGON / KILKIVAN BDY (Midpoint)		43.768

# 42A

## BRISBANE VALLEY HIGHWAY

### IPSWICH - HARLIN

Ref Point	Description	P.R.P.	Thru Dist
1D	IPSWICH CITY / ESK BDY		5.2
2	(Bris Valley Branch Railway) Open Level Crossing	MQ676560N	7.33
3	OLD MORETON / ESK BDY		11.91
4	INT 42A / 412 (Forest Hill-Fernvale Rd)	MQ646639P	16.05
5	BRISBANE RIVER EAST ABUT	MQ644655S	18.09
5D	INT 42A / 410 (Wivenhoe-Somerset Rd)	MQ637674M	20.01
6	WIVENHOE DAM - EAST ABUT	MQ614696L	23.4
7	INT 42A / 411 (Coominya Connection Rd)	MQ529722N	32.5
8	LOGAN CK SOUTH ABUT	MQ505754K	36.93
9	FIVE MILE CK SOUTH ABUT	MQ512797H	41.46
10	PADDY GULLY SOUTH ABUT	MQ494838A	46.67
11	INT 42A / 4144 (Gatton-Esk Rd)	MQ429863L	53.69
12	INT 42A / 414 (Esk-Hampton Rd)	MQ427866M	54.09
13	INT 42A / 405 (Esk-Kilcoy Rd)	MQ412901M	58.02
14	RAILWAY OVERBRIDGE	MQ401952F	63.16
15	INT 42A / Mt Beppo Rd	MR385031E	71.42
16	SOUTH ABUT RAILWAY OVERBRIDGE	MR372118E	81.1
17	INT 42A / 40B (D'Aguilar Hwy)	MR360194M	89.37

## 45A

### BUNYA HIGHWAY DALBY - KINGAROY

Ref Point	Description	P.R.P.	Thru Dist
1	INT 45A / 18B / 18C (Warrego Hwy)	LQ277921J	0
2	INT 45A / 416 (Dalby-Cooyar Rd)	LQ291933F	1.92
3	DALBY TOWN / WAMBO BDY		5.11
4	INT 45A / Malakoff-Kaimkillenbun Rd	LR317094B	19.38
5	INT 45A / 422 (Macalister-Bell Rd)	LR442199S	37.45
6	INT 45A / WALKERS T / O	LR462287A	48.15
7	INT 45A / 424 (Kingaroy-Jandowae Rd)	LR446340S	53.71
8	WAMBO / KINGAROY BDY		62.37
9	INT 45A / Niagara Rd	LR517415M	65.14
10	INT 45A / 4161 (Bunya Mountains Rd)	LR628439C	77.79
11	INT 45A / Haly Ck Rd	LR712519E	90.71
12	INT 45A / 428 (Kingaroy-Burrandowan Rd)	LR826587G	104.42
13	INT 45A / 45B / 40C (D'Aguilar Hwy)	LR840638F	109.96

## 45B

### BUNYA HIGHWAY KINGAROY - GOOMERI

Ref Point	Description	P.R.P.	Thru Dist
1	INT 45B / 45A / 40C (D'Aguilar Hwy)	LR840638F	0
2	INT 45B / 4206 (Memerambi-Gordonbrook Rd)	LR824721L	10.35
3	KINGAROY / WONDAI BDY		20.46
4	INT 45B / 426 (Chinchilla-Wondai Rd)	LR821823A	21.41
5	INT 45B / 436 (Wondai-Proston Rd)	LR868916G	33.5
6	WONDAI / MURGON BDY		39.43
7	INT 45B / 439 (Murgon-Gayndah Rd)	LR932974A	43.34
8	INT 45B / 491 (Kilcoy-Murgon Rd)	LR978970A	48.91
9A	MURGON / KILKIVAN BDY		52.66

**308****ROSEWOOD - LAIDLEY ROAD**

Ref Point	Description	P.R.P.	Thru Dist
4	IPSWICH/ LAIDLEY BDY		18.89
5	INT 308 / 3083 (Mulgowie Rd)	MQ397413L	21.76
6	INT 308 / 312 (Gatton-Laidley Rd) / 311 (Laidley-Plainlands)	MQ401431D	23.63

**311****LAIDLEY - PLAINLANDS ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 311 / 312 (Gatton-Laidley Rd) / 308 (Rosewood-Laidley Rd)	MQ401431D	0
2	INT 311 / 18A (Warrego Hwy)	MQ429507G	8.56

**312****GATTON - LAIDLEY ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 312 / 314 (Gatton-Helidon Rd)	MQ313517A	0
2	GATTON / LAIDLEY BDY		3.68
3	INT 312 / 412 (Forest Hill-Fernvale)	MQ371485C	7
4	INT 312 / 308 (Rosewood-Laidley Rd) / 311 (Laidley-Plainlands Rd)	MQ401431D	15.06

**313****GATTON - CLIFTON ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 313 / 314 (Gatton-Helidon Rd)	MQ239497E	0
2	INT GRANTHAM T / O		4.69
3	INT 313 / 3131 (Mount Sylvia Rd)	MQ217445R	5.89
4	HEIFER CK NORTH ABUT	MQ117317C	23.29
5	GATTON / CAMBOOYA BDY		26.79
6	INT 313 / 3102 (Greenmount-Hirstvale Rd)	MQ079200A	41.19
7	CAMBOOYA / CLIFTON BDY		43.73

## 314

### GATTON - HELIDON ROAD

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 314 / 18A (Sth Side Of Southern Roundabout)		0
2	INT 314 / 312 (Gatton-Laidley Rd)	MQ313517A	1.04
2D	INT 314 / RAILWAY ST		4.04
3	INT 314 / TENTHILL CK RD	MQ273498E	5.78
4	INT 314 / 313 (Gatton-Clifton Rd)	MQ239497E	9.44
5	INT 314 / HARRIS ST	MQ210490A	12.97
6A	INT 18A / 314 (Gatton-Helidon Rd) CARR 2	MQ136518F	21.05
6Q	INT 18A / 314 (Gatton-Helidon Rd) CARR 3		21.19

## 320

### CHARLTON CONNECTION ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 320 / 18B (Warrego Hwy)	LQ886543G	0
2	INT 320 / 324 (Toowoomba-Cecil Plains Rd)	LQ885529F	1.58

## 321

### DRAYTON CONNECTION ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 321 / 28A (Gore Hwy)	LQ926472L	0
2	INT 321 / CANNING ST		0.66
3	TOOWOOMBA CITY / CAMBOOYA BDY		3.33
4	INT 321 / SHEPPARD RD	LQ903414P	6.83
5	INT 321 / 22B (New England Hwy)	LQ920374K	11.17

## 323

### OAKEY - PITTSWORTH ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 323 / 326 (Oakey Connection Road)	LQ734634B	0
1C	INT 323 / 18B (Warrego Hwy) Start Distance Break	LQ719617E	0.94
1D	INT 323 / 18B (Warrego Hwy) End Distance Break		0.941
2	WESTBROOK CK NORTH ABUT		2.3
3	CULV 4 / 2100 X 1200	LQ684587D	8.37
4	INT 323 / 324 (Toowoomba-Cecil Plains)	LQ648530D	15.34
5	JONDARYAN / PITTSWORTH BDY		17.5
6	PITTSWORTH / JONDARYAN BDY		21.34
7	INT 323 / Mt Tyson Rd	LQ603487A	21.65
8	INT 323/ StoneLeigh T/O	LQ595427G	27.72
10A	INT 323 / 28A (Gore Hwy)		37.883



## 324

### TOOWOOMBA - CECIL PLAINS

Ref Point	Description	P.R.P.	Thru Dist
1	INT 324 / 18B (Warrego Hwy)	LQ942516J	0
2	INT 324 / Greenwattle St		1.2
3	INT 324 / McDougall St		2.02
4	TOOWOOMBA CITY / JONDARYAN BDY		2.67
5	INT 324 / 320 (Charlton Connection Rd)	LQ885529F	5.86
6	WESTBROOK CK EAST ABUT	LQ796521G	15.46
7	INT 324 / Shire Rd	LQ733511T	24.23
8	INT 324 / 323 (Oakey-Pittsworth Rd)	LQ648530D	30.96
9	INT 324 / Jondaryan-Evanslea Rd	LQ540535P	42.08
10	INT 324 / Kent Rd	LQ484543C	47.74
11	INT 324 / 3203 (Bowenville-Norwin Rd)	LQ409553F	55.42
12	INT 324 / 3221 (Brookstead-Norwin Rd)	LQ403506M	59.92
13	INT 324 / Shire Rd	LQ313518N	69.05
14	JONDARYAN / MILLMERRAN BDY		72.1
15	INT 324 / 327 (Pampas-Horrane Rd)	LQ255525J	74.84
16	INT 324 / 325 (Dalby-Cecil Plains Rd) / 3251 (Millmerran-Cecil Plains Rd)	LQ219530C	78.78

## 325

### DALBY - CECIL PLAINS ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 325 / 18B (Warrego Hwy)	LQ295893C	0
2	DALBY TOWN / WAMBO BDY		1.01
3	Oakey CK NORTH ABUT	LQ290785D	10.92
4	INT 325 / Springvale Rd	LQ288710A	18.52
5	WAMBO / JONDARYAN BDY		22.62
6	CONDAMINE RVR NORTH ABUT	LQ265634H	26.95
7	JONDARYAN / MILLMERRAN BDY		36.43
8	INT 325 / 324 (Toowoomba-Cecil Plains Rd) / 3251 (Millmerran-Cecil Plains Rd)	LQ219530C	39.08

## 326

### Oakey Connection Road

Ref Point	Description	P.R.P.	DistThru
1	INT 326 / 18B (Warrego Hwy)		0
2	INT 326 / 323 (Oakey-Pittsworth Rd)		1.73
3	INT 326 / 417 (Oakey-Cooyar Rd)		3.714
4	INT 326 / 18B (Warrego Hwy)		7.34

**327****PAMPAS - HORRANE ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 327 / 28A (Gore Hwy)	LQ425245F	0
2	INT 327 / Melrose Rd	LQ350335B	13.37
3	INT 327 / Shire Rd	LQ329363G	16.94
4	INT 327 / Road 31	LQ275434E	25.82
5	INT 327 / 324 (Toowoomba-Cecil Plains Rd)	LQ255525J	35.77

**330****FELTON - CLIFTON ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 330 / 331 (Toowoomba-Karara Rd)	LQ791244K	0
2A	CAMBOOYA / CLIFTON Mid Point		4.45

**331****TOOWOOMBA - KARARA ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 331 / 28A (Gore Hwy)	LQ907457E	0
1D	TOOWOOMBA CITY / CAMBOOYA BDY		1.65
2	CAMBOOYA / JONDARYAN BDY		12.81
3	JONDARYAN / CAMBOOYA BDY		12.99
4	INT 331 / 3304 (Cambooya Connection Rd)	LQ875341N	13.68
5	INT 331 / 330 (Felton-Clifton Rd)	LQ791244K	27.12
5A	INT 331 / 332 (Pittsworth-Felton Rd)	LQ789242S	27.46
6	CAMBOOYA / CLIFTON BDY		31.09

**332****PITTSWORTH - FELTON ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 332 / 28A (Gore Hwy)		0
3	INT 332 / Murray St	LQ655334S	2.17
4	INT 332 / Homestead Rd	LQ691269P	12.15
5	PITTSWORTH / CAMBOOYA BDY		19.54
6	INT 332 / 331 (Toowoomba-Karara Rd)	LQ789242S	22.39

**335****MILLMERRAN - LEYBURN ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 335 / 28A (Gore Hwy)	LQ376209K	0
2	INT 335 / GrassTree Rd	LQ452168T	9.13
3	INT 335 / Pittsworth-Tummalville Rd	LQ528158D	17.17
4	INT 335 / Shire Rd	LQ584093J	26.02
4B	MILLMERRAN / CLIFTON BDY		26.2

**337****MILLMERRAN - INGLEWOOD ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 337 / 28A (Gore Hwy)		0
2	INT 337 / Road 72	LQ250024G	17.29
3	INT 337 / Road 67	LP229941F	25.99
4	BRINGALILY CK NORTH ABUT	LP219870H	33.10
7	MILLMERRAN / INGLEWOOD BDY	LP213811J	39.46

**340****DALBY - KOGAN ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 340/18C ( Warrego Hwy)		0.0
1B	INT 340 / C114 (Ranges Gully-Macalister)		11.4
2	INT 340 / 3401 (Daandine - Nandi Rd)	LR046003C	19.292
3	INT 340 / Kumbarilla Lane	KR984015K	25.612
4	BRAEMAR CK EAST ABUT	KR882040T	36.222
5	WAMBO / CHINCHILLA BDY		36.232
6	INT 340 / 3402 (Tara-Kogan Rd)	KR785066G	47.052
7	INT 340 / 3403 (Warra-Kogan Rd)	KR783067L	47.262
8	INT 340 / 342 (Kogan-Condamine Rd)	KR779069H	47.682

**341****CHINCHILLA - TARA ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 341 / 18C (Warrego Hwy)	KR648395F	0
2	CONDAMINE RVR NORTH ABUT	KR588334H	9.03
3	INT 341 / Doherty's Rd (LEFT)	KR506275T	20.08
4	INT 341 / 342 (Kogan-Condamine Rd)	KR503252A	22.51
5	INT 341 / Shire Rd (RIGHT)	KR512172K	30.61
6	INT 341 / Vanrenan's Rd (RIGHT)	KR514112S	36.93
6A	START CHINCHILLA /TARA		42.58
6B	CHINCHILLA / TARA (Midpoint)		43.49

**342****KOGAN - CONDAMINE ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 342 / 340 (Dalby-Kogan Rd)	KR779069H	0
3	INT 342 / Shire Rd (Right)	KR681124S	11.76
4	INT 342 / Chinchilla-Kogan Rd	KR648153S	16.33
5	INT 342 / Avenue Rd (RIGHT)	KR587211F	24.96
6	INT 342 / 341 (Chinchilla-Tara Rd)	KR503252A	34.5
7	WIEMBILLA CK EAST ABUT	KR395226M	45.8
8	CHINCHILLA / MURILLA BDY		45.82

**405****ESK - KILCOY ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 405 / 42A (Brisbane Valley Hwy)	MQ412901M	0
2	COAL CK SOUTH ABUT	MQ448922C	4.5
3	INT 405 / Mt Beppo Rd	MQ473964J	9.97
4	BRISBANE RVR WEST ABUT	MQ513979L	14.48
4D	INT 405 / 410 (Wivenhoe-Somerset Rd)	MQ557979B	20.42
5	SILVERTON CK SOUTH ABUT	MQ554994D	21.88
6	WATERFALL GULLY SOUTH ABUT	MR561020J	25.38
7	ESK / KILCOY BDY	MR564029T	26.68

**410****WIVENHOE - SOMERSET ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 410 / 42A (Brisbane Valley hwy)	MQ637674M	0
2	SOUTH ABUT BRANCH CK	MQ630737E	8.73
3	INT 410 / 4023 (Mount Glorious Rd)	MQ623790H	15.23
4	MIDDLE CK SOUTH ABUT	MQ573869T	25.32
5	INT 410 / 405 (Esk-Kilcoy Rd)	MQ557979B	39.13

**411****COOMINYA CONNECTION ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 411 / 42A (Brisbane Valley Hwy)	MQ529722N	0
2	INT 411 / 412 (Forest Hill-Fernvale Rd)	MQ476623S	12.88

**412****FOREST HILL - FERNVALE ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 412 / 312 (Gatton-Laidley Rd)	MQ371485C	0
2	INT 412 / 18A (Warrego Hwy)	MQ398519A	4.38
3	INT 412 / Brightview Rd (WEST)	MQ413545G	7.57
4	LAIDLEY / ESK BDY		17.03
5	INT 412 / 411 (Coominya Connection Rd)	MQ476623S	18.38
6	INT 412 / Brightview Rd (EAST)	MQ541609M	26.21
7	INT 412 / 42A (Brisbane Valley Hwy)	MQ646639P	38.95

**414****ESK - HAMPTON ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 414 / 42A (Brisbane Valley Hwy)	MQ427866M	0
2	REDBANK CK 3 EAST ABUT	MQ337829P	10.55
3	INT 414 / Shire Rd	MQ263781H	20.96
4	ESK / CROWS NEST BDY		27.62
5	INT 414 / Philp Rd	MQ192756F	29.31
6	INT 414 / Post Office Rd	MQ162719B	35.66
7	INT 414 / 22A (New England Hwy)	MQ078735M	45.76

**416****DALBY - COOYAR ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 416 / 45A (Bunya Hwy)	LQ291933F	0
2	DALBY TOWN / WAMBO BDY		2.03
3	INT 416 / Dalby-Nungil Rd	LQ363947P	7.31
4	INT 416 / 4161 (Bunya Mountains Rd)	LR483049S	25.8
5	INT 416 / Bowenville-Moola Rd	LR542033A	32.11
6	WAMBO / ROSALIE (Midpoint)		36.87
7	INT 416 / 418 (Pechey-Maclagan Rd)	LR640021F	41.96
8	INT 416 / 4163 (Bunya Mountains-Maclagan Rd)	LR646033C	43.4
9	INT 416 / 417 (Oakey-Cooyar Rd)	LR770071A	58.2

## 417

### OAKEY - COOYAR ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 417 / 326 (Oakey Connection Rd)	LQ731651A	0
2	JONDARYAN / ROSALIE BDY		2.68
3	INT 417 / 418 (Pechey-Maclagan Rd) EAST INT	LQ753811B	16.53
4	INT 417 / 418 (Pechey-Maclagan Rd) WEST INT	LQ704883C	26.67
5	INT 417 / Haden T / O	LQ741954R	35.05
6	INT 417 / 416 (Dalby-Cooyar Rd)	LR770071A	49.8
7	INT 417 / 22A (New England Hwy)	LR818097N	55.72

## 418

### PECHEY - MACLAGAN ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 418 / 22A (New England Hwy)	MQ051794S	0
2	GOMAREN CK CULVERT	LQ932774M	13.04
3	CROWS NEST / ROSALIE BDY		14.33
4	INT 418 / Haden T / O	LQ864799M	21.44
5	INT 418 / 417 (Oakey-Cooyar Rd) EAST INT	LQ753811B	33.12
6	INT 418 / 417 (Oakey-Cooyar Rd ) WEST INT	LQ704883C	33.121
7	INT 418 / Dalby-Nungil Rd	LQ624928A	45.42
8	INT 418 / 416 (Dalby-Cooyar Rd)	LR640021F	55.35

## 419

### KINGAROY - COOYAR ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 419 / 40C (D'Aguilar Hwy)	LR844615J	0
2	INT 419 / Haly Ck	LR821496C	12.34
3	KINGAROY / NANANGO		16.6
4	INT 419 / Kumbia-Brooklands Rd	LR811418M	20.46
5	INT 419 / 429 (Nanango-Tarong Rd)	LR873375E	29.79
6	INT 419 / 4196 (Maidenwell-Bunya Mountains Rd)	LR806298C	41.12
6D	NANANGO / ROSALIE BDY		51.6
7	INT 419 / 22A (New England Hwy)	LR820203G	51.85

## 421

### DALBY - JANDOWAE ROAD

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 421 / 18C (Warrego Hwy)	LQ268926L	0
2	DALBY TOWN / WAMBO BDY		3.93
3	INT 421 / Shire Rd	LQ258989C	6.45
4	INT 421 / Apunyal Rd	LR249092E	16.78
5	INT 421 / 422 (Macalister-Bell Rd)	LR228165P	24.4
6	INT 421 / Lyndley Connection Rd	LR203228J	31.2
7	INT 421 / Warra – Marnhull Rd	LR167302D	39.49
8	INT 421 / 424 (Kingaroy-Jandowae Rd)	LR120362P	47.19
9	INT 421 / 423 (Jandowae Connection Rd)	LR118364P	47.41

**422****MACALISTER - BELL ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 422 / 18C (Warrego Hwy)	LR092071S	0
2	INT 422 / 421 (Dalby-Jandowae Rd)	LR228165P	16.76
3	INT 422 / McNamara's Rd	LR376208P	33.76
4	INT 422 / 45A (Bunya Hwy)	LR442199S	40.48

**423****JANDOWAE CONNECTION ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 423 / 421 (Dalby-Jandowae Rd)	LR118364P	0
2	INT 423 / Jingi Valley T / O	LR091435J	7.79
3	INT 423 / 426 (Chinchilla-Wondai Rd)	LR076506N	15.05

**424****KINGAROY - JANDOWAE ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 424 / 45A (Bunya Hwy)	LR446340S	0
2	INT 424 Jimbour T / O	LR322358J	15.14
3	INT 424 / Niagara Rd	LR226398T	26.81
4	INT 424 / 421 (Dalby-Jandowae Rd)	LR120362P	39.21

**426****CHINCHILLA - WONDAI ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 426 / 18C (Warrego Hwy)	KR640401B	0
2	INT 426 / Burra Burri Ck	KR847478S	23.98
3	INT 426 / 4201 (Warra-Canaga Creek Rd)	KR972496H	37.34
4	CHINCHILLA / WAMBO BDY		43.86
5	INT 426 / 423 (Jandowae Connection Rd)	LR076506N	47.96
6	WAMBO / CHINCHILLA BDY		60.93
7	INT 426 / Burra Burri T / O	LR139621G	62.97
8	CHINCHILLA / WONDAI BDY	LR150706L	71.62
9	INT 426 / 435 (Mundubbra-Durong Rd)	LR246792T	89.22
9D	KINGAROY / WONDAI (Midpoint)		93
9G	WONDAI / KINGAROY (Midpoint)		96.96
10	INT 426 / 428 (Kingaroy - Burrandowan Rd) EBS	LR336781F	98.93
10D	KINGAROY / WONDAI BDY		106.21
11	WEST ABUT DUFF'S GULLY	LR413824A	108.33
12	WEST ABUT COVERTY CK	LR540840S	121.59
13	INT 426 / 4206 (Memerambi-Gordonbrook Rd)	LR642820S	132.47
14	INT 426 / Mondure-Cushine Rd	LR740834L	143.42
15	INT 426 / 45B (Bunya Hwy)	LR821823A	151.48

**428****KINGAROY - BURRANDOWAN ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 428 / 45A (Bunya Hwy)	LR826587G	0
2	INT 428 / Manneum Ck Rd	LR630593M	21.04
3	EAST ABUT BOYNE RVR	LR529641R	33.16
4	INT 428 / Ironpot Ck Rd	LR386709J	53.23
5	INT 428 / 426 (Chinchilla-Wondai Rd)	LR336781F	64.39

**429****NANANGO - TARONG ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 429 / 40C (D'Aguilar Hwy)	LR983471E	0
2	NORTH ABUT MEANDU CK	LR916410B	9.45
3	INT 429 / 419 (Kingaroy-Cooyar Rd)	LR873375E	15.59

**435****MUNDUBBERA - DURONG ROAD**

Ref Point	Description	P.R.P.	Thru Dist
6	MUNDUBBERA / WONDAI BDY		62.54
7	NORTH ABUT BROVINIA CK	LS204126K	66.79
8	NORTH ABUT BOONDOOMA CK	LS288021N	80.74
9	INT 435 / 4356 (Proston-Boondooma Rd)	LR271941K	89.64
10	INT 435 / 426 (Chinchilla-Wondai Rd)	LR246792T	104.86

**436****WONDAI - PROSTON ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 436 / 45B (Bunya Hwy)	LR868916G	0
2	INT 436 / 4365 (Byee Rd)	LR854950S	3.89
3	INT 436 / Hiveville-Windera Rd	LS693038N	25.82
4	INT 436 / 4356 (Proston-Boondooma Rd) / 4364 (Boondooma Dam Rd)	LS601055J	36.31

**437****MURGON - BARAMBAH ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 437 / 491 (Kilcoy-Murgon Rd)	LR983956C	0
2	INT 437 / Shire Rd	MR013899A	7.24
3	INT 437 / 41A (Burnett Hwy)	MR060857D	14.09



**439****MURGON - GAYNDAH ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 439 / 45B (Bunya Hwy)	LR932974A	0
2	INT 439 / 4365 (Byee Rd)	LS869073A	12.93
3	INT 439 / Cloyna West Rd	LS846116T	19.71
4	INT 439 / Wilsons Rd	LS831179K	26.54
5	MURGON / KILKIVAN BDY		31.36

**491****KILCOY - MURGON ROAD**

Ref Point	Description	P.R.P.	Thru Dist
13	INT 491 / 41A (Burnett Hwy) START DIST BDY	MR082913E	105.82
14	INT 491 / 41A (Burnett Hwy) END DIST BDY	MR068933M	105.821
15	INT 491 / 437 (Murgon-Barambah Rd)	LR983956C	115.32
16	INT 491 / 45B (Bunya Hwy)	LR978970A	116.92

**3083****MULGOWIE ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3083 / 308 (Rosewood-Laidley Rd)	MQ397413L	0
2	INT 3083 / Shire Rd (R) Bridge	MQ373325C	10.36
3	INT 3083 / Thornton School Rd	MQ383248J	18.94
4	END 3083	MQ393149B	29.67

**3102****GREENMOUNT - HIRSTVALE ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3102 / 22B (New England Hwy)	LQ964234P	0
2	INT 3102 / 313 (Gatton-Clifton Rd)	MQ079200A	12.29

**3131****MOUNT SYLVIA ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3131 / 313 (Gatton-Clifton Rd)	MQ217445R	0
2	TENTHILL CK NORTH ABUT	MQ225364G	8.91
3	END 3131	MQ199244G	23.57

**3203****BOWENVILLE - NORWIN ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3203 / 18B (Warrego Hwy)	LQ501784S	0
2	INT 3203 / Jondaryan-Tipton Rd	LQ427687L	13.09
3	INT 3203 / West Prarie Rd	LQ420635F	18.41
4	INT 3203 / 324 (Toowoomba-Cecil Plains Rd)	LQ409553F	26.86

**3221****BROOKSTEAD - NORWIN ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 3221 / 28A (Gore Hwy)	LQ465286N	0
2	INT 3221 / Lemontree-Bostock's Rd	LQ426320E	5.47
3	INT 3221 / Condamine Plains Rd	LQ392365P	11.04
4	INT 3221 / Branchview Rd	LQ357446H	20.89
5	PITTSWORTH / JONDARYAN BDY		29.36
6	INT 3221 / 324 (Toowoomba-Cecil Plains Rd)	LQ403506M	29.56

**3251****MILLMERRAN - CECIL PLAINS ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 3251 / 28A (Gore Hwy)	LQ300155M	0
2	INT 3251 / Lemontree-Bostock's Rd	LQ291231A	9.8
3	EAST BDY CNR POR 329	LQ214363C	25.73
4	INT 3251 / 325 (Dalby-Cecil Plains Rd) / 324 (Toowoomba-Cecil Plains Rd)	LQ219530C	45.61

**3304****CAMBOOYA CONNECTION ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3304 / 22B (New England Hwy)	LQ926334D	0
2	INT 3304 / 331 (Toowoomba-Karara Rd)	LQ875341N	5.49

**3308****NOBBY CONNECTION ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3308 / 22B (New England Hwy)	LQ957188M	0
2A	CAMBOOYA / CLIFTON BDY		3.28

**3341****GREENMOUNT CONNECTION ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3341 / 22B (New England Hwy)	LQ957268B	0
2	INT 3341 / Cambooya-Greenmount Rd	LQ919254A	4.67

**3401****DAANDINE - NANDI ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3401 / 340 (Dalby-Kogan Rd)	LR046003C	0
2	INT 3401 / Leahy's Rd (LEFT)	LQ086937R	8
3	INT 3401 / Hoadley's Rd (RIGHT)	LQ126897S	14.19
4	INT 3401 / Kalina-Merri (RIGHT)	LQ172891N	18.78
5	INT 3401 / 35A (Moonie Hwy)	LQ185878T	21.02

**3402****TARA - KOGAN ROAD**

Ref Point	Description	P.R.P.	Thru Dist
3	TARA / CHINCHILLA BDY		34.8
4	INT 3402 / 340 (Dalby-Kogan Rd)	KR785066G	43.03

**3403****WARRA - KOGAN ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 3403 / 18C (Warrego Hwy)	KR933195H	0
2	WAMBO / CHINCHILLA (Midpoint)		4.02
3	CONDAMINE RVR NORTH ABUT	KR884169C	6.39
4	INT 3403 / Shire Rd	KR840127T	13.1
5	INT 3403 / 340 (Dalby-Kogan Rd)	KR783067L	22.86

**4023****MOUNT GLORIOUS ROAD**

Ref Point	Description	P.R.P.	Thru Dist
11	PINE RIVERS / ESK BDY		5.9
12	ESK / PINE RIVERS BDY		6.74
13	PINE RIVERS / ESK BDY		7.62
14	ESK / PINE RIVERS BDY		8.02
15	PINE RIVERS / ESK BDY		9.01
16	ESK / PINE RIVERS BDY		9.53
17	PINE RIVERS / ESK BDY		12.26
18	NORTHBROOK CK EAST ABUT	MQ712797T	15.65
19	INT 4023 / 410 (Wivenhoe-Somerset Rd)	MQ623790H	27.11

## 4104

### MURPHY'S CREEK ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4104 / 18A (Warrego Hwy)	MQ059526H	0
2	INT 4104 / Costello Rd	MQ082579J	6.45
3	Open Level Crossing	MQ067618J	11.02
4	MURPHY'S CK CULVERT	MQ036605L	14.74
5	INT 4104 / McCormack Rd	LQ991610H	19.55
6	GATTON / CROWS NEST BDY		22.82
7	INT 4104 / 22A (New England Hwy)	LQ968570H	24.58

## 4144

### GATTON-ESK ROAD

Ref Point	Description	P.R.P.	Thru Dist
1A	INT 4144 / 18A (Nth Side Of Northern Roundabout)		0
1D	GATTON / LAIDLEY BDY		4.9
2	INT 4144 / Millers Rd	MQ353595B	8.32
4	GATTON/ ESK BDY		17.77
5	BUARABA CK SOUTH ABUT	MQ357709K	20.06
6	Open Level Crossing BRISBANE VALLEY	MQ411785P	30.02
7	INT 4144 / 42A (Brisbane Valley Hwy)	MQ429863L	39.87

## 4161

### BUNYA MOUNTAINS ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4161 / 416 (Dalby-Cooyar Rd)	LR483049S	0
2	INT 4161 / Shire Rd	LR526111S	8.62
3	INT 4161 / 4163 (Bunya Mountains-Maclagan Rd)	LR621158J	19.48
3B	WAMBO / NANANGO BDY		30.77
3D	NANANGO / WAMBO BDY		31.07
4	INT 4161 / 4196 (Maidenwell-Bunya Mountains Rd)	LR625243M	31.27
4B	WAMBO / NANANGO BDY		32.9
5A	NANANGO / WAMBO BDY		37.17
6	WAMBO / KINGAROY BDY		41.74
7	GRID	LR579369M	48.78
8	INT 4161 / 45A (Bunya Hwy)	LR628439C	58.21

## 4163

### BUNYA MOUNTAINS - MACLAGAN ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4163 / 4161 (Bunya Mountains Rd)	LR621158J	0
2	WAMBO / ROSALIE (Midpoint)		5.77
3	INT 4163 / Shire Rd	LR653098P	8.81
4	INT 4163 / 416 (Dalby-Cooyar Rd)	LR646033C	16.36

**4196****MAIDENWELL - BUNYA MOUNTAINS ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4196 / 419 (Kingaroy-Cooyar Rd)	LR806298C	0
2	INT 4196 / Shire Rd	LR691315P	13.97
3	INT 4196 / 4161 (Bunya Mountains Rd)	LR625243M	25.67

**4201****WARRA - CANAGA CREEK ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4201 / 18C (Warrego Hwy)	KR934194L	0
2	INT 4201 / Coopers Rd (Left)	KR941243T	5.36
3	INT 4201 / HayStack-Noola Rd(Left)	KR949313L	12.41
4	INT 4201 / Inverai Rd	KR956369D	18.13
5	IWAMBO/CHINCHILLA	KR962414F	22.64
6	INT 4201 / 426 (Chinchilla-Wondai Rd)	KR972496H	30.9

**4202****KINGAROY - BARKER'S CREEK ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4202 / 40C (D'Aguilar Hwy)	LR843638B	0
2	ST CULV 6 CELL	LR934667S	11.19
3	KINGAROY / NANANGO BDY		15.46
4	INT 4202 / 41A (Burnett Hwy)	MR018659G	22.39

**4206****MEMERAMBI - GORDONBROOK ROAD**

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4206 / 45B (Bunya Hwy)	LR824721L	0
2	EAST ABUT STUART RVR	LR777712D	4.64
3	EAST ABUT DEEP CK	LR721740L	11.55
4	EAST ABUT REEDY CK	LR686753M	15.35
5	EAST ABUT HIRST CK	LR652762P	18.81
6	KINGAROY / WONDAI BDY		23.29
7	INT 4206 / 426 (Chinchilla-Wondai Rd)	LR642820S	25.15

## 4261

### AUBURN ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4261 / 18C (Warrego Hwy)	KR623412M	0
2	INT 4261 / Blackswamp Rd (LEFT)	KR589509G	12.06
3	INT 4261 / Krugers Rd (LEFT)	KR591560F	17.71
4	INT 4261 / Rennick's Rd (RIGHT)	KR636602D	24.15
5	INT 4261 / Barakula-Boll RD	KR671721E	36.79
6	LITTLE HELLHOLE CULVERT	KR687825F	47.92
7	INT 4261 / Shire Rd	KR707928H	59.1
8	INT 4261 / Ormonde Rd (RIGHT)	KS693043H	71.49
9	GRID	KS600113R	83.94
10	GRID	KS580203D	93.9
11	GRID 4261 END	KS606256R	101.35

## 4356

### PROSTON - BOONDOOMA ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4356 / 436 (Wondai-Proston Rd) / 4364 (Boondooma Dam Rd)	LS601055J	0
2	NORTH ABUT STUART RVR	LS557033C	5.52
3	CULVERT'S MINOR	LR414952K	24.83
4	EAST ABUT BOYNE RVR	LR315948G	34.94
5	INT 4356 / 435 (Mundubbera-Durong Rd)		39.46

## 4364

### BOONDOOMA DAM ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4364 / 436 (Wondai-Proston Rd) / 4356 (Proston-Boondooma Rd)	LS601055J	0
2	INT 4364 / Shire Rd	LS528105S	9.31
3	END 4364	LS450125T	17.3

## 4365

### BYEE ROAD

Ref Point	Description	P.R.P.	Thru Dist
1	INT 4365 / 436 (Wondai-Proston Rd)	LR854950S	0
2	WONDAI / MURGON BDY		7.35
3	INT 4365 / SILVERLEAF	LS853027E	8.45
4	INT 4365 / 439 (Murgon-Gayndah Rd)	LS869073A	14.47

# **Appendix E**

## **Traffic Volume & Compilation Data**

District	3 SOUTHERN DISTRICT	
Road Section	18A IPSWICH - TOOWOOMBA	
Year	2003	
TDist		Status C
Direction	All Directions	

Through Distance		Site									
28.900	-	44.260	30061 WoolShed Ck Culvert Td36.87								
% per Vehicle Class								% Growth			
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr	
G	8,383	84.20	15.80	84.10	5.80	7.20	2.90	5.08	5.29		
A	8,439	83.10	16.90	83.00	6.90	7.10	3.00	7.98	6.00		
B	16,822	83.65	16.35	83.55	6.35	7.15	2.95	6.52	5.64	*	
44.260		-	47.860	30066 W of Laidley_Plainlands Inter Td 44.29							
% per Vehicle Class								% Growth			
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr	
G	7,374	81.80	18.20	81.80	6.40	8.10	3.70	6.19	5.16		
A	7,371	83.30	16.70	83.40	5.70	7.80	3.10	7.97	3.85		
B	14,745	82.55	17.45	82.60	6.05	7.95	3.40	7.07	4.49	*	
47.860		-	55.520	30068 At BP Roadhouse (McDonalds)Td 52.10							
% per Vehicle Class								% Growth			
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr	
G	8,357	82.90	17.10	82.90	6.40	7.60	3.10	6.34	5.17		
A	8,146	80.20	19.80	80.20	9.30	7.50	3.00	-.06	3.80		
B	16,503	81.50	18.50	81.50	7.80	7.60	3.10	3.08	4.48	*	
55.520		-	75.370	30026 At perm count site Gatton By Pass Td 56							
% per Vehicle Class								% Growth			
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr	
G	5,001	83.20	16.80	83.20	5.10	7.60	4.10	-4.05	.54	2.21	
A	5,199	83.30	16.70	83.30	5.00	7.70	4.00	-2.35	1.04	2.67	
B	10,200	83.30	16.70	83.30	5.00	7.70	4.00	-3.19	.79	2.45	
75.370		-	83.350	30070 1Km East of Murphy Ckeek Rd							
% per Vehicle Class								% Growth			
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr	
G	7,150	85.60	14.40	85.60	5.00	6.30	3.10	-1.75	2.42		
A	7,447	86.20	13.80	86.20	4.80	6.10	2.90	1.22	3.31		
B	14,597	85.90	14.10	85.90	4.90	6.20	3.00	-.25	2.87	*	

\* These values were updated manually or derived from previous years growth figures.



District	3 SOUTHERN DISTRICT		
Road Section	18A IPSWICH - TOOWOOMBA		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
83.350 - 92.760		30001 Top of Range Perm Site Td 91.8								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	9,195	87.80	12.20	87.80	5.20	4.70	2.30	3.54	2.94	2.03
A	9,028	87.00	13.00	87.00	5.70	5.20	2.10	3.05	1.87	2.98
B	18,223	87.50	12.50	87.50	5.40	4.90	2.20	3.29	2.40	2.46 *

92.760 - 94.580		31147 At Hume St Inter Td 94.56								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	9,822	90.00	10.00	90.00	4.50	3.60	1.90	4.48	2.72	
A	10,191	90.10	9.90	90.10	4.60	3.60	1.70	7.19	2.17	
B	20,013	90.00	10.00	90.00	4.60	3.60	1.80	5.84	2.44	*

94.580 - 95.010		31145 At Neil St Inter Td 94.76								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	10,098	88.90	11.10	88.90	5.70	3.80	1.60	5.44	2.68	
A	10,906	89.00	11.00	89.00	5.80	3.60	1.60	8.01	2.82	
B	21,004	88.90	11.10	88.90	5.80	3.70	1.60	6.76	2.75	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	308 ROSEWOOD - LAIDLEY ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
18.890 - 23.630		32029 E Of Laidley Creek Td 20.7								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	555	91.10	8.90	91.10	7.60	1.20	.10	3.74	2.15	
A	590	90.40	9.60	90.40	8.30	1.20	.10	8.06	2.89	
B	1,145	90.74	9.26	90.74	7.96	1.20	.10	5.92	2.52	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	3083 MULGOWIE ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 29.670		32134 9.5km from start at Floodway (Td 9.50)								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	409	91.30	8.70	91.30	6.80	1.90	.00	.49	5.18	
A	392	91.80	8.20	91.80	6.20	2.00	.00	-2.73	4.91	
B	801	91.60	8.40	91.60	6.50	1.90	.00	-1.11	5.04	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	311 LAIDLEY - PLAINLANDS ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site									
0.000	-	1.990	32066 S of Glenore Grove Road Td 1.77								
% per Vehicle Class											
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth			
								1 Yr	5 Yr	10 Yr	
G	2,443	94.70	5.30	94.70	4.40	.80	.10	.21	4.34		
A	2,472	94.40	5.60	94.40	4.60	.90	.10	-5.43	5.13		
B	4,915	94.50	5.50	94.50	4.50	.90	.10	-2.71	4.73	*	
1.990	-	8.560	32017 N of Waddintong Rd Td 6.00								
% per Vehicle Class											
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth			
								1 Yr	5 Yr	10 Yr	
G	1,639	92.40	7.60	92.40	6.30	1.20	.10	-3.19	3.41		
A	1,642	93.80	6.20	93.80	4.90	1.20	.10	-3.01	4.56		
B	3,281	93.10	6.90	93.10	5.60	1.20	.10	-3.10	3.98	*	

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	312 GATTON - LAIDLEY ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 7.000		32068 580m from Gatton-Helidon Rd Td 0.58								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	1,751	94.80	5.20	94.80	4.20	.90	.10	15.73	2.03	
A	1,727	92.20	7.80	92.20	6.70	1.00	.10	12.43	.83	
B	3,478	93.60	6.40	93.60	5.40	.90	.10	14.07	1.42	*
7.000 - 15.060		32028 S of Forest Hill Td 12.16								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	873	94.30	5.70	94.30	4.60	1.10	.00	3.68	2.92	
A	860	94.00	6.00	94.00	4.80	1.10	.10	3.99	3.16	
B	1,733	94.20	5.80	94.20	4.70	1.10	.00	3.83	3.04	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	313 GATTON - CLIFTON ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 5.890		32070 N of Winwill Connection Rd Td 0.97								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	440	89.50	10.50	89.60	4.70	5.60	.10	-2.65	-2.23	
A	485	84.30	15.70	84.30	4.90	9.50	1.30	2.97	-.37	
B	925	86.77	13.23	86.82	4.80	7.64	.73	.22	-1.31	*
5.890 - 26.790		30023 12 S Gatton-Helidon Rd Td 12Km								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	315	85.20	14.80	85.20	5.70	9.00	.10	-.94	-1.91	1.12
A	306	83.30	16.70	83.30	11.30	5.20	.20	1.32	-.18	1.36
B	621	84.26	15.74	84.26	8.46	7.13	.15	.16	-1.08	1.22 *
26.790 - 43.730		32561 600m N of Heifer Ck Td 22.68								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	190	78.10	21.90	78.10	7.30	14.40	.20	13.77	2.00	
A	154	83.60	16.40	83.60	7.50	8.50	.40	-20.21	-1.75	
B	344	80.56	19.44	80.56	7.39	11.76	.29	-4.44	.20	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	3131 MOUNT SYLVIA ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 23.570		32049 6km from Start 3131 Td 6.0								
		% per Vehicle Class						% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	318	92.60	7.40	92.60	5.90	1.40	.10	-1.24	-3.41	
A	329	93.40	6.60	93.40	5.10	1.30	.20	.61	.56	
B	647	93.01	6.99	93.01	5.49	1.35	.15	-.31	-1.49	*

\* These values were updated manually or derived from previous years growth figures.

District **3 SOUTHERN DISTRICT**

Road Section **314 GATTON - HELIDON ROAD**

Year **2003**

TDist  Status **C**

Direction **All Directions**

### Through Distance

### Site

**0.000 - 1.040** **32071 500m E of Gatton Laidley Rd (Td 0.05)**

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	3,318	89.60	10.40	89.60	5.70	3.90	.80	3.49	5.42	
A	3,145	86.90	13.10	86.90	8.30	4.00	.80	1.91	2.01	
B	6,463	88.29	11.71	88.29	6.97	3.95	.80	2.72	3.66	*

**1.040 - 3.810** **30005 500m W of Gatton-Laidley Rd (Td 1.7)**

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	5,099	91.90	8.10	92.00	4.80	2.60	.60	7.92	3.20	3.07
A	4,814	90.50	9.50	90.50	5.60	3.10	.80	5.55	2.44	2.56
B	9,913	91.22	8.78	91.27	5.19	2.84	.70	6.75	2.83	2.82 *

**3.810 - 5.070** **31335 E of Spencer St Inter Td 4.22**

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	3,884	89.70	10.30	89.70	7.10	3.00	.20	8.58	4.90	
A	4,574	89.60	10.40	89.60	7.00	3.10	.30	9.95	3.65	
B	8,458	89.60	10.40	89.60	7.00	3.10	.30	9.32	4.09	*

**5.070 - 9.440** **32072 At Lake Apex Sign (Td 7.6)**

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	2,948	89.30	10.70	89.20	6.50	3.40	.90	1.17	3.42	
A	3,103	88.60	11.40	88.70	6.30	3.90	1.10	12.14	6.56	
B	6,051	88.94	11.06	88.94	6.40	3.66	1.00	6.51	4.98	*

**9.440 - 21.050** **32073 3Km W of Grantham Td 15.99**

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	3,069	89.20	10.80	89.20	6.10	3.50	1.20	32.34	13.86	
A	2,652	89.20	10.80	89.20	7.30	2.80	.70	22.78	10.60	
B	5,721	89.20	10.80	89.20	6.66	3.18	.97	27.73	12.29	*

\* These values were updated manually or derived from previous years growth figures.



District	3 SOUTHERN DISTRICT	
Road Section	4023 MOUNT GLORIOUS ROAD	
Year	2003	
TDist		Status C
Direction	All Directions	

Through Distance		Site									
5.900	-	6.740	32054 350m S of Northbrook Ck Td 16.								
% per Vehicle Class											
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth			
								1 Yr	5 Yr	10 Yr	
G	120	97.10	2.90	97.10	2.60	.30		-23.08	-5.72		
A	108	98.20	1.80	98.20	1.60	.20		-19.40	-6.04		
B	228	97.62	2.38	97.62	2.13	.25		-21.38	-5.89	*	

7.620	-	8.020	32054 350m S of Northbrook Ck Td 16.								
% per Vehicle Class											
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth			
								1 Yr	5 Yr	10 Yr	
G	120	97.10	2.90	97.10	2.60	.30		-23.08	-5.72		
A	108	98.20	1.80	98.20	1.60	.20		-19.40	-6.04		
B	228	97.62	2.38	97.62	2.13	.25		-21.38	-5.89	*	

9.010	-	9.530	32054 350m S of Northbrook Ck Td 16.								
% per Vehicle Class											
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth			
								1 Yr	5 Yr	10 Yr	
G	120	97.10	2.90	97.10	2.60	.30		-23.08	-5.72		
A	108	98.20	1.80	98.20	1.60	.20		-19.40	-6.04		
B	228	97.62	2.38	97.62	2.13	.25		-21.38	-5.89	*	

12.260	-	27.110	32054 350m S of Northbrook Ck Td 16.								
% per Vehicle Class											
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth			
								1 Yr	5 Yr	10 Yr	
G	120	97.10	2.90	97.10	2.60	.30		-23.08	-5.72		
A	108	98.20	1.80	98.20	1.60	.20		-19.40	-6.04		
B	228	97.62	2.38	97.62	2.13	.25		-21.38	-5.89	*	

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	405 ESK - KILCOY ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 26.680		32097 Picnic Area Td 11.6								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	229	91.20	8.80	91.20	7.10	1.70		16.84	1.58	
A	220	93.10	6.90	93.10	5.30	1.50	.10	12.24	.76	
B	449	92.13	7.87	92.13	6.22	1.60		14.54	1.17	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	40B KILCOY - YARRAMAN		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site									
10.550	-	23.460	30043 Brisbane River Td 23Km								
% per Vehicle Class											
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth			
								1 Yr	5 Yr	10 Yr	
G	1,322	88.70	11.30	88.70	5.40	4.60	1.30	1.93	3.19		
A	1,315	88.10	11.90	88.20	6.20	4.30	1.30	5.12	-.48		
B	2,637	88.40	11.60	88.45	5.80	4.45	1.30	3.49	1.25	*	

23.460	-	32.650	30009 3.5km N of Brisbane Valley Hwy Td 27							
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	1,254	82.70	17.30	82.70	8.20	6.70	2.40	.64	1.40	1.42
A	1,250	85.50	14.50	85.50	5.50	6.40	2.60	.89	1.79	1.25
B	2,504	84.10	15.90	84.10	6.85	6.55	2.50	.76	1.59	1.33 *

32.650	-	58.030	30090 E of Bernakin Turn off Td 48.0							
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	1,192	84.30	15.70	84.30	6.00	7.20	2.50	10.17	1.31	
A	1,194	84.30	15.70	84.30	5.90	7.10	2.70	9.84	2.33	
B	2,386	84.30	15.70	84.30	5.95	7.15	2.60	10.00	1.81	*

58.030	-	68.720	30091 Cooyar Creek Td 63.0							
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	1,358	86.20	13.80	86.20	5.70	5.90	2.20	.37	2.56	
A	1,401	87.80	12.20	87.80	5.30	4.90	2.00	7.85	3.62	
B	2,759	87.01	12.99	87.01	5.50	5.39	2.10	4.03	3.09	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	410 WIVENHOE - SOMERSET ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 39.130		32098 1.3Km from Mt Glorioud Rd Td 16.5								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	186	93.90	6.10	93.90	5.00	1.10	.00	16.98	6.51	
A	177	93.80	6.20	93.80	5.20	1.00		18.79	6.05	
B	363	93.85	6.15	93.85	5.10	1.05		17.86	6.27	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	4104 MURPHY'S CREEK ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 19.550		32055 6km N of Warrego Highway (Td 6.0)								
		% per Vehicle Class						% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	584	93.10	6.90	93.10	5.10	1.50	.30	1.92	2.89	
A	577	94.20	5.80	94.10	4.30	1.30	.30	1.23	3.08	
B	1,161	93.65	6.35	93.60	4.70	1.40	.30	1.57	2.98	*
19.550 - 24.580		32147 200m W of Spring Bluff Rd Td 20.0								
		% per Vehicle Class						% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	495	95.20	4.80	95.20	4.00	.80	.00	-4.26	4.48	
A	505	93.90	6.10	93.90	5.30	.80	.00	.40	5.20	
B	1,000	94.50	5.50	94.50	4.70	.80	.00	-1.96	4.84	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	411 COOMINYA CONNECTION ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 12.880		32099 200m N of Pensacola Parade Td 6.2								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	406	89.50	10.50	89.60	6.40	3.10	.90	-.73	1.37	
A	405	89.80	10.20	89.70	6.60	3.10	.60	1.50	1.02	
B	811	89.65	10.35	89.65	6.50	3.10	.75	.37	1.18	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	412 FOREST HILL - FERNVALE ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 4.380		32100 300m S of Warrego Highway Td 4.05								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	448	92.00	8.00	92.00	6.00	1.90	.10	-2.22	.83	
A	464	92.70	7.30	92.70	5.50	1.70	.10	-2.32	.25	
B	912	92.40	7.60	92.40	5.70	1.80	.10	-1.30	.53	*
4.380 - 18.380		32346 300m E of Walhuben Road Td 12.6								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	598	87.20	12.80	87.20	9.70	2.60	.50	5.84	.73	
A	571	88.60	11.40	88.50	8.30	2.50	.70	9.18	-.02	
B	1,169	87.88	12.12	87.83	9.02	2.55	.60	7.44	.36	*
18.380 - 38.950		32102 400m S of Brightveiw Rd Td 25.8								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	608	90.90	9.10	90.90	5.10	3.60	.40	.00	.00	
A	613	90.80	9.20	90.80	5.20	3.60	.40	.00	.00	
B	1,221	90.80	9.20	90.80	5.20	3.60	.40	.00	.00	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	414 ESK - HAMPTON ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 45.760		30008 At Ravensbourne National Park Td 32.96								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	315	92.20	7.80	92.10	3.80	3.60	.50	12.10	6.71	
A	305	91.40	8.60	91.40	4.50	3.60	.50	12.55	7.30	
B	620	91.81	8.19	91.76	4.14	3.60	.50	12.32	7.00	*

\* These values were updated manually or derived from previous years growth figures.



District	3 SOUTHERN DISTRICT		
Road Section	4144 GATTON-ESK ROAD		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
0.000 - 39.870		32025 At Shire Boundary Td 17.5								
% per Vehicle Class								% Growth		
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	684	87.10	12.90	87.10	7.90	4.00	1.00	9.44	4.49	
A	667	88.60	11.40	88.60	5.80	4.50	1.10	12.67	5.06	
B	1,351	87.84	12.16	87.84	6.86	4.25	1.05	11.01	4.77	*

\* These values were updated manually or derived from previous years growth figures.

District 3 SOUTHERN DISTRICT  
 Road Section 42A IPSWICH-HARLIN  
 Year 2003  
 TDist   Status C  
 Direction All Directions

### Through Distance

### Site

5.200 - 16.050 30006 2.5km Back From RPC 4 Td 13.52

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	2,855	90.30	9.70	90.30	4.50	3.80	1.40	-7.43	-.73	
A	2,934	89.90	10.10	89.90	4.90	3.70	1.50	-2.49	-1.50	
B	5,789	90.10	9.90	90.10	4.70	3.75	1.45	-4.99	-1.13	*

16.050 - 32.500 30102 1.6km From RPC 6 Td 25.17

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	1,188	84.10	15.90	84.10	6.20	7.10	2.60	-9.59	-1.07	
A	1,206	83.90	16.10	83.90	6.70	6.60	2.80	-6.37	-.86	
B	2,394	84.00	16.00	84.00	6.45	6.85	2.70	-7.99	-.97	*

32.500 - 53.690 30103 Logan Ck - South abutment Td 36.93

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	981	83.70	16.30	83.70	6.10	6.90	3.30	-3.06	-1.94	
A	978	79.90	20.10	79.90	10.30	6.70	3.10	-1.11	-2.64	
B	1,959	81.80	18.20	81.80	8.20	6.80	3.20	-2.10	-2.30	*

53.690 - 54.700 32330 S of Esk-Hampton Inter Td 54.0

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	1,938	87.70	12.30	87.70	5.80	4.60	1.90	-2.02	.18	
A	1,843	88.40	11.60	88.40	4.90	4.70	2.00	-3.91	-.59	
B	3,781	88.04	11.96	88.04	5.36	4.65	1.95	-2.95	-.21	*

54.700 - 58.020 30104 800m From RPC 13 Td 57.23

#### % per Vehicle Class

Gaz Dir	AADT	% per Vehicle Class						% Growth		
		Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	1 Yr	5 Yr	10 Yr
G	1,519	85.20	14.80	85.30	6.80	5.70	2.20	-4.94	.32	
A	1,477	84.50	15.50	84.40	7.70	5.70	2.20	-4.83	-.37	
B	2,996	84.85	15.15	84.86	7.24	5.70	2.20	-4.89	-.03	*

\* These values were updated manually or derived from previous years growth figures.

District	3 SOUTHERN DISTRICT		
Road Section	42A IPSWICH-HARLIN		
Year	2003		
TDist			Status C
Direction	All Directions		

Through Distance		Site								
58.020 - 89.370		32059 Mt Beppo Rd (old) Td 70.0								
% per Vehicle Class										
Gaz Dir	AADT	Light Vehicle	Heavy Vehicle	Short Vehicle	Truck or Bus	Articulated Vehicle	Road Train	% Growth		
								1 Yr	5 Yr	10 Yr
G	1,375	85.30	14.70	85.30	6.00	6.30	2.40	2.15	3.73	
A	1,211	85.40	14.60	85.40	5.60	6.40	2.60	-12.81	.15	
B	2,586	85.40	14.60	85.40	5.80	6.30	2.50	-5.45	1.98	*

\* These values were updated manually or derived from previous years growth figures.

# **Appendix F**

## **Traffic Accident Codes**

## Tables Of Codes And Descriptions

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### Blood Alcohol

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Code	Description
93	WAITING FOR RESULT
94	ROADSIDE TEST - UNDER OR NIL
95	REFUSED TEST
99	NOT REQUIRED

### Contributing Circumstance

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Code	Description
099	NOT APPLICABLE
101	LIGHTING - SUNLIGHT GLARE (DAWN/DUSK/REFLECTION)
102	LIGHTING - HEADLIGHT GLARE
103	LIGHTING - HEADLIGHTS OFF/NO LIGHTS ON VEHICLE
104	LIGHTING - NO STREET LIGHTING
105	LIGHTING - WEARING DARK CLOTHING
106	LIGHTING - HEAVILY OVERCAST
190	LIGHTING CONDITIONS - MISCELLANEOUS
201	ATMOSPHERIC - HEAVY RAIN
202	ATMOSPHERIC - SMOKE
203	ATMOSPHERIC - DUST
204	ATMOSPHERIC - FOG
205	ATMOSPHERIC - HAIL
206	ATMOSPHERIC - RAIN
290	ATMOSPHERIC CONDITIONS - MISCELLANEOUS
301	ROAD - WET/SLIPPERY
302	ROAD - GRAVEL/DIRT
303	ROAD - POTHOLE
304	ROAD - NARROW BITUMEN
305	ROAD - ROUGH SHOULDER(S)
306	ROAD - WATER COVERING
307	ROAD - ROUGH SURFACE
308	ROAD - CREST/DIP - VIEW OBSCURED
309	ROAD - STEEP GRADE
310	ROAD - NARROW

Code	Description
311	ROAD - TEMPORARY OBJECT ON CARRIAGEWAY
312	ROAD - ROADWORKS
390	ROAD CONDITIONS - MISCELLANEOUS
401	VIOLATION - EXCEEDING SPEED LIMIT
402	VIOLATION - FAIL TO GIVE WAY
403	VIOLATION - FAIL TO GIVE WAY ON PEDESTRIAN CROSSING
404	VIOLATION - DISOBEY STOP SIGN
405	VIOLATION - DISOBEY GIVE WAY SIGN
406	VIOLATION - DISOBEY TRAFFIC SIGN
407	VIOLATION - DISOBEY RED TRAFFIC LIGHT
408	VIOLATION - DISOBEY TRAFFIC LIGHT
409	VIOLATION - IMPROPER OVERTAKING
410	VIOLATION - CROSS DOUBLE LINES
411	VIOLATION - UNDUE CARE AND ATTENTION
412	VIOLATION - FAIL TO SIGNAL INTENTION
413	VIOLATION - IMPROPER TURN - OTHER THAN U-TURN
414	VIOLATION - FAIL TO KEEP LEFT
415	VIOLATION - FOLLOW TOO CLOSELY
416	VIOLATION - UNSAFE LANE CHANGE
417	VIOLATION - IMPROPER U-TURN
418	VIOLATION - DANGEROUS DRIVING
419	VIOLATION - UNDER INFLUENCE OF LIQUOR/DRUG (NOT NECESSARY BAC)
420	VIOLATION - OVER PRESCRIBED CONCENTRATION OF ALCOHOL (MUST HAVE BAC)
421	VIOLATION - OPEN CAR DOOR CAUSING DANGER
422	VIOLATION - OVERTAKING STATIONARY VEHICLE AT PEDESTRIAN CROSSING
423	VIOLATION - INSECURE LOAD
424	VIOLATION - DRIVE MOTOR VEHICLE OF EXCESS DIMENSIONS
425	VIOLATION - ILLEGALLY PARKED
426	VIOLATION - TURN IN FACE OF ONCOMING TRAFFIC
490	DRIVER VIOLATION TRAFFIC LAW - MISCELLANEOUS
501	VEHICLE - BRAKES
502	VEHICLE - TYRES (I.E. LOW TREAD, PUNCTURE/BLOW OUT)
503	VEHICLE - SUSPENSION
504	VEHICLE - STEERING

<b>Code</b>	<b>Description</b>
505	VEHICLE - LIGHTS (HEADLIGHTS/TAIL LIGHTS)
506	VEHICLE - TURN SIGNALS
507	VEHICLE - VISION (BROKEN WINDSCREEN/WINDOWS)
508	VEHICLE - TOWING ATTACHMENT
509	VEHICLE - STRUCTURAL DEFECT
510	VEHICLE - LOAD SHIFT
590	VEHICLE DEFECTS - MISCELLANEOUS
601	DRIVER - INATTENTION/NEGLIGENCE
602	DRIVER - INEXPERIENCE/LACK OF EXPERTISE
603	DRIVER - FATIGUE/FELL ASLEEP
604	DRIVER - MEDICAL CONDITION (HEART ATTACK; EPILEPSY ETC.)
605	DRIVER - AGE (LACK OF PERCEPTION; POWER OR CONCENTRATION)
606	DRIVER - TAKING AVOIDING ACTION TO A ROAD HAZARD
607	DRIVER - DISTRACTED
608	DRIVER - SUICIDE
609	DRIVER - ATTEMPTED SUICIDE
610	DRIVER - DELIBERATE ACT
611	DRIVER - TAKING AVOIDING ACTION TO MISS ANOTHER ROAD VEHICLE
690	DRIVER CONDITIONS - MISCELLANEOUS
700	EXCESSIVE SPEED FOR CIRCUMSTANCES
801	ANIMAL UNCONTROLLED - ON ROAD
802	ACCIDENTAL INTERFERENCE TO A UNIT
803	POLICE CHASE
804	DELIBERATE PASSENGER INTERFERENCE TO A UNIT IN TRANSPORT
890	MISCELLANEOUS

## DCA Code

Code	Description
001	PED'N: NEAR SIDE VEHICLE HIT FROM RIGHT
002	PED'N: HIT EMERGING BEHIND VEHICLE
003	PED'N: FAR SIDE VEHICLE HIT FROM LEFT
004	PED'N: PLAY; WORK; STAND; LIE ON C'WAY
005	PED'N: HIT WALKING WITH TRAFFIC
006	PED'N: HIT FACING TRAFFIC
007	PED'N: HIT BY VEHICLE ENTER/LEAVE D'WAY
008	PED'N: ON FTWAY HIT BY VEHICLE ON FTWAY
009	PED'N: HIT WHILE BOARDING/ALIGHTING
100	VEH'S ADJACENT APPROACH: OTHER
101	VEH'S ADJACENT APPROACH: THRU-THRU
102	VEH'S ADJACENT APPROACH: RIGHT-THRU
103	VEH'S ADJACENT APPROACH: LEFT-THRU
104	VEH'S ADJACENT APPROACH: THRU-RIGHT
105	VEH'S ADJACENT APPROACH: RIGHT-RIGHT
106	VEH'S ADJACENT APPROACH: LEFT-RIGHT
107	VEH'S ADJACENT APPROACH: THRU-LEFT
108	VEH'S ADJACENT APPROACH: RIGHT-LEFT
109	VEH'S ADJACENT APPROACH: LEFT-LEFT
200	VEH'S OPPOSITE APPROACH: OTHER
201	VEH'S OPPOSITE APPROACH: HEAD ON
202	VEH'S OPPOSITE APPROACH: THRU-RIGHT
203	VEH'S OPPOSITE APPROACH: RIGHT-LEFT
204	VEH'S OPPOSITE APPROACH: RIGHT-RIGHT
205	VEH'S OPPOSITE APPROACH: THRU-LEFT
206	VEH'S OPPOSITE APPROACH: LEFT-LEFT
207	VEH'S OPPOSITE APPROACH: U-TURN
300	VEH'S SAME DIRECTION: OTHER
301	VEH'S SAME DIRECTION: REAR END
302	VEH'S SAME DIRECTION: LEFT REAR
303	VEH'S SAME DIRECTION: RIGHT REAR
304	VEH'S SAME DIRECTION: U-TURN
305	VEH'S SAME DIRECTION: LANE SIDE SWIPE
306	VEH'S SAME DIRECTION: LANE CHANGE RIGHT
307	VEH'S SAME DIRECTION: LANE CHANGE LEFT
308	VEH'S SAME DIRECTION: RIGHT TURN S/SWIPE
309	VEH'S SAME DIRECTION: LEFT TURN S/SWIPE
310	VEH'S SAME DIRECTION: PULLING OUT



Code	Description
400	VEH'S MANOEUVRING: OTHER
401	VEH'S MANOEUVRING: LEAVING PARKING
402	VEH'S MANOEUVRING: PARKING
403	VEH'S MANOEUVRING: PARKING VEH'S ONLY
404	VEH'S MANOEUVRING: REVERSING
405	VEH'S MANOEUVRING: REV INTO FIXED OBJECT
406	VEH'S MANOEUVRING: LEAVING DRIVEWAY
407	VEH'S MANOEUVRING: LEAVING LOADING BAY
408	VEH'S MANOEUVRING: ENTERING FROM FOOTWAY
500	VEH'S OVERTAKING: OTHER
501	VEH'S OVERTAKING: HEAD ON
502	VEH'S OVERTAKING: OUT OF CONTROL
503	VEH'S OVERTAKING: PULLING OUT
504	VEH'S OVERTAKING: CUTTING IN
505	VEH'S OVERTAKING: PULLING OUT REAR END
506	VEH'S OVERTAKING: OVERTAKE-RIGHT TURN
600	VEH'S ON PATH: OTHER
601	VEH'S ON PATH: PARKED
602	VEH'S ON PATH: DOUBLE PARKED
603	VEH'S ON PATH: ACCIDENT OR BROKEN DOWN
604	VEH'S ON PATH: CAR DOOR
605	VEH'S ON PATH: PERMANENT OBSTRUCTION
606	VEH'S ON PATH: TEMPORARY ROADWORKS
607	VEH'S ON PATH: TEMPORARY OBJECT ON C'WAY
609	VEH'S ON PATH: HIT ANIMAL
610	VEH'S ON PATH: LOAD HITS VEHICLE
700	OFF PATH-STRAIGHT: OTHER
701	OFF PATH-STRAIGHT: LEFT OFF CWAY
702	OFF PATH-STRAIGHT: RIGHT OFF CWAY
703	OFF PATH-STRAIGHT: LEFT OFF CWAY HIT OBJ
704	OFF PATH-STRAIGHT: RIGHT OFF CWAY HIT OBJ
705	OFF PATH-STRAIGHT: OUT OF CONTROL ON CWAY
706	OFF PATH-STRAIGHT: LEFT TURN
707	OFF PATH-STRAIGHT: RIGHT TURN
708	OFF PATH-STRAIGHT: MOUNTS TRAFFIC ISLAND
800	OFF PATH-CURVE: OTHER
801	OFF PATH-CURVE: OFF CWAY RIGHT BEND
802	OFF PATH-CURVE: OFF CWAY RT BEND HIT OBJ
803	OFF PATH-CURVE: OFF CWAY LEFT BEND
804	OFF PATH-CURVE: OFF CWAY LT BEND HIT OBJ

Code	Description
805	OFF PATH-CURVE: OUT OF CONTROL ON CWAY
808	OFF PATH-CURVE: MOUNTS TRAFFIC ISLAND
900	PASS & MISC: OTHER
901	PASS & MISC: FELL IN/FROM VEHICLE
903	PASS & MISC: HIT TRAIN
904	PASS & MISC: HIT RAILWAY XING FURNITURE
905	PASS & MISC: HIT ANIMAL OFF CARRIAGEWAY
906	PASS & MISC: PARKED CAR RAN AWAY
907	PASS & MISC: VEHICLE MOVEMENTS NOT KNOWN

## Damage Point

---

Code	Description
01	Front
02	Back
03	Front right fender
04	Front right door
05	Back right door
06	Back right fender
07	Front left fender
08	Front left door
09	Back left door
10	Back left fender
11	Turret
12	Undercarriage
90	Miscellaneous
98	Not Known
99	Not applicable

## Dangerous Goods

---

Code	Description
Y	Yes
N	No
U	Unknown
X	Not Applicable

## Feature Of Roadway

---

Code	Description
10	Cross
11	T junction
12	Y junction
13	Multiple Road
14	Interchange
15	Roundabout
20	Bridge, Causeway
30	Railway Crossing
40	Median Opening

Code	Description
50	Merge Lane
90	Miscellaneous
99	Not Applicable

## Helmet Usage

---

Code	Description
01	Worn
02	Not Worn
98	Unknown
99	Not Applicable

## Horizontal Road Alignment

---

Code	Description
1	Straight
2	Curved-View obscured
3	Curved-View open

## Impact Location

---

Code	Description
ON	INCIDENT OCCURRED ON THE CARRIAGEWAY
OFF	INCIDENT OCCURRED OFF THE CARRIAGEWAY

## Intended Action Of Crash Unit

---

Code	Description
01	Go straight ahead
02	Overtake
03	Make right turn
04	Make left turn
05	Make U Turn
06	Change lanes
07	Slow or stop
08	Start in lane
09	Start from parked

Code	Description
10	Reverse
11	Stay stopped
12	Remain parked
13	Enter Carriageway
14	Enter Roadway
21	Walk with traffic
22	Walk against traffic
23	Remain stationary
24	Push or work on vehicle
25	Other working
26	Playing
27	Cross carriageway
90	Miscellaneous
98	Unknown/not stated
99	Not applicable

## Licence Type

---

Code	Description
01	Open
02	Provisional
03	Learner
04	Never held a licence
05	Inappropriate Class
06	Cancelled, disqualified
07	Expired
08	Not licensed Australia
09	Restricted licence
10	unlicensed
98	Not known
99	Not applicable

## Nature Of Crash

---

Code	Description
01	Hit parked vehicle
02	Angle
03	Rear-end
04	Head-on
05	Sideswipe
06	Hit fixed obstruction or temporary object
07	Overtaken
08	Fall from moving vehicle (specify)
09	Motor cycle or pedal cycle overturn, fall or drop
10	Hit pedestrian
11	Hit animal incl. ridden horse or carriage
12	Struck by external load
13	Struck by internal load
91	Collision-miscellaneous
92	Non-collision-miscellaneous

## Restraint

---

Code	Description
01	Fitted-Worn
02	Fitted-Not Worn
03	Fitted-Unknown if Worn
04	Not Fitted
98	Unknown
99	Not Applicable

## Road User

---

Code	Description
01	Driver/Rider/Controller
02	Passenger

## Seating Position

---

Code	Description
01	Front Row Right (Driver)
02	Front Row Centre
03	Front Row Left
04	Second Row Right
05	Second Row Centre
06	Second Row Left
07	Third Row Right
08	Third Row Centre
09	Third Row Left
10	Back of ute, station wagon
11	Towed Device
12	Bus Passenger
98	Not Stated/Unknown
99	Not Applicable

## Severity Of Injury

---

Code	Description
1	FATAL
2	ADMITTED TO HOSPITAL
3	RECEIVED MEDICAL TREATMENT-NOT ADMITTED
4	MINOR INJURY-FIRST AID OR NO TREATMENT
5	PROPERTY DAMAGE ONLY

## Total Damage Indicator

---

Code	Description
01	Nil
02	Minor vehicle
03	Moderate-driveable
04	Moderate-towed away
05	Major-towed away
06	Extensive, unrepairable
98	Unknown
99	Not applicable

## Towing Description

---

Code	Description
01	Not Towing
02	Towing Caravan
03	Towing Box Trailer
04	Towing Boat Trailer
05	Towing Machinery
90	Towing, miscellaneous
98	Unknown/Not stated
99	Not applicable

## Traffic Control

---

Code	Description
01	Police
02	Road/Railway Worker
03	School Crossing Supervisor
04	Operating Traffic Lights
05	Flashing Amber Traffic Lights
06	Railway-Lights Only
07	Boom Gate
08	Stop Sign
09	Give Way
10	Railway Crossing Sign
11	Pedestrian Crossing
12	School Crossing-Flags Only
90	Miscellaneous
99	No Traffic Control



## Unit Type

---

Code	Description
01	Car, Station Wagon
02	Utility, Panel Van
03	Truck
04	Articulated Vehicle
05	Omnibus
06	Motor Cycle
07	Tractor
08	Towed Device (Caravan, trailer etc)
09	Bicycle
10	Pedestrian
11	Skateboard Rider/Rollerskates
12	Animal-ridden or animal conveyance
13	Animal-stock
14	Animal-other
15	Railway Rolling Stock
97	Other (specify)
98	Unknown/Not stated

## Vertical Road Alignment

---

Code	Description
1	Level
2	Grade
3	Crest
4	Dip

## DCA Code Sheet

00	10	20	30	40	50	60	70	80	90
PEDESTRIAN on foot, in tram	INTERSECTION vehicles from adjacent approaches	VEHICLES FROM OPPOSING DIRECTIONS	VEHICLES FROM ONE DIRECTION	MANOEUVRING	OVERTAKING	ON PATH	OFF PATH, ON STRAIGHT	OFF PATH, ON CURVE	PASSENGERS & MISCELLANEOUS
OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER	OTHER
1	NEAR SIDE 001	THRU-THRU 101	HEAD ON 201	REAR-END 301	LEAVING PARKING 401	PARKED 601	OFF CARRIAGEWAY TO LEFT 701	OFF CARRIAGEWAY RIGHT BEND 801	FELL INFROM VEHICLE 901
2	EMERGING 002	THRU-THRU 102	THRU-THRU 202	LEFT-REAR 302	OUT OF CONTROL 402	DOUBLE PARKED 602	OFF CARRIAGEWAY TO RIGHT 702	OFF CARRIAGEWAY LEFT BEND 802	
3	FAR SIDE 003	RIGHT-THRU 103	RIGHT-THRU 203	RIGHT-REAR 303	PULLING OUT 503	ACCIDENT OR BROKEN DOWN 603	LEFT OFF CARRIAGEWAY INTO OBJECT 703	OFF RIGHT BEND INTO OBJECT 803	HIT TRAIN 903
4	PLAYING, WORKING, LYING, STANDING ON CARRIAGEWAY 004	THRU-THRU 104	RIGHT-THRU 204	U-TURN 304	CUTTING IN 504	CAR DOOR 604	RIGHT OFF CARRIAGEWAY INTO OBJECT 704	OFF LEFT BEND INTO OBJECT 804	HIT RAILWAY XING FURNITURE 904
5	WALKING WITH TRAFFIC 005	THRU-THRU 105	THRU-THRU 205	REVERSING INTO FIXED OBJECT 405	PULLING OUT REAR END 505	HIT PERMANENT OBSTRUCTION 605	OUT OF CONTROL ON CARRIAGEWAY 705	OUT OF CONTROL ON CARRIAGEWAY 805	HIT ANIMAL, OFF CARRIAGEWAY 905
6	FACING TRAFFIC 006	LEFT-THRU 106	LEFT-THRU 206	LEAVING DRIVEWAY 406	OVERTAKING- RIGHT TURN 506	HIT ROADWORKS 606	LEFT TURN 706		PARKED VEHICLE RAN AWAY 906
7	DRIVEWAY 007	THRU-LEFT 107	U-TURN 207	FROM LOADING BAY 407		HIT TEMPORARY OBJECT ON CARRIAGEWAY 607	RIGHT TURN 707		VEHICLE MOVEMENTS NOT KNOWN 907
8	ON FOOTWAY 008	RIGHT-LEFT 108	RIGHT TURN B/S 308	FROM FOOTWAY 408			MOUNTS TRAFFIC ISLAND 708	MOUNTS TRAFFIC ISLAND 808	
9	STRUCK WHILE BOARDING OR ALIGHTING 009	LEFT-LEFT 109	LEFT TURN B/S 309			HIT ANIMAL 609			
10			PULLING OUT 310			LOAD HITS VEHICLE 610			

## TARP Code Groups

### Intersections

- Roundabouts are coded as unsignalled T or cross intersections depending on the geometry of the intersecting roads.
- Intersections with more than four legs are coded as cross intersections.
- Grade separated intersections are coded as T or cross intersections depending on the type of sub intersection which has most of the crashes.
- There should be a minimum of 5 records in any TARP code group to ensure a reasonable estimate of the critical rate.

<b>INTERSECTIONS</b>					
Low Speed Environment (< 80km/h)			High Speed Environment (>= 80km/h)		
TARP Code	Intersection Type	Control	TARP Code	Intersection Type	Road Type by AADT
1	Cross	No Signals	6	Cross	<300
2	Cross	Signals	7	Cross	300 - 1000
3	"T"	No Signals	8	Cross	1001 - 3000
4	"T"	Signals	9	Cross	>3000
5	Roundabout	All	10	Cross	Divided Roads
			11	"T"	<300
			12	"T"	300 - 1000
			13	"T"	1001 - 3000
			14	"T"	>3000
			15	"T"	Divided Roads
			16	Roundabout	All

## Road Segments

ROAD SEGMENTS					
Low Speed Environment (< 80km/h)			High Speed Environment (>= 80km/h)		
TARP Code	Road Type	Corresponding Model Road States	TARP Code	Road Type by AADT	Corresponding Model Road States
1	2 Lane, 2 Way	7 - 10	4	<300	5 - 6
2	Multi-lane	11 - 13	5	300 - 1000	7 - 10
3	Divided Roads	14 - 19	6	1001 - 3000	8 - 13
			7	>3000	8 - 13
			8	Divided Roads	14 - 19
			9	Unsealed	1 - 4

## Model Road State Codes

Model Road State	Description
1	Unformed
2	Formed
3	Paved <= 4.5m
4	Paved > 4.5m
5	Sealed <= 4.5 m - single lane seal
6	Sealed <= 5.2 m - single lane seal
7	Sealed <= 5.8 m - two lane seal
8	Sealed <= 6.4 m - two lane seal
9	Sealed <= 7.0 m - two lane seal
10	Sealed <= 9.1 m - two lane seal
11	Sealed <= 11.6 m - three lanes
12	Sealed <= 13.7 m - four lanes or more
13	Sealed > 13.7 m - four lanes or more
14	Sealed <= 9.1 m (x2) dual carriageway - four lanes
15	Sealed <= 9.1 m (x2) dual carriageway - limited access
16	Sealed <= 11.6 m (x2) dual carriageway - six lanes
17	Sealed <= 11.6 m (x2) dual carriageway - limited access
18	Sealed > 11.6 m (x2) dual carriageway - six lanes or more
19	Sealed > 11.6 m (x2) dual carriageway - limited access

# **Appendix G**

## **Risk Assessments**

# RISK ASSESSMENT CALCULATOR



Identify the hazards or risks of the work.

Assess the likelihood and consequences from the hazards or risks.


Control the hazards or risks using Control Options.

Legend		Control Options				
<b>E</b>	Extreme risk, immediate action required	<b>ELIMINATE</b> the process, material or substance completely.  <b>SUBSTITUTE</b> the process, material or substance with a safer one.  <b>ISOLATE</b> the person from the process, material or substance  <b>ENGINEER</b> the design out. Change the process, material or substance.  <b>ADMINISTRATE</b> with procedures or rules, or training.  <b>PPE – Use personal protective equipment</b>				
<b>H</b>	High risk, prioritised action required					
<b>M</b>	Moderate risk, planned action required					
<b>L</b>	Low risk, actioned by routine procedures					
<b>Likelihood</b>		Assess the likelihood and consequences from the hazards or risk				
		<b>Consequences</b>				
		<b>Insignificant</b> No Injury, 0 - low \$ loss	<b>Minor</b> First Aid Injury, low -medium \$ loss	<b>Moderate</b> Medical Treatment medium -high \$ loss	<b>Major</b> Serious Injuries, major \$ loss	<b>Catastrophic</b> Death, Huge \$ loss
<b>Almost Certain</b> <i>is expected to occur at most times</i>		H	H	E	E	E
<b>Likely</b> <i>will probably occur at most times</i>		M	H	H	E	E
<b>Possible</b> <i>might occur at some time</i>		L	M	H	E	E
<b>Unlikely</b> <i>could occur at some time</i>		L	L	M	H	E
<b>Rare</b> <i>may occur in rare circumstances</i>		L	L	M	H	E

# HAZARD REPORTING / RISK ASSESSMENT FORM

**Location of Hazard/Risk:** Guard rail inspections - Various state controlled roads

**Hazard / Risk / Issue:** Person being struck by vehicle whilst undertaking the inspection

<div>  <b>Assess the likelihood and consequences from the hazards or risks</b> </div>					
Likelihood	Consequences				
	Insignificant <i>No Injury, 0 – low \$ loss</i>	Minor <i>First Aid Injury, low - medium \$ loss</i>	Moderate <i>Medical Treatment medium –high \$ loss</i>	Major <i>Serious Injuries, Major \$ loss</i>	Catastrophic <i>Death, Huge \$ loss</i>
<b>Almost Certain</b> <i>Is expected to occur at most times</i>	H	H	E	E	E
<b>Likely</b> <i>Will probably occur at most times</i>	M	H	H	E	E
<b>Possible</b> <i>Might occur at Some time</i>	L	M	H	E	E
<b>Unlikely</b> <i>Could occur at Some time</i>	L	L	M	H	E
<b>Rare</b> <i>may occur in rare circumstances</i>	L	L	M	H	E

Circle the letter in the box below to indicate the resulting risk level.

Risk Level before Controls:	L	M	H	<b>E</b>
Combination:				Possible / Catastrophic

**CONTROLS** What controls can you put in place to eliminate or reduce the risk.

- All persons to wear high visibility vests / clothing
- All persons where possible to face oncoming traffic
- Walk clear of the road shoulder and traffic lanes when and where possible
- Where practicable and possible make assessments from behind the rail not from traffic side
- Be aware of other vehicles when entering / exiting own vehicle and at all times whilst out of vehicle


Now that you have got some controls in place, circle the letter in the box below to indicate the new risk level.

Risk Level after Controls:	L	M	H	<b>E</b>
Combination:				Possible / Catastrophic

# HAZARD REPORTING / RISK ASSESSMENT FORM

**Location of Hazard/Risk:** Guard rail inspections - Various state controlled roads

**Hazard / Risk / Issue:** Inspection vehicle collision with other vehicle whilst parked or entering / exiting site.

<div>  <b>Assess the likelihood and consequences from the hazards or risks</b> </div>						
Consequences						
Likelihood	Insignificant <i>No Injury, 0 – low \$ loss</i>	Minor <i>First Aid Injury, low - medium \$ loss</i>	Moderate <i>Medical Treatment medium –high \$ loss</i>	Major <i>Serious Injuries, Major \$ loss</i>	Catastrophic <i>Death, Huge \$ loss</i>	
	<b>Almost Certain</b> <i>Is expected to occur at most times</i>	H	H	E	E	E
	<b>Likely</b> <i>Will probably occur at most times</i>	M	H	H	E	E
	<b>Possible</b> <i>Might occur at Some time</i>	L	M	H	E	E
	<b>Unlikely</b> <i>Could occur at Some time</i>	L	L	M	H	E
	<b>Rare</b> <i>may occur in rare circumstances</i>	L	L	M	H	E

Circle the letter in the box below to indicate the resulting risk level.

Risk Level before Controls:	L	M	H	<b>E</b>
Combination:				Possible / Catastrophic

**CONTROLS** What controls can you put in place to eliminate or reduce the risk.

- Park vehicle well clear of roadway
- Have orange flashing light operating at all times when stationary, approaching and exiting sites
- If possible park vehicle clear of so that oncoming drivers are not 'visually confused' by congestion on side of road.

Now that you have got some controls in place, circle the letter in the box below to indicate the new risk level.

Risk Level after Controls:	L	M	H	<b>E</b>
Combination:				Possible / Catastrophic



# **Appendix H**

## **Photographs**



**Figure H1** – Noncompliant bridge approach and bridge rail, Esk Hampton Road. May 2005



**Figure H2** – Noncompliant End Treatment, Forest Hill Fernvale Road. May 2005





**Figure H3** – Noncompliant bridge connection, Forest Hill Fernvale Road. May 2005



**Figure H4** – Compliant guardrail, Forest Hill Fernvale Road. May 2005





**Figure H5** – Rotten Post, Forest Hill Fernvale Road. May 2005



**Figure H6** – Noncompliant end treatment, Gatton Helidon Road. April 2005





**Figure H7** – Noncompliant and damaged guardrail, Gatton Helidon Road. April 2005.



**Figure H8** – Substandard posts, Gatton Laidley Road. April 2005.





**Figure H9** – Trees and steep slope within clear zone of MELT, Mt Glorious Road. May 2005.



**Figure H10** – Noncompliant guardrail and end treatments, Warrego Highway Service Road. April 2005

# **Appendix I**

## **Prioritisation Database**

Prioritisation Database  
Esk, Gatton Laidley Shires

Shire	Road No.	Thru Dist	L/R	Struct. ID	Location/ Description	AADT	% Heavy Vehicles	Comments	Required Elements	Rectification Estimate (\$)	Prioritisation Tool Score	Priority Rank
75	312	10.96	L			1733	5.8	BARRIER REQUIRES URGENT UPGRADE - non existant due to accident damage - photographs	Replace rail with new standard - 2 x 20m rail, 2 :	\$ 7,400		1
114	314	5.95	L			6051	11.06	REMOVE NOT REQUIRED - NCTS - ADEQUATE CLEAR ZONE BEHIND RAIL	Remove Rail	\$ 1,000	50	1
75	312	7	L			1733	5.8	NOT REQUIRED REMOVE - NCTS - Adequate clear zone - Short section 20m length @ int of 412.	Remove Rail	\$ 500	45	1
114	314	5.66	L			6051	11.06	Rail incorrect height and length, No end terminals	20m rail, 2 x ET	\$ 14,800	55	2
114	314	9.97	L			5721	10.8	Incorrect Height & Length, require End Treatment	20m rail, 2 x MELT	\$ 7,400	55	2
114	314	9.97	R			5721	10.8	Incorrect Height & Length, require End Treatment	20m rail, 2 x MELT	\$ 7,400	55	2
114	314	13.02	R	25616		5721	10.8	Incorrect Height & Length, require End Treatment, timber posts	50m rail, 2 x MELT	\$ 11,000	55	2
114	314	13.02	L	25616		5721	10.8	Incorrect Height & Length, require End Treatment, timber posts	50m rail, 2 x MELT	\$ 11,000	55	2
114	314	17.27	L			5721	10.8	NTCS - incorrect height, incorrect post spacing, no terminals - Require ET - inadequate clear zone	30m rail, 2 x ET	\$ 13,600	55	2
114	314	17.27	R			5721	10.8	NTCS - incorrect height, incorrect post spacing, no terminals - Require ET - inadequate clear zone	30m rail, 2 x ET	\$ 13,600	55	2
75	308	19.31	B			1145	9.26	incorrect post spacing, timber posts, no end treatment, incorrect height & length	84m rail, 2 x MELT	\$ 15,080	50	3
75	308	21.68	B	25567		1145	9.26	incorrect post spacing, timber posts, no end treatment, incorrect height & length, no connection to bridge	4 x 20m rail, 4 x MELT ( L & R App & Dep)	\$ 21,600	50	3
75	311	0	L	215	Lagoon Gully No 1	4915	5.5	Incorrect height & length, No connection to bridge, terminal damaged in vehicle collision, Pedestrian movements	2 x 20m rail, 2 x MELT (App & Dep)	\$ 10,800	50	3
114	314	21.34	L			5721	10.8	Structural damage to MELT, Kerb under railing protruding into carriageway - require realignment	30m rail, 2 x MELT	\$ 8,600	50	3
75	412	8.38	B	262	Lockyer Creek	1169	12.12	Non standard height and length, no connection to bridge, no end treatment	4 x 20m rail, 4 x MELT	\$ 21,600	50	3
52	412	18.08	B	263	Blind Gully	1169	12.12	Requires breakaways and terminal ends at all approaches, non std height & length	4 x 20m rail, 4 x MELT	\$ 21,600	50	3
52	412	32.27	L			1221	9.2	Non standard length and height, terminal ends	500m rail, 2 x MELT	\$ 65,000	50	3
75	311	0	R	215	Lagoon Gully No 1	4915	5.5	Incorrect height & length, No connection to bridge, Power pole within clear zone (app), terminal damaged in vehicle collision	2 x 20m rail, 2 x MELT (App & Dep)	\$ 10,800	45	4
75	311	0.8	B			4915	5.5	BCT on ends but no flare - therefor no end treatment, rail compliant with standard	4 x MELT	\$ 10,000	45	4
75	311	1.2	B			4915	5.5	BCT on ends but no flare - therefor no end treatment, rail compliant with standard	4 x MELT	\$ 10,000	45	4
75	312	14.329	L	216	Laidley Creek	1733	5.8	Non standard height & length - terminals req'd	2 x 20m rail, 2 x MELT (App & Dep)	\$ 10,800	45	4
75	312	14.4	R	216	Laidley Creek	1733	5.8	Non standard height & length - terminals req'd	2 x 20m rail, 2 x MELT (App & Dep)	\$ 10,800	45	4
114	314	5.66	R			6051	11.06	Rail compliant with previous standard - Require end terminals	2 x MELT	\$ 5,000	45	4
114	314	6.86	R	231	Robinsons Bridge	6051	11.06	Incorrect connection to bridge, incorrect height, require end treatment - Use ET - No clear zone for MELT	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
114	314	6.86	L	231	Robinsons Bridge	6051	11.06	Incorrect connection to bridge, incorrect height, require end treatment - Use ET - No clear zone for MELT	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
114	314	9.553	R	230	Lockyer Creek	5721	10.8	Incorrect connection to bridge, incorrect height, require end treatment - Use ET - No clear zone for MELT	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
114	314	9.553	L	230	Lockyer Creek	5721	10.8	Incorrect connection to bridge, incorrect height, require end treatment - Use ET - No clear zone for MELT	2 x 20m rail, 2 x ET (App & Dep)	\$ 15,800	45	4
114	314	21.34	R			5721	10.8	Rail compliant with previous standard - require end treatment	2 x MELT	\$ 5,000	45	4
75	412	0.38	B	261	Laidley Creek	912	7.6	Non standard length and height, non standard connection to bridge, no end treatment	4 x 20m rail, 4 x MELT	\$ 21,600	40	5
52	414	0.45	B	266	Redbank Creek No 1	620	8.19	Non standard height and length, no bridge rail, no connection to bridge, no end treatments	4 x 20m rail, 4 x ET	\$ 31,600	40	5
52	414	3.2	B	267	Redbank Creek No 2	620	8.19	Non Standard height and length, wooden posts, no end treatments	4 x 20m rail, 4 x ET	\$ 31,600	40	5
52	414	10.55	B	268	Redbank Creek No 3	620	8.19	Non Standard height and length, wooden posts, no end treatments	4 x 20m rail, 4 x ET	\$ 31,600	40	5
52	414	12.066		269	Redbank Creek No 4	620	8.19	Non standard height and length, no bridge rail, no connection to bridge, no end treatments	4 x 20m rail, 4 x ET	\$ 31,600	40	5
52	414	12.258		270	Redbank Creek No 5	620	8.19	Non standard height and length, no connection to bridge, no end treatments	4 x 20m rail, 4 x ET	\$ 31,600	40	5
52	414	13.62	L			620	8.19	Non standard height and length, no end treatments	66m rail, 2 x MELT	\$ 12,920	40	5
52	414	15.22	L			620	8.19	Non standard height and length, no end treatments	42m rail, 2 x MELT	\$ 10,040	40	5
52	414	16.52	L			620	8.19	Non standard height and length, no end treatments	26m rail, 2 x MELT	\$ 8,120	40	5
52	414	16.62	L			620	8.19	Non standard height and length, no end treatments	96m rail, 2 x MELT	\$ 16,520	40	5
52	414	17.12	L			620	8.19	Non standard height and length, no end treatments	64m rail, 2 x MELT	\$ 12,680	40	5
52	414	17.34	R			620	8.19	Non standard height and length, no end treatments	62m rail, 2 x MELT	\$ 12,440	40	5
75	3083	12.2	L			801	8.4	Non standard rail, non standard height & length, timber posts	36m rail, 2 x MELT	\$ 9,320	40	5
75	3083	25.175		301	Laidley Creek	801	8.4	Non Standard Armco and rail, no connection to bridge, length & height	4 x 20m rail, 4 x MELT	\$ 21,600	40	5
52	410	0.4	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 120m rail , 4x ET	\$ 48,800	35	6
52	410	1.6	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	200m rail, 2 x ET	\$ 34,000	35	6
52	410	1.9	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 55m rail, 4 x ET	\$ 33,200	35	6
52	410	2.2	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x100m rail, 4 x ET	\$ 44,000	35	6
52	410	2.3	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	20m rail, 2 x ET	\$ 12,400	35	6
52	410	4.1	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 130m rail, 4 x ET	\$ 51,200	35	6
52	410	4.4	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 140m rail, 4 x ET	\$ 53,600	35	6
52	410	5.1	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 175m rail, 4 x ET	\$ 62,000	35	6
52	410	5.3	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 50m rail, 4 x ET	\$ 32,000	35	6
52	410	5.4	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 32m rail, 4 x ET	\$ 27,680	35	6
52	410	5.6	R			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	88m rail, 4 x ET	\$ 20,560	35	6
52	410	5.9	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 90m rail, 4 x ET	\$ 41,600	35	6
52	410	6.5	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 96m rail, 4 x ET	\$ 43,040	35	6
52	410	6.8	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 206m rail, 4 x ET	\$ 69,440	35	6
52	410	7.3	R			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	20m rail, 2 x ET	\$ 12,400	35	6
52	410	7.7	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	168m rail, 2 x ET	\$ 30,160	35	6
52	410	7.9	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 22m rail, 4 x ET	\$ 25,280	35	6
52	410	8.1	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	136m rail, 2 x ET	\$ 26,320	35	6
52	410	8.53	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	188m rail, 2 x ET	\$ 32,560	35	6
52	410	9.13	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 80m rail, 4 x ET	\$ 39,200	35	6
52	410	9.53	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 150m rail, 4 x ET	\$ 56,000	35	6
52	410	9.63	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	224m rail, 2 x ET	\$ 36,880	35	6
52	410	9.93	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	108m rail, 2 x ET	\$ 22,960	35	6
52	410	10.43	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 262m rail, 4 x ET	\$ 82,880	35	6
52	410	10.83	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 124m rail, 4 x ET	\$ 49,760	35	6
52	410	11.23	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	24m rail, 2 x ET	\$ 12,880	35	6
52	410	11.233	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 134m rail, 4 x ET	\$ 52,160	35	6
52	410	11.83	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	112m rail, 2 x ET	\$ 23,440	35	6
52	410	12.03	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	40m rail, 2 x ET	\$ 14,800	35	6
52	410	12.33	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 62m rail, 4 x ET	\$ 34,880	35	6
52	410	12.63	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	72m rail, 2 x ET	\$ 18,640	35	6
52	410	13.73	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 146m rail, 4 x ET	\$ 55,040	35	6
52	410	14.23	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 126m rail, 4 x ET	\$ 50,240	35	6
52	410	14.63	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 28m rail, 4 x ET	\$ 26,720	35	6
52	410	14.73	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	196m rail, 2 x ET	\$ 33,520	35	6
52	410	15.51	R			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	88m rail, 2 x ET	\$ 20,560	35	6
52	410	15.81	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	56m rail, 2 x ET	\$ 16,720	35	6
52	410	16.01	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	92m rail, 2 x ET	\$ 21,040	35	6
52	410	16.23	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	112m rail, 2 x ET	\$ 23,440	35	6
52	410	16.51	L			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	36m rail, 2 x ET	\$ 14,320	35	6
52	410	16.61	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 20m rail, 4 x ET	\$ 24,800	35	6
52	410	16.71	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 50m rail, 4 x ET	\$ 32,000	35	6
52	410	17.11	B			363	6.15	Incorrect Height, No end treatment, incorrect post spacing	2 x 208m rail, 4 x ET	\$ 69,920	35	6



## Prioritisation Database

### Esk, Gatton Laidley Shires

[illegible]

# **Appendix J**

## **Initial Prioritisation Tool**

Road Name: \_\_\_\_\_  
 Road Number: \_\_\_\_\_  
 Structure ID: \_\_\_\_\_  
 Through Chainage: \_\_\_\_\_  
 Left / Right: \_\_\_\_\_

AADT: \_\_\_\_\_  
 Heavy Vehicles (%): \_\_\_\_\_

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	< 3000	
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard <u>&amp;</u> has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment <u>&amp;</u> incorrect height <u>OR</u> short in length	
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				<b>TOTAL</b>	

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

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# **Appendix K**

## **Prioritisation Tool Assessment Results**

**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** 266 Redbank Creek No 1  
**Through Chainage:** 0.45  
**Left / Right:** Left & Right Approach & Departure

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment & incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height & length

No end treatments

No bridge rail

No connection to Bridge

Road Name: Esk Hampton Road  
Road Number: 414  
Structure ID: -  
Through Chainage: 0.85  
Left / Right: Left & Right

AADT: 620

Heavy Vehicles (%): 8.19

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	15
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height & length

BCT's

Incorrect post spacing

**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** 267 Redbank Creek No 2  
**Through Chainage:** 3.2  
**Left / Right:** Left & Right - Approach & Departure

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 40</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height & length

No end treatments

Wooden Posts

Incorrect connection to bridge

**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** 268 Redbank Creek No 3  
**Through Chainage:** 10.55  
**Left / Right:** Left & Right - Approach & Departure

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height & length

No end treatments      Some elements of rail damaged

Wooden Posts

Incorrect connection to bridge



**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** 269 Redbank Creek No 4  
**Through Chainage:** 12.066  
**Left / Right:** Left & Right - Approach & Departure

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height & length

No end treatments

No Bridge Rail

**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** 269 Redbank Creek No 5  
**Through Chainage:** 12.258  
**Left / Right:** Left & Right - Approach & Departure

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height & length

No end treatments

Incorrect connection to bridge

Road Name: Esk Hampton Road  
 Road Number: 414  
 Structure ID: -  
 Through Chainage: 13.62  
 Left / Right: Left

AADT: 620

Heavy Vehicles (%): 8.19

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	40

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height

No end treatments

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**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** -  
**Through Chainage:** 13.62  
**Left / Right:** Left

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 40</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height

No end treatments

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Road Name: Esk Hampton Road  
 Road Number: 414  
 Structure ID: -  
 Through Chainage: 16.52  
 Left / Right: Left

AADT: 620

Heavy Vehicles (%): 8.19

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	40

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height

No end treatments

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**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** -  
**Through Chainage:** 16.62  
**Left / Right:** Left

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height

No end treatments

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Road Name: Esk Hampton Road  
 Road Number: 414  
 Structure ID: -  
 Through Chainage: 17.12  
 Left / Right: Left

AADT: 620

Heavy Vehicles (%): 8.19

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	40

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height

No end treatments

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**Road Name:** Esk Hampton Road  
**Road Number:** 414  
**Structure ID:** -  
**Through Chainage:** 17.34  
**Left / Right:** Right

**AADT:** 620

**Heavy Vehicles (%):** 8.19

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 40</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non standard height

No end treatments

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Road Name: Forrest Hill Fernvale Road  
 Road Number: 412  
 Structure ID: 261 - Laidley Creek  
 Through Chainage: 0.38  
 Left / Right: Left - approach

AADT: 912

Heavy Vehicles (%): 7.6

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	40

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Bridge requires Bridge rail

Non compliant bridge connection

Rail length short

Road Name: Forrest Hill Fernvale Road  
 Road Number: 412  
 Structure ID: 261 - Laidley Creek  
 Through Chainage: 0.38  
 Left / Right: Right - approach

AADT: 912

Heavy Vehicles (%): 7.6

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Bridge requires Bridge rail

Non compliant bridge connection

Rail length short

Road Name: Forrest Hill Fernvale Road  
 Road Number: 412  
 Structure ID: 261 - Laidley Creek  
 Through Chainage: 0.38  
 Left / Right: Left - Departure

AADT: 912

Heavy Vehicles (%): 7.6

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Bridge requires Bridge rail

Non compliant bridge connection

Rail length short

**Road Name:** Forrest Hill Fernvale Road  
**Road Number:** 412  
**Structure ID:** 261 - Laidley Creek  
**Through Chainage:** 0.38  
**Left / Right:** Left - Departure

**AADT:** 912

**Heavy Vehicles (%):** 7.6

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>40</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Bridge requires Bridge rail

Non compliant bridge connection

Rail length short

Road Name: Forrest Hill Fernvale Road  
Road Number: 412  
Structure ID: 262 Kents Bridge  
Through Chainage: 8.38  
Left / Right: Left Approach

AADT: 1169

Heavy Vehicles (%): 12.12

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	15
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	15
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	50

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height

**Road Name:** Forrest Hill Fernvale Road  
**Road Number:** 412  
**Structure ID:** 262 Kents Bridge  
**Through Chainage:** 8.38  
**Left / Right:** Right Approach

**AADT:** 1169

**Heavy Vehicles (%):** 12.12

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height

**Road Name:** Forrest Hill Fernvale Road  
**Road Number:** 412  
**Structure ID:** 262 Kents Bridge  
**Through Chainage:** 8.38  
**Left / Right:** Left Departure

**AADT:** 1169

**Heavy Vehicles (%):** 12.12

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height

Road Name: Forrest Hill Fernvale Road  
 Road Number: 412  
 Structure ID: 262 Kents Bridge  
 Through Chainage: 8.38  
 Left / Right: Right Departure

AADT: 1169

Heavy Vehicles (%): 12.12

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	15
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	15
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	50

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height



**Road Name:** Forrest Hill Fernvale Road  
**Road Number:** 412  
**Structure ID:** 263 - Blind Gully  
**Through Chainage:** 18.007  
**Left / Right:** Left Approach

**AADT:** 1169

**Heavy Vehicles (%):** 12.12

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height

**Road Name:** Forrest Hill Fernvale Road  
**Road Number:** 412  
**Structure ID:** 263 - Blind Gully  
**Through Chainage:** 18.007  
**Left / Right:** Right Approach

**AADT:** 1169

**Heavy Vehicles (%):** 12.12

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height

**Road Name:** Forrest Hill Fernvale Road  
**Road Number:** 412  
**Structure ID:** 263 Blind Gully  
**Through Chainage:** 18.007  
**Left / Right:** Left Departure

**AADT:** 1169

**Heavy Vehicles (%):** 12.12

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height

**Road Name:** Forrest Hill Fernvale Road  
**Road Number:** 412  
**Structure ID:** 263 Blind Gully  
**Through Chainage:** 18.007  
**Left / Right:** Right Departure

**AADT:** 1169

**Heavy Vehicles (%):** 12.12

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No connection to bridge

Rail too short

No terminals

Incorrect height

Road Name: Forrest Hill Fernvale Road  
 Road Number: 412  
 Structure ID: -  
 Through Chainage: 32.27  
 Left / Right: Left

AADT: 1221

Heavy Vehicles (%): 9.2

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	15
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	15
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Rail & post in very bad condition

Timber posts - rotted

No terminals

Incorrect height

Road Name: Gatton Helidon Road

AADT: 6051

Road Number: 314

Structure ID: -

Heavy Vehicles (%): 11.06

Through Chainage: 5.66

Left / Right: Left

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	15
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	10
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

BCT used on Ends

Rail is compliant with previous standard

Require end treatments

**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** -  
**Through Chainage:** 5.66  
**Left / Right:** Right

**AADT:** 6051

**Heavy Vehicles (%):** 11.06

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 55</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Rail is incorrect height & length

No End treatments

Require ET's as no clear zone for MELT

Require end treatments

Road Name: Gatton Helidon Road  
 Road Number: 314  
 Structure ID: -  
 Through Chainage: 5.95  
 Left / Right: Left

AADT: 6051

Heavy Vehicles (%): 11.06

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	15
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	15
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

**Rail is not required no hazard within clear zone**



**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** 231 Robinsons Bridge  
**Through Chainage:** 6.86  
**Left / Right:** Left - Approach & Departure

**AADT:** 6051

**Heavy Vehicles (%):** 11.06

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>15</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height

Require end treatment

Required to use ET - No clear zone to provide MELT

**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** 231 Robinsons Bridge  
**Through Chainage:** 6.86  
**Left / Right:** Right - Approach & Departure

**AADT:** 6051

**Heavy Vehicles (%):** 11.06

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>15</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height

Require end treatment

Required to use ET - No clear zone to provide MELT

**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** 230 Lockyer Creek  
**Through Chainage:** 9.55  
**Left / Right:** Left - Approach & Departure

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>15</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height

Require end treatment

Required to use ET - No clear zone to provide MELT

**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** 230 Lockyer Creek  
**Through Chainage:** 9.55  
**Left / Right:** Left - Approach & Departure

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>15</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height

Require end treatment

Required to use ET - No clear zone to provide MELT

Road Name: Gatton Helidon Road  
 Road Number: 314  
 Structure ID: -  
 Through Chainage: 9.97  
 Left / Right: Left

AADT: 5721

Heavy Vehicles (%): 10.08

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	15
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>55</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect height & length

Require end treatment

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**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** -  
**Through Chainage:** 9.97  
**Left / Right:** Right

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 55</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect height & length

Require end treatment

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Road Name: Gatton Helidon Road  
 Road Number: 314  
 Structure ID: 25616  
 Through Chainage: 13.02  
 Left / Right: Left

AADT: 5721

Heavy Vehicles (%): 10.08

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	15
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>55</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect height & length

No end treatment

Timber Posts

**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** 25616  
**Through Chainage:** 13.02  
**Left / Right:** Right

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>55</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect height & length

Require end treatment

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**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** -  
**Through Chainage:** 17.27  
**Left / Right:** Right

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 55</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect height & length

Require end treatment - Not adequate clear zone require ET

Incorrect post spacing

**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** -  
**Through Chainage:** 17.27  
**Left / Right:** Right

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 55</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect height & length

Require end treatment - Not adequate clear zone require ET

Incorrect post spacing

**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** -  
**Through Chainage:** 17.27  
**Left / Right:** Left

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>15</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Structural damage to MELT - Replace

Kerb under rail is protruding into pavement - relainment required

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**Road Name:** Gatton Helidon Road  
**Road Number:** 314  
**Structure ID:** 25616  
**Through Chainage:** 13.02  
**Left / Right:** Right

**AADT:** 5721

**Heavy Vehicles (%):** 10.08

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>10</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Rail compliant with previous standard

Require end treatments

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Road Name: Gatton Laidley Road  
 Road Number: 312  
 Structure ID: -  
 Through Chainage: 7  
 Left / Right: Left

AADT: 1733

Heavy Vehicles (%): 5.8

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	15
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				TOTAL	45

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Located at intersection of road 412

**REMOVE BARRIER**

Barrier not required - not protecting any hazard

Rail supported by 4 sections of RHS

Road Name: Gatton Laidley Road  
 Road Number: 312  
 Structure ID: -  
 Through Chainage: 10.96  
 Left / Right: Left

AADT: 1733

Heavy Vehicles (%): 5.8

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	15
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment <u>&amp;</u> incorrect height <u>OR</u> short in length	
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	25

Correct score not possible

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Barrier has been destroyed in vehicle accident - replace with current standards

**REPLACE RAIL WITH CURRENT STANDARDS**

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Road Name: Gatton Laidley Road  
Road Number: 312  
Structure ID: 216 - Laidley Creek  
Through Chainage: 14.4  
Left / Right: Left - approach

AADT: 1733

Heavy Vehicles (%): 5.8

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	15
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	45

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non correct height

Non correct length

Non standard connection to bridge

Road Name: Gatton Laidley Road  
Road Number: 312  
Structure ID: 216 - Laidley Creek  
Through Chainage: 14.4  
Left / Right: Right - approach

AADT: 1733

Heavy Vehicles (%): 5.8

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	15
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				TOTAL	45

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non correct height

Non correct length

Non standard connection to bridge



**Road Name:** Gatton Laidley Road  
**Road Number:** 312  
**Structure ID:** 216 - Laidley Creek  
**Through Chainage:** 14.4  
**Left / Right:** Left - Departure

**AADT:** 1733

**Heavy Vehicles (%):** 5.8

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non correct height

Non correct length

Non standard connection to bridge

**Road Name:** Gatton Laidley Road  
**Road Number:** 312  
**Structure ID:** 216 - Laidley Creek  
**Through Chainage:** 14.4  
**Left / Right:** Right - Departure

**AADT:** 1733

**Heavy Vehicles (%):** 5.8

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Non correct height

Non correct length

Non standard connection to bridge

Road Name: Laidley Plainlands Road  
Road Number: 311  
Structure ID: 215 - Norman Bridge  
Through Chainage: 0  
Left / Right: Left Approach

AADT: 4915

Heavy Vehicles (%): 5.5

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Not connected to bridge

Require protection for pedestrians

Incorrect height & length

No end treatment

**Road Name:** Laidley Plainlands Road  
**Road Number:** 311  
**Structure ID:** 215 - Norman Bridge  
**Through Chainage:** 0  
**Left / Right:** Right Approach

**AADT:** 4915

**Heavy Vehicles (%):** 5.5

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>15</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Power pole within clear zone of terminal

Terminal has been damaged by vehicle collision

Incorrect height

**Road Name:** Laidley Plainlands Road  
**Road Number:** 311  
**Structure ID:** 215 - Norman Bridge  
**Through Chainage:** 0  
**Left / Right:** Left Departure

**AADT:** 4915

**Heavy Vehicles (%):** 5.5

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Not connected to bridge

Require protection for pedestrians

Incorrect height & length

No end treatment

**Road Name:** Laidley Plainlands Road  
**Road Number:** 311  
**Structure ID:** 215 - Norman Bridge  
**Through Chainage:** 0  
**Left / Right:** Right Departure

**AADT:** 4915

**Heavy Vehicles (%):** 5.5

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>20</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect height & length

No end treatments

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Road Name: Laidley Plainlands Road  
 Road Number: 311  
 Structure ID: -  
 Through Chainage: 0.8  
 Left / Right: Left

AADT: 4915

Heavy Vehicles (%): 5.5

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	15
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

BCT used - no flare - therefore no end treatment

Complaint with std for height, length & posts

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Road Name: Laidley Plainlands Road  
 Road Number: 311  
 Structure ID: -  
 Through Chainage: 0.8  
 Left / Right: Right

AADT: 4915

Heavy Vehicles (%): 5.5

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	15
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

BCT used - no flare - therefore no end treatment

Complaint with std for height, length & posts

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Road Name: Laidley Plainlands Road  
 Road Number: 311  
 Structure ID: -  
 Through Chainage: 0.8  
 Left / Right: Left

AADT: 4915

Heavy Vehicles (%): 5.5

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	15
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

BCT used - no flare - therefore no end treatment

Complaint with std for height, length & posts

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Road Name: Laidley Plainlands Road  
 Road Number: 311  
 Structure ID: -  
 Through Chainage: 0.8  
 Left / Right: Right

AADT: 4915

Heavy Vehicles (%): 5.5

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	20
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	15
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>45</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

BCT used - no flare - therefore no end treatment

Complaint with std for height, length & posts

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Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: 303  
 Through Chainage: 0.8  
 Left / Right: Left

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	10
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				<b>TOTAL</b>	<b>30</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

BCT as terminal

Compliant with previous standard

Rail Full length over bridge

Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: 303  
 Through Chainage: 0.8  
 Left / Right: Right

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	10
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				<b>TOTAL</b>	<b>30</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

BCT as terminal

Compliant with previous standard

Rail Full length over bridge

**Road Name:** Mulgowie Road  
**Road Number:** 3083  
**Structure ID:** 25730  
**Through Chainage:** 2.518  
**Left / Right:** Left - Approach

**AADT:** 801

**Heavy Vehicles (%):** 8.4

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>10</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>5</b>
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				<b>TOTAL</b>	<b>25</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No delineation

Compliant with standard

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Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: 25730  
 Through Chainage: 2.518  
 Left / Right: Right - Approach

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	5
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				TOTAL	25

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No delineation

Compliant with standard

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Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: 25730  
 Through Chainage: 2.518  
 Left / Right: Left - Departure

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	5
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				<b>TOTAL</b>	<b>25</b>

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No delineation

Compliant with standard

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Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: 25730  
 Through Chainage: 2.518  
 Left / Right: Right - Departure

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	5
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				TOTAL	25

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No delineation

Compliant with standard

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Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: -  
 Through Chainage: 12.2  
 Left / Right: Left

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.					TOTAL 40

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Straight run of rail

post spacing 4m

no flare or end treatment

timber posts

Road Name: Mulgowie Road  
Road Number: 3083  
Structure ID: 301 - Peacock Bridge  
Through Chainage: 25.175  
Left / Right: Left - App & Dep

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				TOTAL	40

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No Bridge Rail      No connection to bridge

No end treatments      incorrect height

Short in length

Timber posts

Road Name: Mulgowie Road  
 Road Number: 3083  
 Structure ID: 301 - Peacock Bridge  
 Through Chainage: 25.175  
 Left / Right: Right - App & Dep

AADT: 801

Heavy Vehicles (%): 8.4

Points	5	10	15	20	Allocated Score
AADT (current year)	<500	500 - 1000	1001 - 3000	> 3000	10
Traffic Composition (% Heavy Vehicles)	<4	4-8	9-13	>13	10
Rail Standard	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <u>OR</u> no end treatment <u>OR</u> short in length <u>OR</u> incorrect height <u>OR</u> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <u>OR</u> no end treatment & incorrect height <u>OR</u> short in length	20
<b>Note:</b> If guard rail is compliant with current standard then no assessment is required.				TOTAL	40

#### Abbreviations

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

No Bridge Rail      No connection to bridge

No end treatments      incorrect height

Short in length

Timber posts

**Road Name:** Rosewood Laidley Road  
**Road Number:** 308  
**Structure ID:** -  
**Through Chainage:** 19.31  
**Left / Right:** L

**AADT:** 1145

**Heavy Vehicles (%):** 9.26

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	< 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

incorrect post spacing

No end treatments

Incorrect height & length

Timber posts

**Road Name:** Rosewood Laidley Road  
**Road Number:** 308  
**Structure ID:** 25567 - Laidley Creek  
**Through Chainage:** 21.68  
**Left / Right:** Left Approach

**AADT:** 1145

**Heavy Vehicles (%):** 9.26

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	< 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height & length

No end treatments

No bridge rail

**Road Name:** Rosewood Laidley Road  
**Road Number:** 308  
**Structure ID:** 25567 - Laidley Creek  
**Through Chainage:** 21.68  
**Left / Right:** Right Approach

**AADT:** 1145

**Heavy Vehicles (%):** 9.26

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	< 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height & length

No end treatments

No bridge rail

**Road Name:** Rosewood Laidley Road  
**Road Number:** 308  
**Structure ID:** 25567 - Laidley Creek  
**Through Chainage:** 21.68  
**Left / Right:** Left Departure

**AADT:** 1145

**Heavy Vehicles (%):** 9.26

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	< 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height & length

No end treatments

No bridge rail

**Road Name:** Rosewood Laidley Road  
**Road Number:** 308  
**Structure ID:** 25567 - Laidley Creek  
**Through Chainage:** 21.68  
**Left / Right:** Right Departure

**AADT:** 1145

**Heavy Vehicles (%):** 9.26

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	< 3000	<b>15</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>15</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>50</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect connection to bridge

Incorrect height & length

No end treatments

No bridge rail



**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 0.4  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 1.6  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 1.9  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 2.2  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 2.3  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 4.1  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 4.4  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 5.1  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing



**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 5.3  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 5.4  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 5.6  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 5.9  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 6.5  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 6.8  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 7.3  
**Left / Right:** Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 7.7  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing



**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 7.9  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 8.1  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 8.53  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 9.13  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 9.53  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 9.63  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 9.93  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 10.43  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing



**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 10.83  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 11.23  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 11.233  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 11.83  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 12.03  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 12.33  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 12.63  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 12.93  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing



**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 13.73  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 14.23  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 14.63  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 14.73  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 15.51  
**Left / Right:** Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 15.81  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 16.01  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 16.23  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.					<b>TOTAL 35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing



**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 16.51  
**Left / Right:** Left

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 16.61  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 16.71  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 17.11  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 17.71  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 23.11  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 27.41  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing

**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 33.31  
**Left / Right:** Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing



**Road Name:** Wivenhoe Somerset Road  
**Road Number:** 410  
**Structure ID:** -  
**Through Chainage:** 35.31  
**Left / Right:** Left & Right

**AADT:** 363

**Heavy Vehicles (%):** 6.15

Points	5	10	15	20	Allocated Score
<b>AADT (current year)</b>	<500	500 - 1000	1001 - 3000	> 3000	<b>5</b>
<b>Traffic Composition (% Heavy Vehicles)</b>	<4	4-8	9-13	>13	<b>10</b>
<b>Rail Standard</b>	No Delineation Guard Rail is compliant with current standard	Guard Rail is compliant with previous required standard & has some form of end treatment eg flare, BCT	Guard Rail is not compliant with current or previous standard <b>OR</b> no end treatment <b>OR</b> short in length <b>OR</b> incorrect height <b>OR</b> incorrect post spacing	Guard Rail is not compliant with current or previous standard has timber posts <b>OR</b> no end treatment <b>&amp;</b> incorrect height <b>OR</b> short in length	<b>20</b>
<b>Note:</b> If guard rail is compliant with current standard then no no assessment is required.				<b>TOTAL</b>	<b>35</b>

**Abbreviations**

AADT - Annual Average Daily Traffic

BCT - Breakaway Cable Terminal

Comments:

Incorrect Height & Length

No End Terminals - Require ET's inadequate clear zone

Incorrect post spacing