Appendix G

Transport and Traffic Impact Assessment

Sportsmans Creek new bridge
Lawrence NSW
Preferred Option Report
Transport and Traffic Assessment for Review of Environmental Factors

transport planning, design and delivery

1351353000 03/02/15

GTAconsultants

Sportsmans Creek new bridge

Lawrence NSW

Preferred Option Report

Transport and Traffic Assessment for Review of Environmental Factors

Issue: A 03/02/15

Client: Kellogg Brown Root Pty Ltd for
NSW Roads and Maritime Services
Reference: 13S1353000
GTA Consultants Office: NSW

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	03/02/15	Final	R Manahan	D van den Dool	D van den Dool	

GTAconsultants
MELBOURNE · SYDNEY · BRISBANE · CANBERRA
ADELAIDE · GOLD COAST · TOWNSVILLE
www.gta.com.au

Table of Contents

Appendices

Figures

Tables

1. Introduction

1.1 Background

Sportsmans Creek is located in Clarence Valley Council local government area, south of the township of Lawrence, and runs east-west as a tributary of the Clarence River.

The existing Sportsmans Creek bridge in Lawrence NSW is located at the southern approach to the township, on Bridge Street. It forms part of the Grafton-Lawrence Road, which in turn is a section of Tourist Route 22 between Grafton, Maclean and Yamba.

The existing bridge structure has geometry and design limitations which makes it unable to be safely and cost-effectively serviced and upgraded to cater for the haulage requirements of the surrounding agricultural industries, local traffic, as well as to accommodate pedestrian and cyclist access.

Therefore, as part of the NSW state-wide Roads and Maritime Timber Truss Bridge Conservation Strategy, Sportsmans Creek bridge would be removed and replaced with a new structure. The project is funded as part of the $290 million 'Bridges for the Bush' initiative – a NSW Government commitment to improving road freight productivity by replacing or upgrading bridges over the next five years. This is also an integral part of the NSW Long Term Transport Master Plan.

In July 2013, Roads and Maritime Services (Roads and Maritime) held two community drop-in sessions in Lawrence to discuss options for a new bridge location. The sessions were attended by about 40 community members who provided input about road safety, community impacts and local properties and businesses.

A wide range of possible bridge locations were considered. Technical studies examined potential impacts including flooding, noise, traffic and environment with results detailed in the *Sportsmans Creek new bridge – Recommended Option Report* (November 2013).

The Recommended Option is to build a new bridge west of the existing Sportsmans Creek bridge and boat ramp. It would connect the Grafton-Lawrence Road with Bridge Street via Grafton Street.

The Recommended Option included a number of alternatives for intersection treatments, for which Roads and Maritime sought further community input as well as technical design considerations. These are outlined in the November 2013 Community Update[1] for the project, and involve:

- Configuration of the Grafton/Bridge Street intersection and the intersections with Riverbank Road and Weir Road.
- Treatment of the southern end of Bridge Street following removal of the existing bridge.

The outcomes of the community consultation and the results of the technical studies informed the development of the Preferred Option for Sportsmans Creek new bridge.

[1] Accessible via the Roads and Maritime Services project website.

1.2 Purpose of this report

This transport and traffic assessment forms part of the project's Review of Environmental Factors (REF). It report sets out an assessment of the anticipated transport, traffic and access implications of the Preferred Option for Sportsmans Creek new bridge.

It discusses the existing transport situation, issues, constraints and needs including traffic and transport demand, access and safety in relation to population growth and development, and assesses the operational impacts of the transport network as a result of the full implementation of the Preferred Option. It also outlines a preliminary assessment of potential impacts during the construction of the new bridge.

1.3 Report structure

Following this Introduction, the remainder of this report is set out as follows:

- Chapter 2 – Existing transport and traffic conditions
- Chapter 3 – Preferred bridge option
- Chapter 4 – Impacts during operation
- Chapter 5 – Impacts during construction
- Chapter 6 – Summary and recommendations.

1.4 References

In the preparation of this report, reference has been made to the following:

- Valley Vision 2020. Clarence Valley Council. 2008.
- Demolition of Existing Bridge and Construction of New Bridge Over Sportsman's Creek Lawrence – Environmental Impact Statement. Roads and Traffic Authority, May 2002.
- Sportsmans Creek Bridge Lawrence Investigation - Advantages & Disadvantages of Options. Clarence Valley Council, 2000.
- Clarence River Way Masterplan. Clouston Associates, February 2009.
- Mid North Coast Regional Strategy 2006-2031. NSW Department of Planning, March 2009.
- Mid North Coast Regional Transport Plan. Transport for NSW, December 2013.

2. Existing transport and traffic conditions

2.1 Road network

2.1.1 Regional roads

The Pacific Highway (Route A1) forms the key regional route in the Clarence Valley, and provides a high-capacity road link between Grafton and Maclean and further to the north to Brisbane.

The Summerland Way (Route B91) forms an inland regional route linking Grafton with Casino and Kyogle.

Between Grafton and Maclean, the Grafton-Lawrence Regional Road (MR 152) forms an alternative route to the Pacific Highway, running west of the Clarence River through Lawrence.

Forming part of the alternate route between Grafton and Maclean is a ferry crossing of the Clarence River between Bluff Point in Lawrence and the Woodford Dale Road on Woodford Island, linking with Lawrence Road and Macfarlane bridge to Maclean and beyond to Yamba. The existing Sportsmans Creek bridge forms part of the Grafton-Yamba Regional Road (MR 152) route. See Figure 2.1.

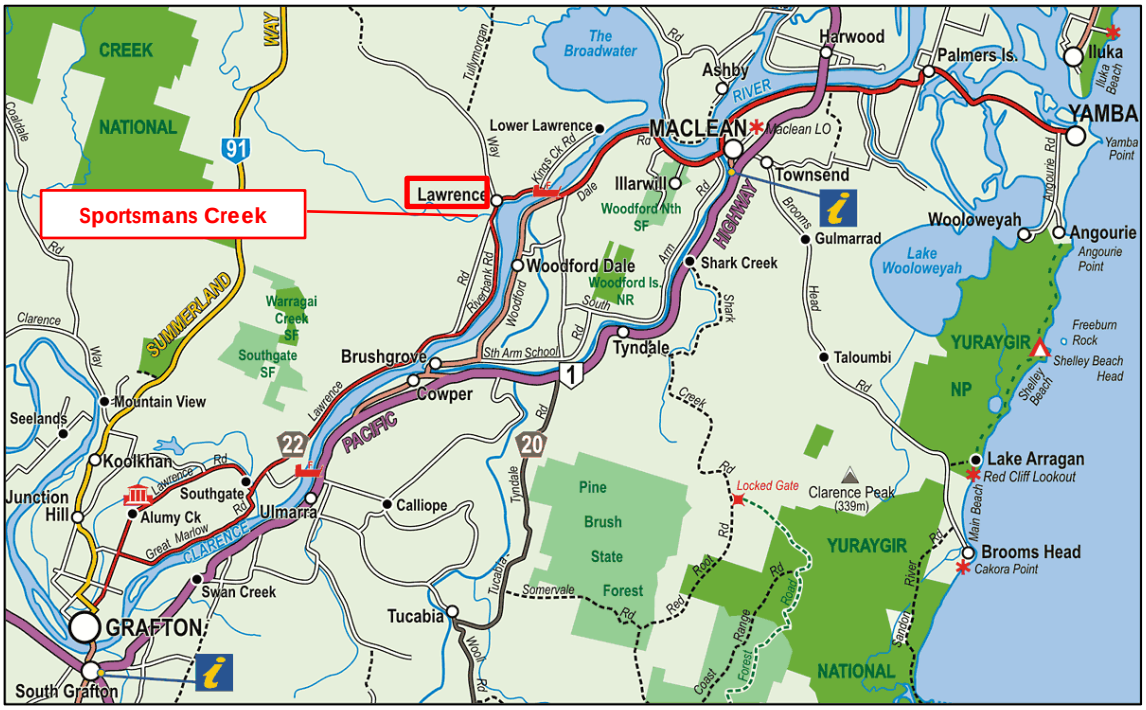


Figure 2.1: Regional Road Network

Source: Clarence Valley Tourism

2.1.2 Local roads

Key local roads in Lawrence include Bridge Street, Grafton Street and Rutland Street. Figure 2.2 shows the context of the key local roads in Lawrence, key features and the extent of the study area.

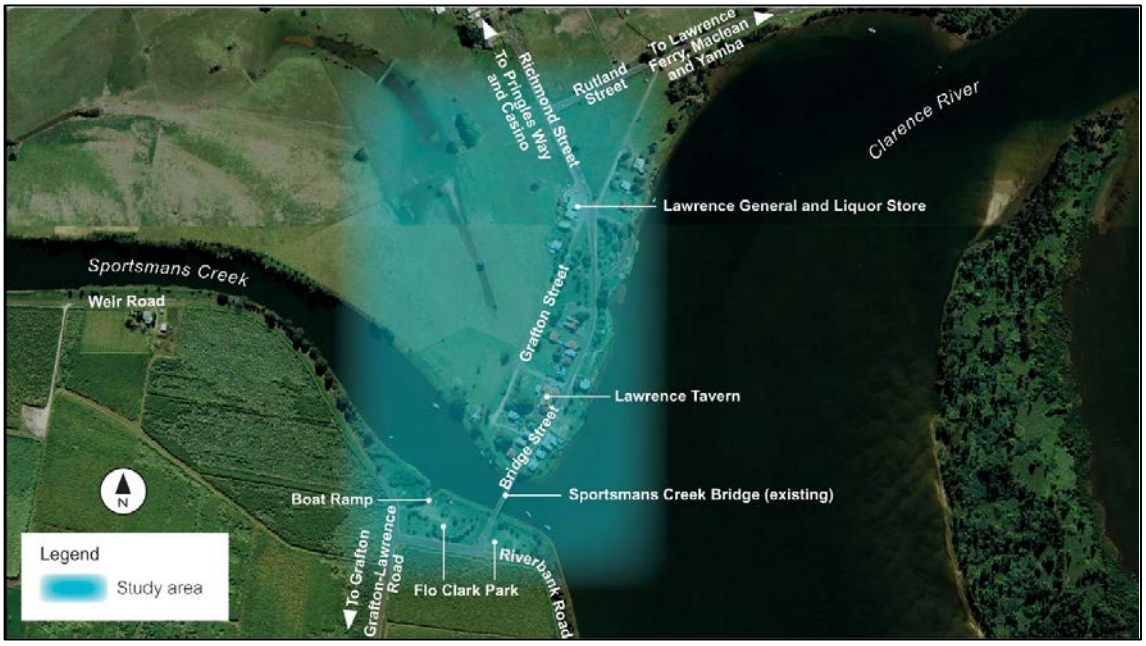


Figure 2.2: Local Road Network in Study Area

Source: Roads and Maritime Services

Bridge Street

Bridge Street is a regional road providing property access in the Lawrence village centre. It also forms part of the Grafton-Yamba route and as such carries a relatively high volume of through traffic, via Rutland Street to the Bluff Point Ferry. It consists of a 10 metre wide road reserve.

Bridge Street runs in a north-south manner with the existing Sportsmans Creek bridge at the south end. Its northern end intersects with Rutland Street and Grafton Street, where the Lawrence General and Liquor Store is located.

Figure 2.4 shows an image of Bridge Street immediately north of Sportsmans Creek bridge.

Grafton Street

Grafton Street runs parallel and to the west of Bridge Street, with the south end terminating at the approach to Sportsmans Creek. It consists of a 20 metre wide road reserve.

Grafton Street mainly functions as rear access to properties fronting Bridge Street on the eastern side of Grafton Street. The western side is largely undeveloped.

Figure 2.5 shows an image of Grafton Street looking north towards the Lawrence General Store.

Rutland Street

Rutland Street provides the link to Bluff Point Ferry, about 1 kilometre north east of the Lawrence village centre.

Figure 2.6 shows an image of Rutland Street from the vicinity of the Richmond Street/Bridge Street intersection.

Figure 2.3: Grafton-Lawrence Road (looking north)

Figure 2.4: Bridge Street (looking north)

Figure 2.5: Grafton Street (looking north)

Figure 2.6: Rutland Street (looking north)

2.1.3 Heavy vehicles

Heavy vehicle movements in Lawrence is primarily comprised of seasonal sugarcane haulage activities generally operating from May to December.

There is a total of 300 hectares of cane plantations to the south of Sportsmans Creek with 40,000 tonnes (about 3,720 trips) of harvested cane transported across the existing bridge towards Bluff Point Ferry to the north, and then to the Harwood Sugar Mill each season.

Significant seasonal cane haulage activities rely on this bridge for efficient access. The alternative heavy vehicle route between the cane plantations and the Harwood Sugar Mill would be via a long detour of at least 75 kilometres through Grafton. With the current load limitation of the existing bridge, the viability of this important economic activity is at risk.

2.2 Vehicle ferry

The Bluff Point Ferry is a cable ferry linking Rutland Street and Bluff Point on the Lawrence side and the Woodford Dale Road – Lawrence Road junction on Woodford Island. It forms part of the transport link between Lawrence and Maclean along Tourist Drive 22, and is used by more than 800 vehicles daily, which is between 70 and 80 per cent of the traffic volume on the existing Sportsmans Creek bridge.

The ferry operates 24 hours a day, seven days a week. The ferry stops for maintenance every Tuesday from 9.30am to 11am. However, there is no interruption to service during maintenance periods as two ferries are available at this crossing.

The Bluff Point Ferry has recently been upgraded to provide a higher capacity vessel in what is reputed to be the busiest vehicle ferry in Australia. From the previous 35,000 vehicles a month, the ferry's capacity is now 46,800 vehicles a month.

Figure 2.7 shows the context of the Bluff Point Ferry and Sportsmans Creek bridge in Lawrence.

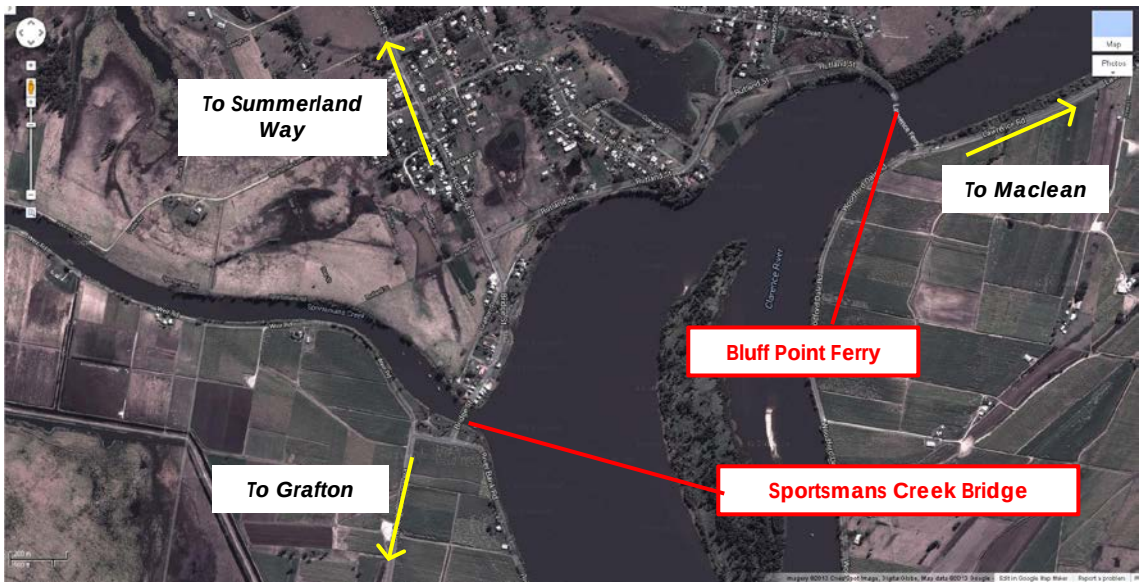


Figure 2.7: River Crossings in Lawrence
Base Map source: Google Maps

2.3 Public transport

Public transport services in Lawrence is provided by Lawrence Bus Service, which operates two routes:

Route 384: Lawrence to Grafton

- A daily weekday AM service to Grafton departing at 7:45am and arriving at 8:30am.
- An additional Town Bus AM service to Grafton on Tuesdays and Fridays, departing 9:30am and arriving at 10:10am.
- A daily weekday PM service from Grafton departing at 3:10pm and arriving at 4:10pm.
- An additional Town Bus PM service from Grafton on Tuesdays and Fridays, departing at 2:00pm and arriving at 2:30pm.
- No services operate on public holidays.

Route 385: Lawrence to Maclean

- A daily weekday AM service to Maclean departing at 7:45am and arriving at 8:45am.
- An additional Town Bus AM service to Maclean on Thursdays, departing 10:30am and arriving at 11:00am.
- A weekday PM service from Maclean at departing at 3:20pm and arriving at 4:10 pm.
- An additional Town Bus PM service from Maclean on Tuesdays and Fridays, departing at 2:00pm and arriving at 2:30pm.

- No services operate on public holidays.

Site observations indicate that the main bus stop in Lawrence is outside the Lawrence General Store, although no formal bus passenger facilities are provided.

2.4 Walking and cycling

There are no designated cycleways in Lawrence. No formal footpaths exist in the study area either.

2.5 Traffic volumes and patterns

Traffic volume counts were undertaken in Lawrence for a two-week period in February 2013 and for a one-week period in December 2013 as part of the assessment for the project.

2.5.1 Hourly variation

Key findings from the traffic counts in terms of hourly variation include:

February 2013

- Two-way average daily traffic of 1,032 vehicles per day, almost evenly split between northbound and southbound
- Average heavy vehicle composition (Austroads Class 3 and above) of 7.4 per cent
- Average AM peak hour (8:00-9:00) volume of 96 vehicles
- Weekday AM peak hour (8:00-9:00) volume of 113 vehicles
- Average PM peak hour (16:00-17:00) volume of 91 vehicles
- Weekday PM peak hour (16:00-17:00) volume of 94 vehicles.

December 2013

- Two-way average daily traffic of 1,186 vehicles per day, almost evenly split between northbound and southbound
- Average heavy vehicle composition of 8.6 per cent
- Average AM peak hour (8:00-9:00) volume of 94 vehicles
- Weekday AM peak hour (8:00-9:00) volume of 107 vehicles
- Average PM peak hour (16:00-17:00) volume of 103 vehicles
- Weekday PM peak hour (16:00-17:00) volume of 115 vehicles

Figure 2.8 shows the hourly variation of average daily traffic volumes across Sportsmans Creek bridge in February 2013, while Figure 2.9 shows that for December 2013.

Previous counts undertaken in 2002 indicate that the traffic volume measured 1,061 vehicles per day (vpd), with heavy vehicles comprising 10.2% of the volume. While not specifying when in 2002 the counts were undertaken, it is understood that heavy vehicle traffic is influenced by seasonal sugarcane haulage activities (June to December).

Significant seasonal sugarcane haulage activities rely on Sportsmans Creek bridge for access. A total of 300 hectares of sugar cane plantations exist to the south of Sportsmans Creek, with 40,000 tonnes (3,720 trips) of harvested cane transported across the bridge. Activities relating to sugarcane harvest are generally scheduled, as equipment and heavy vehicle fleet capacities also play a role in controlling the peaks.

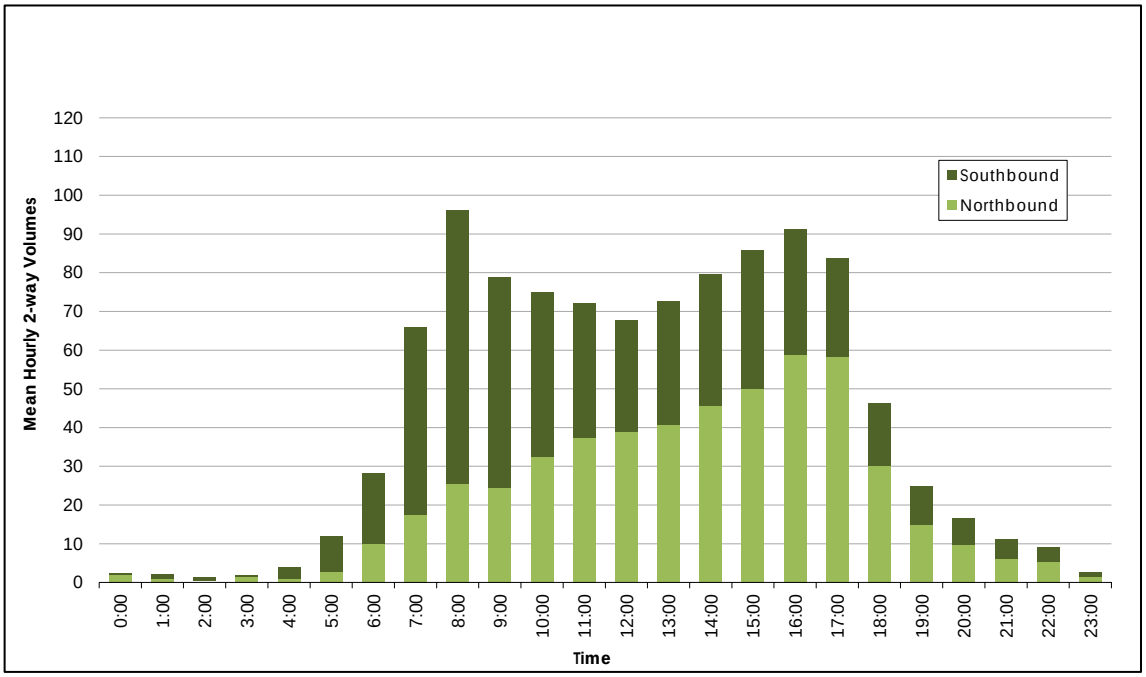


Figure 2.8: Sportsmans Creek bridge – Average Hourly Traffic Volumes, 6-19 February 2013

Data source: Roads and Maritime Services

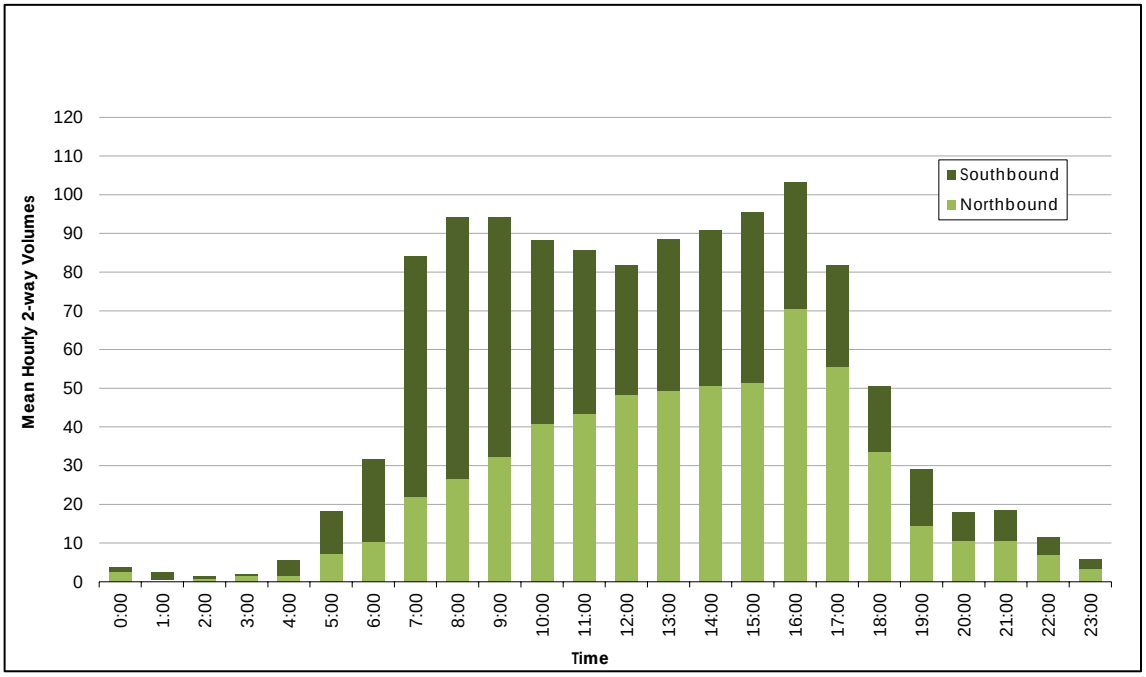


Figure 2.9: Sportsmans Creek bridge – Average Hourly Traffic Volumes, 9-15 December 2013

Data source: Austraffic

2.5.2 Daily variation

In terms of the variation of total daily traffic, the February 2013 and December 2013 counts indicate the following:

February 2013

- Two-way average daily traffic of 1,113 during the week, and 829 during the weekend
- Busiest day was on a Thursday, with more than 1,200 vehicles, which was about 8.6 per cent higher than the weekday average.
- Heavy vehicle volumes averaged about 93 during the week, and between 30 and 40 during the weekend.

December 2013

- Two-way average daily traffic of 1,278 during the week, and 957 during the weekend
- Busiest day was on a Friday, with a total daily volume of 1,327 vehicles, which was less than 4 per cent higher than the average daily weekday volume.
- The variability of total daily traffic during the week was less when compared with the February 2013 counts.
- Heavy vehicle volumes averaged about 114 during the week, and between 60 to more than 80 during the weekend.
- Figure 2.8 shows the hourly variation of average daily traffic volumes across Sportsmans Creek bridge in February 2013, while Figure 2.9 shows that for the December 2013 counts.

Figure 2.10 shows the daily variation of traffic volumes across Sportsmans Creek bridge in February 2013, while Figure 2.11shows that for the December 2013.

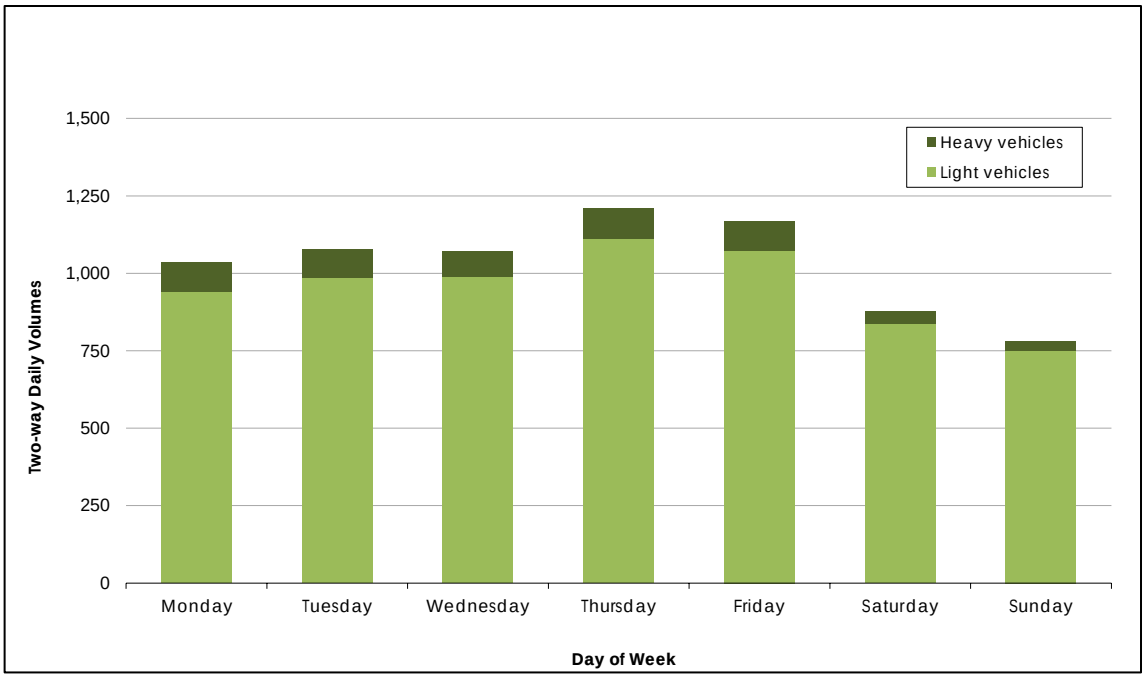


Figure 2.10: Sportsmans Creek bridge – Daily Traffic Volume Variation, 6-19 February 2013
Data source: Roads and Maritime Services

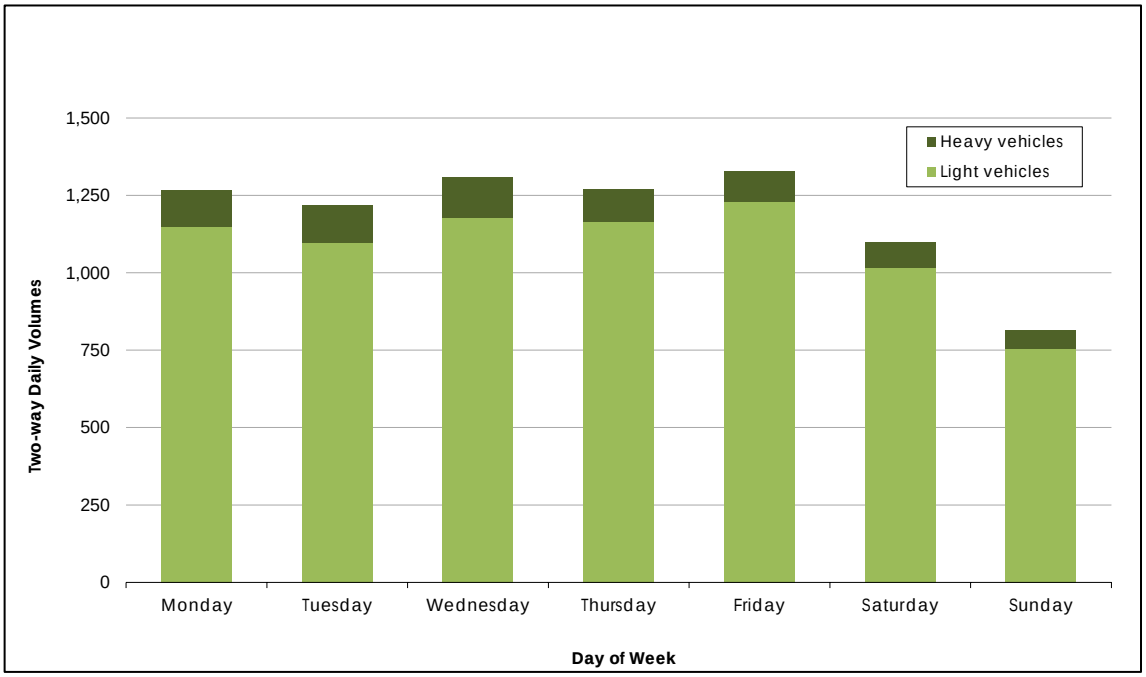


Figure 2.11: Sportsmans Creek bridge – Daily Traffic Volume Variation, 9-15 December 2013
Data source: Austraffic

2.5.3 Traffic growth

A review of previous traffic counts in Lawrence indicate that traffic growth over the period 1970 to 1990 was at an average of 1.1 per cent per annum. More recent traffic counts undertaken in 2002 indicated that traffic volume over the bridge is expected to increase at an annual growth rate of up to 2.5% per annum for the next 25 years.

2.6 Operational assessment

2.6.1 Mid-block capacity

The *Guide to Traffic Management – Part 3: Traffic Studies and Analysis* (Austroads, 2013) provides typical mid-block capacities for two-lane two-way roads such as Bridge Street in Lawrence. The capacity analysis process in the Austroads Guide, in turn, is based on the *Highway Capacity Manual* (HCM) published by the Transport Research Board (2010).

Bridge Street could be categorised as a Class II two-lane two-way road, "*on which motorists do not necessarily expect to travel at high speeds. Two-lane highways that function as access routes to Class I facilities* (two-lane highways on which motorists expect to travel at relatively high speeds, i.e. the section of the Grafton-Lawrence Road south of Sportsmans Creek), *serve as scenic or recreational routes that are not primary arterials, or pass through rugged terrain generally are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning and ending portions of longer trips, or trips for which sightseeing plays a significant role*".

According to Austroads, "the HCM 2010 indicates that the capacity of a two-lane highway is 1700 pc/h for each direction of travel and is nearly independent of the directional distribution of traffic"[2].

Further, the Austroads Guide notes that "*the HCM 2010 describes the conditions for the different levels of performance of two-lane highways in the following terms*":

- *At Level of Service (LOS) A, motorists experience high operating speeds on Class I highways and little difficulty in passing. Platoons of three or more vehicles are rare. On Class II highways, speed would be controlled primarily by roadway conditions. A small amount of platooning would be expected. On Class III highways, drivers should be able to maintain operating speeds close or equal to the free-flow speed (FFS) of the facility.*
- *At LOS B, passing demand and passing capacity are balanced. On both Class I and Class II highways, the degree of platooning becomes noticeable. Some speed reductions are present on Class I highways. On Class III highways, it becomes difficult to maintain FFS operation, but the speed reduction is still relatively small.*
- *At LOS C, most vehicles are traveling in platoons. Speeds are noticeably curtailed on all three classes of highway.*
- *At LOS D, platooning increases significantly. Passing demand is high on both Class I and II facilities, but passing capacity approaches zero. A high percentage of vehicles are now traveling in platoons, and PTSF is quite noticeable. On Class III highways, the fall-off from FFS is now significant.*
- *At LOS E, demand is approaching capacity. Passing on Class I and II highways is virtually impossible, and PTSF is more than 80%. Speeds are seriously curtailed. On Class III highways, speed is less than two-thirds the FFS. The lower limit of this LOS represents capacity.*
- *LOS F exists whenever arrival flow in one or both directions exceeds the capacity of the segment. Operating conditions are unstable, and heavy congestion exists on all classes of two-lane highway.*

In this regard, the operation of Bridge Street during the peak periods can be considered within acceptable levels of service, given that traffic volumes are well below the Austroads and HCM capacity limit, and that no significant platooning could be observed.

The other road sections in the study area experience lower volumes of traffic compared with Bridge Street, and by association, could be considered operating within acceptable levels as well.

2.6.2 Intersection performance

There are currently very limited traffic movements along Grafton Street to affect the performance of the Grafton Street/Bridge Street intersection.

Likewise, the current levels of traffic movements in Lawrence are not at levels that would significantly affect the operation of the Richmond Street/Rutland Street intersection.

[2] *Guide to Traffic Management – Part 3: Traffic Studies and Analysis* (Austroads, 2013), page 45.

2.7 Property access

Aside from being the main through route in the township of Lawrence, Bridge Street also provides local property access to residential dwellings and commercial establishments. Two lateral local roads link Bridge Street with Grafton Street, i.e. the road immediately south of the Lawrence Public Hall, and the road to the north of Lawrence Tavern.

The northern section of Grafton Street also provides access to properties north of the Grafton Street/Bridge Street intersection (north of the Lawrence General Store).

2.8 Speed zones

Speed limits in the study area are generally 50 kilometres per hour. The existing Sportsmans Creek bridge has a speed limit of 20 kilometres per hour for trucks and buses.

A significant section of the Grafton-Lawrence Road south of Sportsmans Creek has a speed limit of 100 kilometres per hour. A "Reduce Speed" advisory sign is provided on the northbound approach to the existing bridge, as shown in Figure 2.12. Access to Sportsmans Creek bridge and to Lawrence from south of the creek is via a "dog-leg" manoeuvre of a 90-degree right turn followed by a 90-degree left turn, which acts as a natural traffic calming measure and tends to limit vehicle speeds on the bridge approach.

Figure 2.12: Speed Reduction Advisory Sign on Northbound Approach to Sportsmans Creek

2.9 Road safety

2.9.1 Crash analysis

Crash statistics provided by Roads and Maritime indicate that during the five-year period 1 July 2008 to 30 June 2013, there was a total of six (6) crashes in the study area and vicinity, three of which are in the 50 kilometre per hour zones north of Sportsmans Creek, and another three in the 100 kilometre per hour section along the Grafton-Lawrence Road south of Sportsmans Creek.

Figure 2.13 shows the location of these crashes.

Three of the six crashes resulted in an injury, while the other three were non-casualty (tow-away).

No crashes involving a pedestrian or cyclist was recorded.

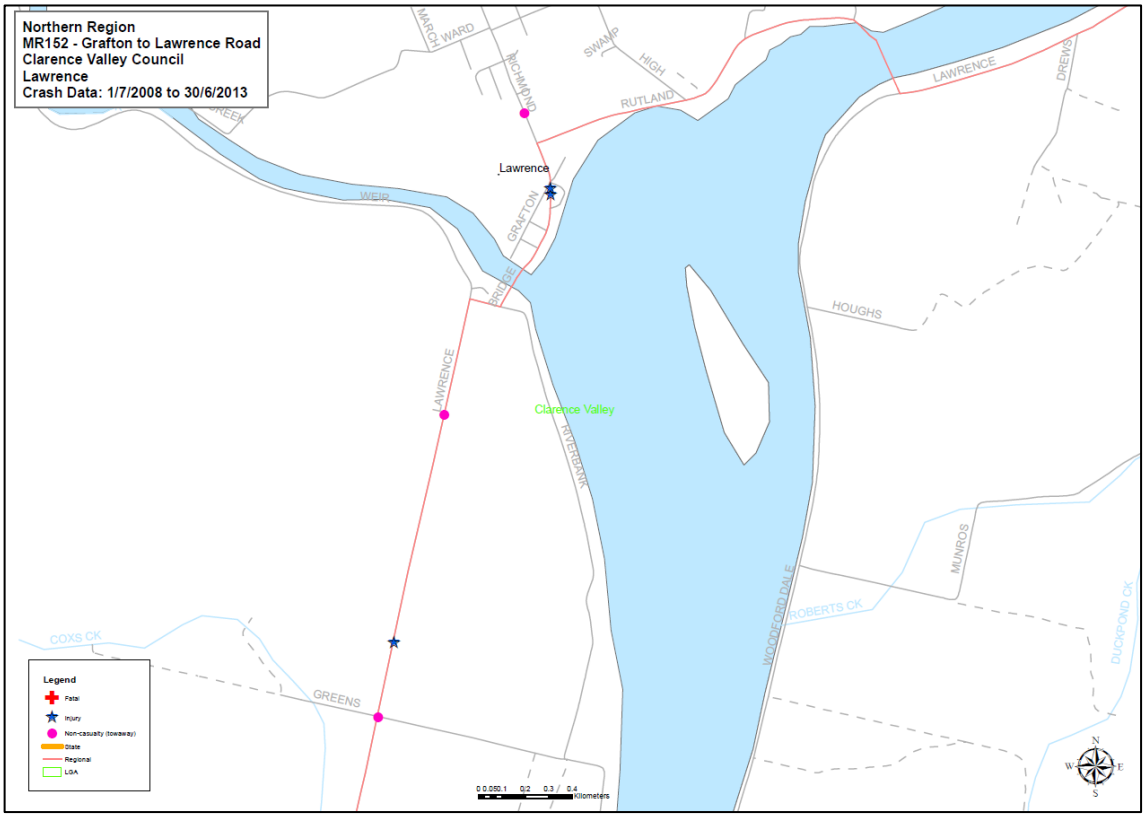


Figure 2.13: Lawrence Crash Locations, 1 July 2008 to 30 June 2013

Source: Roads and Maritime Services

3. Preferred bridge option

3.1 Sportsmans Creek new bridge

The concept layout of the Preferred Option for Sportsmans Creek new bridge is shown in Figure 3.1. The key design features are discussed in the succeeding sections.

Figure 3.1: Sportsmans Creek new bridge Concept Layout

Source: KBR

3.2 Bridge alignment

The new bridge generally follows the Grafton Street alignment, which was Option 2 in the Recommended Option report. It would provide a more direct and straight link between the Grafton-Lawrence Road to the south and Richmond Street to the north, compared with the existing bridge and route alignment via Bridge Street.

It provides a significant improvement in terms of sight lines compared with the current bridge alignment, which has sub-standard sight distances and reduces the level of safety. The new bridge alignment considers sight lines and provides a higher level of visibility and road safety.

3.3 Bridge cross section

The indicative bridge cross section for the Preferred Option, shown in Figure 3.2, provides for two 3.5-metre travel lanes with 1.5-metre shoulders on either side. A footpath with about 2.2 metres clear width is also provided on the east side of the structure. This footpath is separated from the travel lanes by a concrete barrier with steel railing.

The road cross sections north and south of the bridge maintain the two 3.5-metre travel lanes, with varying widths for the shoulders and the footpath/shared path.

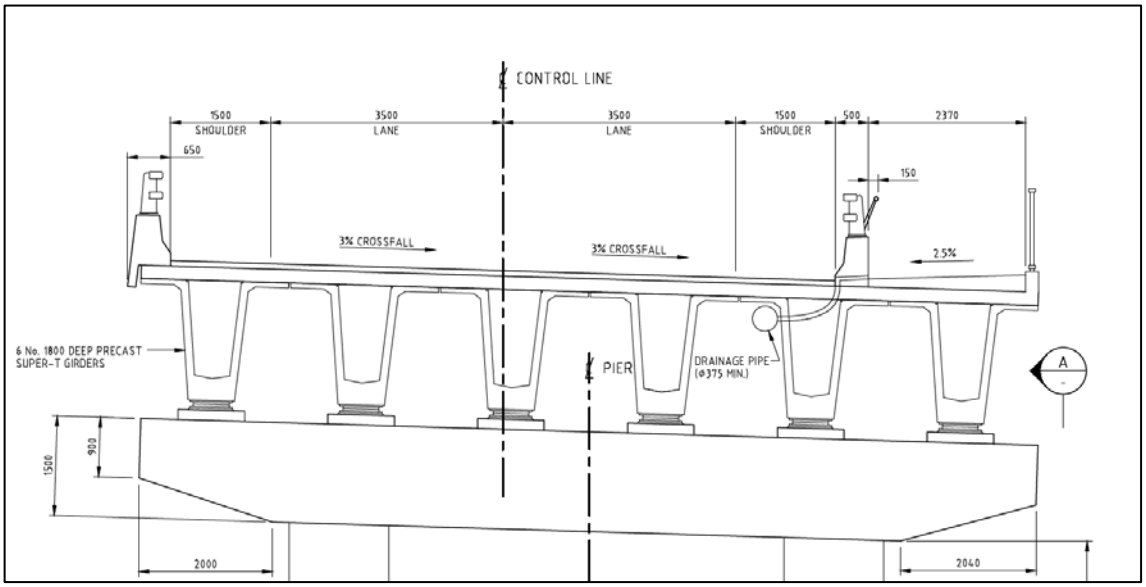


Figure 3.2: Indicative Cross Section of Sportsmans Creek new bridge

Source: KBR

3.4 Pedestrian and cycle facilities

The new bridge provides for a 2.2-metre footpath on the east side of the structure (refer Figure 3.2), to accommodate pedestrians[3] over Sportsmans Creek. The 1.5-metre shoulders could be used by more experienced cyclists.

The existing timber bridge does not allow for pedestrians to cross, as the cross section is considered too narrow for safe passage of pedestrians.

[3] The footpath can also be used by less experienced cyclists.

The footpath and the shoulders on the new bridge contributes positively towards improving the level of safety for the pedestrian and cycling environment.

3.5 Speed limit

A 50 kilometre per hour speed limit would be implemented for the new bridge. This provides for a continuous speed-limited road environment from the proposed gateway treatment (refer to section 3.6 below) on the Grafton-Lawrence Road to the south, up to past the Richmond Road/Rutland Street intersection.

3.6 Gateway treatment

A speed limit of 50 kilometres per hour is proposed to be imposed on the new bridge. In order to manage approach speeds particularly of vehicles traveling from the south of the new bridge to Lawrence, an indicative gateway treatment, shown in Figure 3.3, would be provided. This is patterned after successful gateway treatments for reducing rural road speeds in New Zealand.

While the details of the location of the proposed gateway treatment would still need to be confirmed during the detailed design stage, it would at least 50 metres to the south of the Riverbank Road/Grafton-Lawrence Road intersection.

Figure 3.3: Indicative Gateway Treatment on bridge approach from Grafton-Lawrence Road
Source: New Zealand Land Transport Safety Authority

3.7 Other features

3.7.1 Riverbank Road and Weir Road intersections

The intersections to the south of the new bridge alignment with Weir Road and Riverbank Road would be arranged in an offset-T manner, as this provides the safest and most efficient configuration to maintain access to Weir Road and Riverbank Road.

3.7.2 Grafton Street intersections

Existing intersections along Grafton Street with the two local streets (i.e. south of the Lawrence Public Hall and north of the Lawrence Tavern) would be improved and kept operational, to allow for connectivity between the bridge route and the township.

The two intersections would be configured with rural basic BA turn treatments, as per the *Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections* (Austroads, 2009) as shown in Figure 3.4.

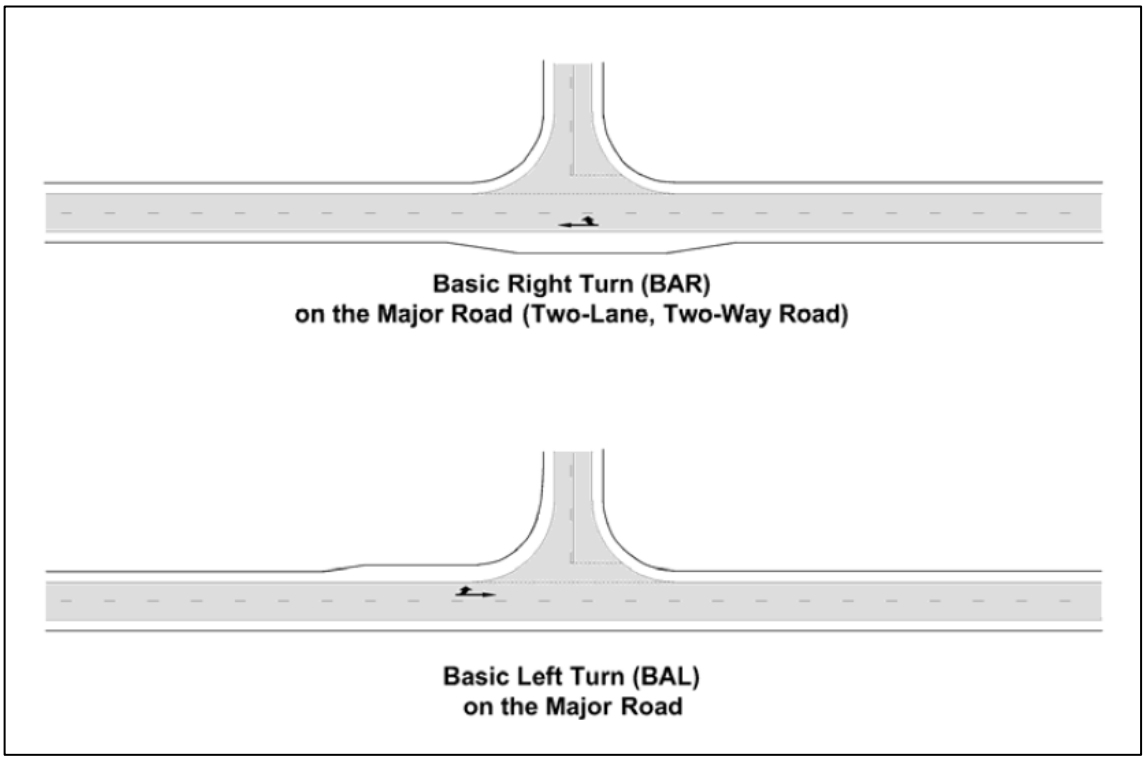


Figure 3.4: Concept Rural Basic Turn Treatments for Grafton Street Intersections
Source: Austroads

As per Austroads:

- The BAR treatment features a widened shoulder on the major road (the new bridge route) that allows through vehicles (northbound), having slowed, to pass to the left of turning vehicles.
- The BAL treatment on the major road has a widened shoulder, which assists turning vehicles to move further off the through carriageway making it easier for through vehicles (southbound) to pass.

The details of these turn treatments would be further developed and refined during the detailed design stage.

3.7.3 Access to Flo Clark Park and boat ramp

With the new bridge alignment requiring closure of the existing access to Flo Clark Park and the boat ramp on Sportsmans Creek, a new access link would be provided off Riverbank Road, as highlighted in Figure 3.5.

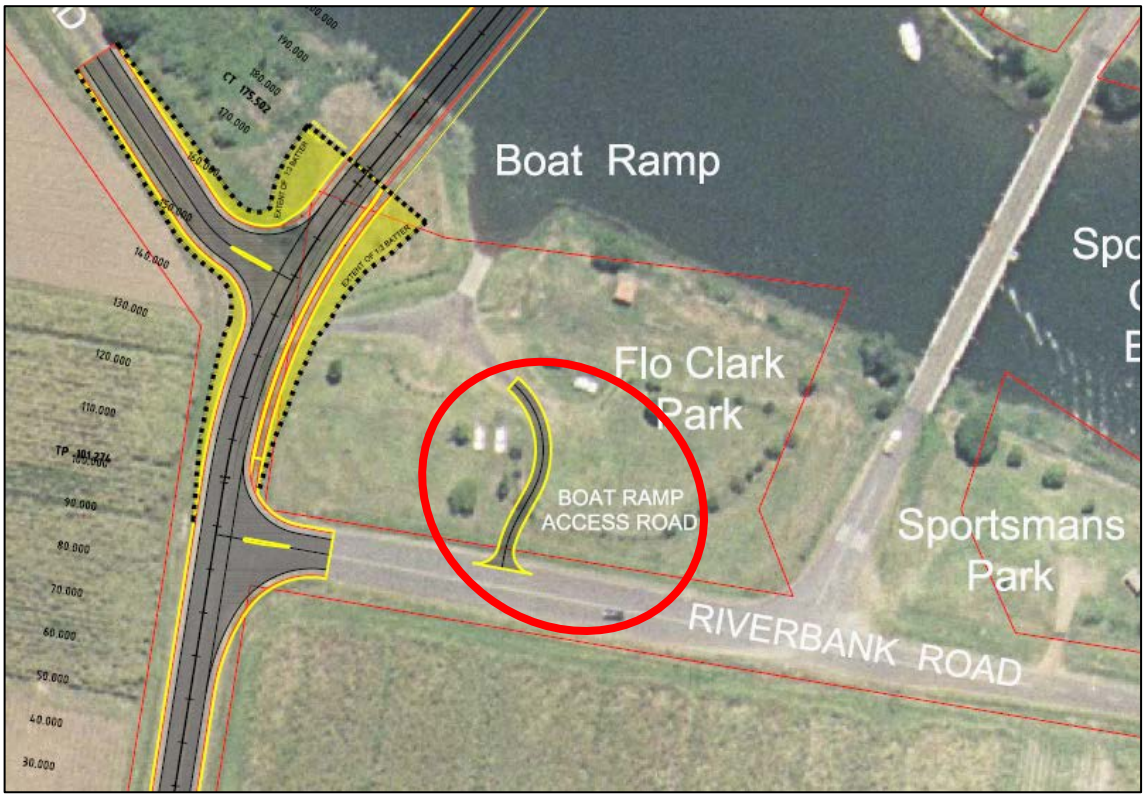


Figure 3.5: Relocated Flo Clark Park and Boat Ramp Access
Source: Extracted from KBR

3.7.4 Southern end of Bridge Street

A hammerhead turning bay would be provided at the south end of Bridge Street following the removal of the existing Sportsmans Creek bridge. The turning bay will be located within the existing 10m wide road reserve.

The existing northern approach to the bridge would be removed and reconstructed pavement, kerb and gutter and drainage provided. Access would be provided to the existing residences. The end of the Bridge Street would be landscaped and shaped subject to design.

4. Impacts during operation

This chapter presents a discussion of the transport, traffic and access impact assessment that was undertaken to assess the operational impacts of the Preferred Option.

4.1 Positive impacts

The Preferred Option brings positive impacts that resolves a number of transport, traffic and access issues relating to existing conditions. These include:

- Regional traffic flows, including heavy vehicle movements, would no longer run through the village. There would also potentially be a faster route between the Grafton-Lawrence Road.
- Road safety and sight distance issues relating to the approach on the existing bridge would be addressed.
- The potential for vehicle-pedestrian conflicts on Bridge Street is significantly reduced.
- Vehicle access and egress to and from the Lawrence General Store would be organised in a more efficient manner.
- The new bridge is designed as part of an HML route through Lawrence, and would remove the load constraints posed by the existing timber bridge, contributing positively to the economy of Clarence Valley Council and NSW.
- The new bridge facilitates pedestrian and cyclist access between north and south in a safe manner.
- The closure of the existing bridge provides the opportunity to integrate Flo Clark Park and Sportsmans Park.

4.2 Traffic impacts

The Preferred Option facilitates more efficient traffic flows through Lawrence, in terms of providing a more direct and safer route between the Grafton-Lawrence Road and Rutland Street towards Bluff Point Ferry.

As noted above, it reduces the potential for vehicle-pedestrian conflicts on Bridge Street with the reduction of through volumes.

However, the following negative impacts are noted:

- The more direct route through Grafton Street could encourage through traffic to flow at a faster speed, compared with the speed-limiting nature of the double 90-degree turns required along the existing route, potentially contributing to higher levels of road safety risk.
- Local traffic generated within the southern part of the township would need to travel a slightly longer route via the new bridge and the local road to the north of Lawrence Tavern.

4.3 Transport impacts

4.3.1 Public transport

The existing public transport services in Lawrence run along Bridge Street. With the new bridge, public transport customers with origins or destinations within the township would potentially be

required to walk longer distances to catch a bus service, with the new bus routes intended to run along Grafton Street.

Site observations indicate that the main bus stop within the study area is outside the Lawrence General Store. While majority of the township is within 400 metres of this location, all of the developed areas in the catchment are located to the south.

In order to contribute towards NSW State objectives of promoting higher public transport use, a more central stop location in line with the new bus route via Grafton Street would need to be considered.

4.3.2 Walking and cycling

The footpath and the shoulders path that would be provided on the bridge structure as part of the Preferred Option would facilitate walking and cycling links in Lawrence, particularly across Sportsmans Creek.

A wider active transport network for Lawrence (which is outside the scope of this project) would need to be undertaken in order to take advantage of the opportunity provided by the footpath provided in the Preferred Option.

4.4 Access impacts

The following access impacts are identified:

- Vehicles accessing the Lawrence General Store would need to enter a new driveway to the south of the petrol bowser, and egress via an exit driveway to the north, in order to maintain an organised internal circulation pattern. These manoeuvres could create delays on the new bridge route, particularly for the southbound direction, in which through movements could potentially be delayed by vehicles turning right to access the Lawrence General Store. Access to the petrol bowser would also be limited to a north-facing manoeuvre.
- Access to the Lawrence Memorial Park would be provided via a new link between the north end of Bridge Street and Grafton Street south of the Lawrence General Store. However, there could potentially be turning-radius issues with the new access arrangements, particularly for vehicles with trailers.
- Access to properties on Grafton Street north of Bridge Street would be via a longer route through the new Lawrence Memorial Park access.
- Access to Flo Clark Park and the Sportsmans Creek boat ramp would be relocated via Riverbank Road.

5. Impacts during construction

A detailed construction transport and traffic impact assessment had not been undertaken as part of this study, as the details and sequence of construction activities for Sportsmans Creek new bridge are not yet fully confirmed at this stage.

A Construction Traffic Management Plan would need to be prepared during the detailed design stage to manage transport, traffic and access impacts during the construction of the new bridge.

5.1 Staging framework

The overall project includes demolition of the existing Sportsmans Creek bridge. In order to mitigate transport and traffic impacts, it is understood that demolition of the existing bridge would only be undertaken after the new bridge is operational.

5.2 Transport and traffic impacts during construction

The likely construction-stage transport, traffic and access impacts include:

- Increased heavy vehicle movements for hauling of construction materials, focusing on Grafton Street, Bridge Street and the Grafton-Lawrence Road.
- Heavy vehicle movements associated with construction equipment.
- Potential barge movements for delivery of larger structures.
- Increased vehicle movements from construction staff and service vehicles.
- Restricted vehicular access to the Lawrence General Store, including the petrol bowser.
- Temporary partial or complete closures of the Weir Road/Grafton-Lawrence Road intersection, the Bridge Street/Grafton Street/Richmond Street intersection, and the intersections along Grafton Street (south).
- Access restrictions on the existing Sportsmans Creek boat ramp and Flo Clark Park.
- Temporary partial or complete closure of roads and altered property accesses along Grafton Street.

These impacts could result in increased travel times due to reduced speed limits relating to road works and temporary detours, as well as potential safety issues relating to the increased heavy vehicle movements.

Residents and property owners would need to be consulted about altered access arrangements prior to undertaking such changes.

5.2.1 Potential detours

Potential detour routes that could be used during times that road sections or intersections are closed include:

- Riverside Road as an alternative to the Grafton-Lawrence Road, particularly during the construction of the Weir Road/Grafton-Lawrence Road intersection south of the new bridge.
- Weir Road would require temporary diversion to access the Grafton-Lawrence Road
- Grafton Street/Bridge Street intersection (next to the Lawrence General Store) – will require temporary diversion during construction of the intersection

- Impacts to property access on Grafton Street (including north leg).

5.2.2 Traffic management during construction

Transport links across Sportsmans Creek will be maintained during the construction of the new bridge.

The northern link with Rutland Street and the southern link with the Grafton-Lawrence Road need to be managed during construction of the new bridge, regardless of the selected alignment.

5.2.3 Construction access routes

The new bridge structure will require construction vehicles to access the site. Route selection needs to consider weight, width and height constraints along at various locations, including, for example, the Bluff Point Ferry. In some cases, transport by barge may need to be considered.

6. Summary and recommendations

This assessment on the Preferred Option for Sportsmans Creek new bridge identified a number of issues relating to transport, traffic and impact access, covering both the construction and operation stages.

6.1 Operation stage

A number of impacts have been identified, both positive and negative, which the Preferred Option would potentially generate. The key operation-stage impacts that need to be addressed, and the recommended mitigation measures, are shown in Table 6.1.

Table 6.1: Operation Stage Impacts and Mitigating Measures

Impacts	Recommended Mitigating Measure/s	Remarks
Potentially faster speeds for through vehicles, particularly northbound, through the more direct new bridge route	Provision of a gateway treatment along the Grafton-Lawrence Road to the south of Riverbank Road	Indicative example shown in Figure 3.3
Intersection delays	Implement rural basic (BA) turn treatments at roads intersecting with Grafton Street	Traffic volumes are at levels that would be accommodated by BA-type treatments.
Access to bus services to/from Lawrence township	Project should allocate space for future provision of relocated bus stop facilities further to the south from the existing (de facto) bus stop outside Lawrence General Store, for both northbound and southbound directions.	New bus stops further south would potentially expand catchment. Upgraded footpaths linking with the facility would need to be considered by Council.

6.2 Construction stage

The identified key impacts during the construction stage include:

- Increased vehicle movements and potential travel delays due to materials delivery, equipment and construction staff travel in relation to the road works.
- Temporary property and facility access restrictions.
- Temporary rerouting and diversions.

A Construction Traffic Management Plan would need to be prepared during the detailed design stage, or after the details of activities and sequencing of construction activities are finalised.

Appendix A

Traffic Counts

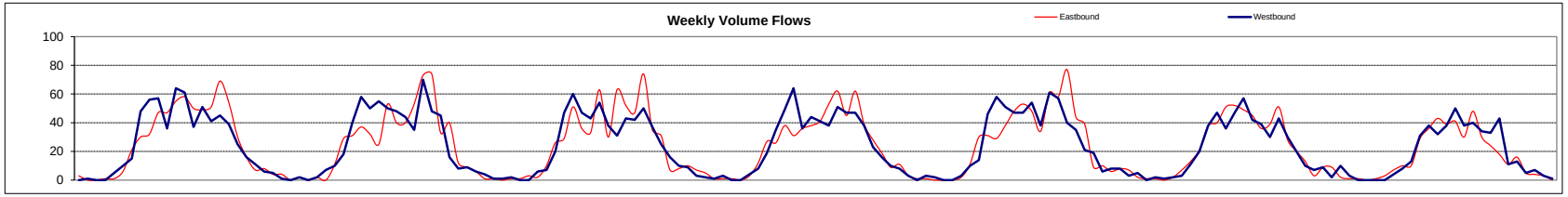
austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

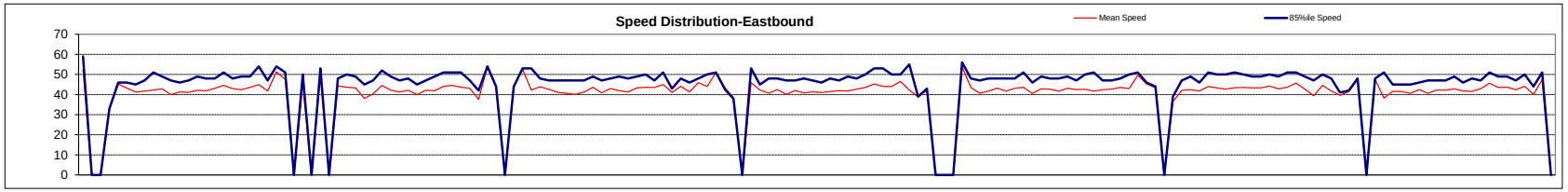
Automated Vehicle Study Summary Report

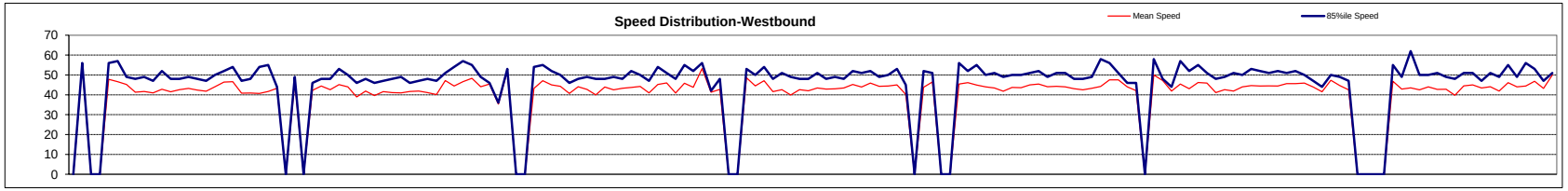
01 Rutland Street, Approx. 100m North East of Richmond Street intersection

From: Monday, 09 Dec 13
Untill: Sunday, 15 Dec 13

Data Record Interval = 1Hr	Monday, 09 Dec 13			Tuesday, 10 Dec 13			Wednesday, 11 Dec 13			Thursday, 12 Dec 13			Friday, 13 Dec 13			Saturday, 14 Dec 13			Sunday, 15 Dec 13		
	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way
Short Veh	607	561	1168	571	562	1133	594	525	1119	552	527	1079	617	560	1177	520	464	984	400	405	805
Medium Veh	32	65	97	32	62	94	27	63	90	33	55	88	23	67	90	12	44	56	9	34	43
Long Veh	4	3	7	1	2	3	3	5	8	1	3	4	4	3	7	0	3	3	1	5	6
7am-7pm Vol	572	560	1132	531	559	1090	544	517	1061	499	513	1012	560	555	1115	470	449	919	359	401	760
24Hr Vol	**643**	**630**	**1273**	**604**	**626**	**1230**	**624**	**593**	**1217**	**587**	**585**	**1172**	**644**	**631**	**1275**	**532**	**511**	**1043**	**410**	**445**	**855**
85%ile Speed	**48**	**49**	**49**	**48**	**48**	**48**	**48**	**49**	**49**	**48**	**50**	**49**	**48**	**50**	**49**	**50**	**51**	**50**	**47**	**50**	**49**
Mean Speed	**42.43**	**42.73**	**42.58**	**42.13**	**41.67**	**41.89**	**42.27**	**43.10**	**42.67**	**42.13**	**43.11**	**42.62**	**42.45**	**43.96**	**43.19**	**43.30**	**43.98**	**43.63**	**42.38**	**43.21**	**42.81**
AM Pk Hr Vol	55	64	119	53	58	103	63	60	117	38	64	95	53	58	100	52	47	99	43	38	77
AM Hr Factor	0.09	0.10	0.09	0.09	0.09	0.08	0.10	0.10	0.10	0.06	0.11	0.08	0.08	0.09	0.08	0.10	0.09	0.09	0.10	0.09	0.09
AM Peak 85%	59	57	59	53	53	51	53	55	53	53	54	53	56	56	56	51	58	53	51	62	55
AM Peak Time	11:00	11:00	11:00	11:00	8:00	11:00	11:00	8:00	11:00	11:00	9:00	9:00	11:00	8:00	11:00	11:00	11:00	11:00	10:00	11:00	11:00
PM Pk Hr Vol	69	61	119	74	70	143	74	50	124	62	51	113	77	61	122	51	57	106	48	50	91
PM Hr Factor	0.11	0.10	0.09	0.12	0.11	0.12	0.12	0.08	0.10	0.11	0.09	0.10	0.12	0.10	0.10	0.10	0.11	0.10	0.12	0.11	0.11
PM Peak 85%	54	55	55	54	57	52	51	56	52	55	53	53	51	58	52	51	53	52	51	56	53
PM Peak Time	16:00	12:00	12:00	16:00	15:00	15:00	16:00	16:00	16:00	16:00	14:00	14:00	16:00	14:00	14:00	16:00	12:00	12:00	14:00	12:00	12:00







Classification Satistics 24Hr Vol	9-Dec-13			10-Dec-13			11-Dec-13			12-Dec-13			13-Dec-13			14-Dec-13			15-Dec-13		
	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way
1 Car	589	539	1128	558	540	1098	574	516	1090	531	517	1048	597	545	1142	503	444	947	384	390	774
2 Car+Trailer	18	22	40	13	22	35	20	9	29	21	10	31	20	15	35	17	20	37	16	15	31
3 2 axle Truck	23	54	77	26	58	84	21	57	78	26	51	77	18	62	80	9	40	49	7	33	40
4 3 axle Truck	7	8	15	5	4	9	6	5	11	4	3	7	5	4	9	2	3	5	0	0	0
5 4 axle Truck	2	3	5	1	0	1	0	1	1	3	1	4	0	1	1	1	1	2	2	1	3
6 3 axle Semi	2	1	3	0	1	1	1	4	5	0	3	3	2	1	3	0	2	2	0	3	3
7 4 axle Semi	1	1	2	0	1	1	0	0	0	1	0	1	0	2	2	0	1	1	1	1	2
8 5 axle Semi	0	0	0	1	0	1	1	1	2	0	0	0	1	0	1	0	0	0	0	0	0
9 6 axle Semi	1	0	1	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	1	1
10 7/8axle Truck	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 B-Double	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Road Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 13 Unknown	0	1	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0	0	1	1

Definitions:
85th Percentile Speed = The speed at or below which 85% of volume is observed to travel
Short = 1-2, Medium = 3-5, Long = 6-12

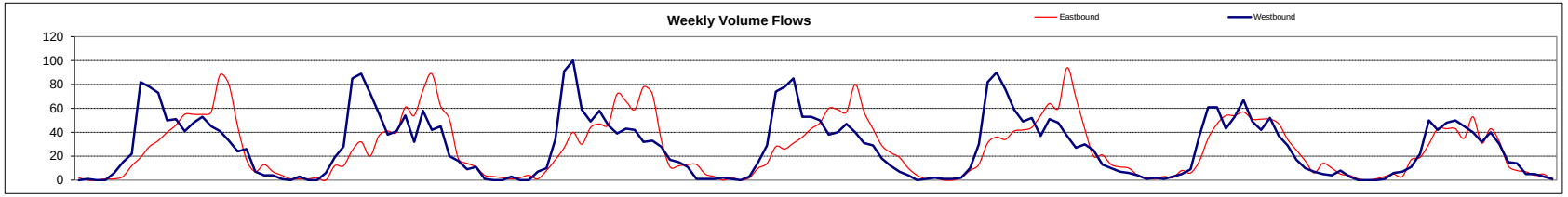
austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

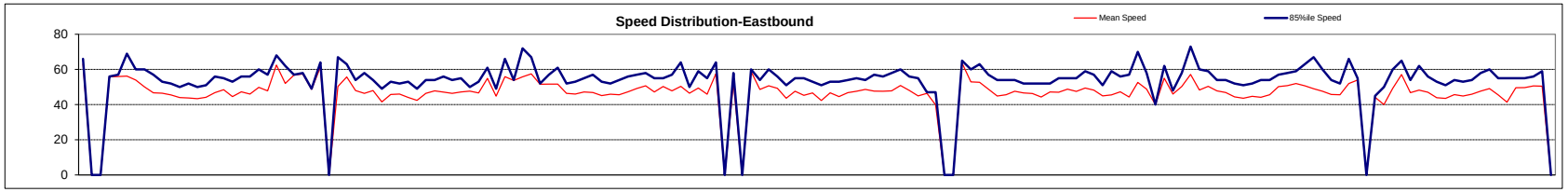
Automated Vehicle Study Summary Report

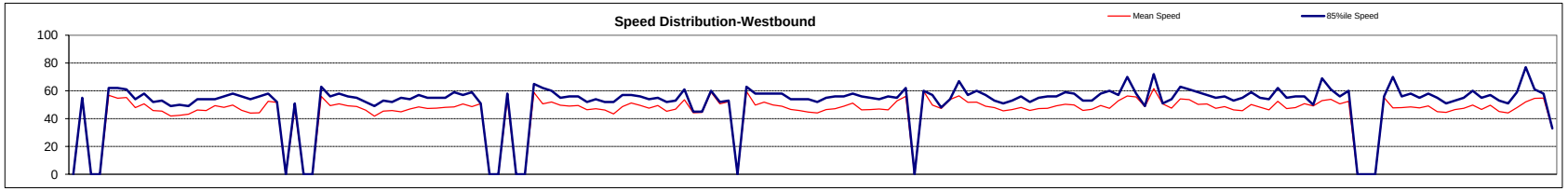
02 Bridge Street, Approx. on East side of Lawrence Public Hall

From: Monday, 09 Dec 13
Untill: Sunday, 15 Dec 13

Data Record Inerval = 1Hr	Monday, 09 Dec 13			Tuesday, 10 Dec 13			Wednesday, 11 Dec 13			Thursday, 12 Dec 13			Friday, 13 Dec 13			Saturday, 14 Dec 13			Sunday, 15 Dec 13		
	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way
Short Veh	618	646	1264	624	668	1292	662	668	1330	637	662	1299	679	698	1377	576	583	1159	426	445	871
Medium Veh	44	42	86	37	50	87	35	41	76	44	40	84	27	37	64	19	23	42	13	12	25
Long Veh	6	5	11	4	3	7	5	5	10	3	1	4	6	4	10	3	1	4	3	6	9
7am-7pm Vol	601	619	1220	587	633	1220	615	620	1235	568	618	1186	612	638	1250	522	548	1070	401	425	826
24Hr Vol	**668**	**705**	**1373**	**666**	**726**	**1392**	**704**	**719**	**1423**	**684**	**710**	**1394**	**713**	**746**	**1459**	**599**	**607**	**1206**	**442**	**470**	**912**
85%ile Speed	**54**	**54**	**54**	**54**	**55**	**54**	**56**	**55**	**55**	**55**	**56**	**55**	**55**	**55**	**55**	**55**	**56**	**56**	**55**	**56**	**56**
Mean Speed	**46.33**	**46.99**	**46.67**	**46.31**	**47.24**	**46.79**	**47.77**	**48.58**	**48.18**	**46.91**	**47.73**	**47.33**	**47.23**	**48.02**	**47.63**	**47.17**	**48.67**	**47.92**	**46.23**	**47.31**	**46.79**
AM Pk Hr Vol	46	82	106	41	89	121	47	100	140	43	85	116	42	90	126	54	61	108	43	50	91
AM Hr Factor	0.07	0.12	0.08	0.06	0.12	0.09	0.07	0.14	0.10	0.06	0.12	0.08	0.06	0.12	0.09	0.09	0.10	0.09	0.10	0.11	0.10
AM Peak 85%	69	62	66	67	63	64	72	65	72	64	63	63	65	67	66	73	72	66	66	70	65
AM Peak Time	11:00	7:00	9:00	11:00	8:00	8:00	11:00	8:00	8:00	11:00	9:00	9:00	11:00	8:00	8:00	11:00	9:00	9:00	11:00	9:00	11:00
PM Pk Hr Vol	88	53	129	89	58	133	78	46	111	80	50	120	94	52	131	57	67	124	53	50	93
PM Hr Factor	0.13	0.08	0.09	0.13	0.08	0.10	0.11	0.06	0.08	0.12	0.07	0.09	0.13	0.07	0.09	0.10	0.11	0.10	0.12	0.11	0.10
PM Peak 85%	68	58	64	61	59	59	64	61	58	60	62	59	59	70	62	67	69	62	60	77	64
PM Peak Time	16:00	14:00	16:00	16:00	15:00	15:00	16:00	12:00	13:00	16:00	12:00	16:00	16:00	12:00	16:00	12:00	12:00	12:00	14:00	12:00	14:00







Classification Satistics 24Hr Vol	9-Dec-13			10-Dec-13			11-Dec-13			12-Dec-13			13-Dec-13			14-Dec-13			15-Dec-13		
	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way	Eastbound	Westbound	2 way
1 Car	594	617	1211	607	643	1250	646	656	1302	619	646	1265	651	672	1323	554	552	1106	403	425	828
2 Car+Trailer	24	29	53	17	25	42	16	12	28	18	16	34	28	26	54	22	31	53	23	20	43
3 2 axle Truck	35	34	69	29	45	74	26	32	58	36	35	71	24	33	57	17	17	34	12	10	22
4 3 axle Truck	7	7	14	7	5	12	8	8	16	7	4	11	3	4	7	1	2	3	1	1	2
5 4 axle Truck	2	1	3	1	0	1	1	1	2	1	1	2	0	0	0	1	4	5	0	1	1
6 3 axle Semi	1	2	3	1	0	1	1	2	3	1	1	2	2	1	3	2	1	3	3	4	7
7 4 axle Semi	2	1	3	0	1	1	2	2	4	1	0	1	1	2	3	0	0	0	0	1	1
8 5 axle Semi	0	1	1	1	1	2	1	0	1	0	0	0	2	0	2	0	0	0	0	0	0
9 6 axle Semi	3	1	4	2	1	3	1	1	2	1	0	1	1	1	2	1	0	1	0	1	1
10 7/8axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 B-Double	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Road Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 13 Unknown	0	12	12	1	5	6	2	5	7	0	7	7	1	7	8	1	0	1	0	7	7

Definitions:
85th Percentile Speed = The speed at or below which 85% of volume is observed to travel
Short = 1-2, Medium = 3-5, Long = 6-12

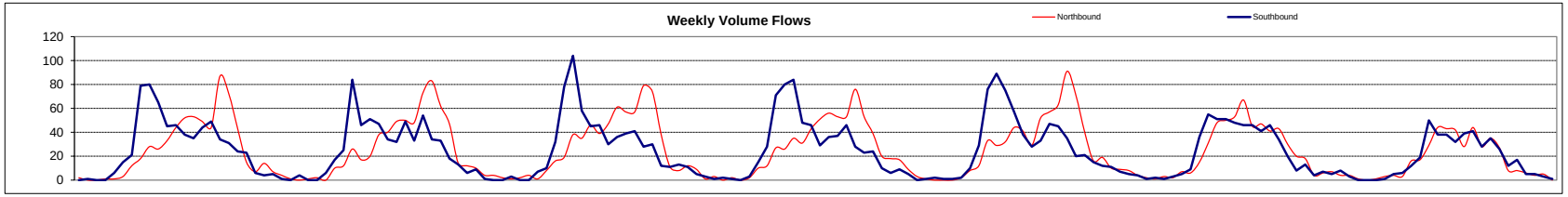
austraffic
TRAFFIC & TRANSPORT DATA SPECIALISTS

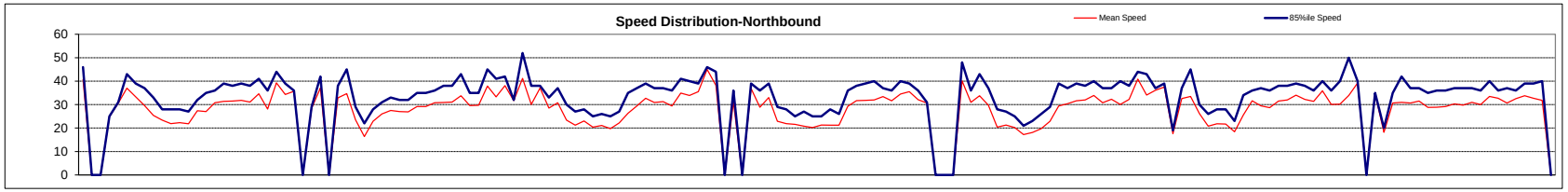
Automated Vehicle Study Summary Report

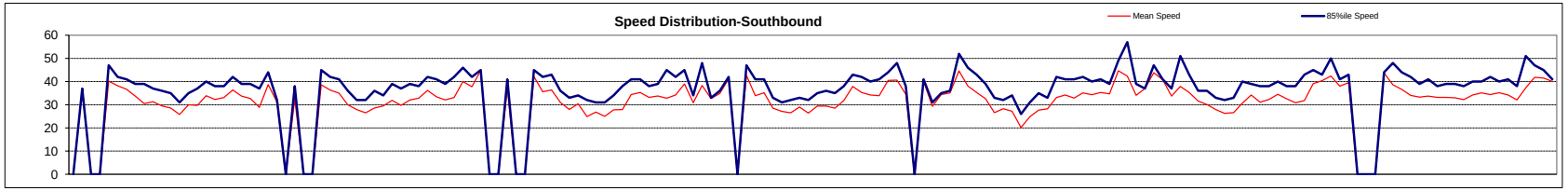
03 Bridge Street, Immediately south of Sportsmans Creek Bridge

From: Monday, 09 Dec 13
Untill: Sunday, 15 Dec 13

Data Record Inerval = 1Hr	Monday, 09 Dec 13			Tuesday, 10 Dec 13			Wednesday, 11 Dec 13			Thursday, 12 Dec 13			Friday, 13 Dec 13			Saturday, 14 Dec 13			Sunday, 15 Dec 13		
	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way
Short Veh	560	588	1148	571	528	1099	599	578	1177	579	588	1167	619	610	1229	513	502	1015	376	379	755
Medium Veh	49	58	107	49	61	110	59	58	117	58	43	101	47	47	94	37	38	75	21	30	51
Long Veh	6	5	11	1	7	8	6	6	12	2	1	3	1	3	4	4	4	8	3	7	10
7am-7pm Vol	549	570	1119	553	515	1068	590	547	1137	543	552	1095	582	564	1146	490	482	972	361	370	731
24Hr Vol	**615**	**652**	**1267**	**623**	**596**	**1219**	**665**	**642**	**1307**	**639**	**632**	**1271**	**667**	**660**	**1327**	**554**	**544**	**1098**	**400**	**416**	**816**
85%ile Speed	**35**	**38**	**36**	**35**	**37**	**36**	**33**	**36**	**34**	**32**	**35**	**34**	**33**	**36**	**35**	**33**	**37**	**35**	**37**	**40**	**39**
Mean Speed	**28.21**	**31.76**	**30.04**	**28.68**	**31.25**	**29.93**	**26.73**	**30.40**	**28.53**	**26.49**	**30.11**	**28.29**	**26.37**	**30.01**	**28.18**	**26.96**	**31.12**	**29.02**	**30.58**	**34.03**	**32.34**
AM Pk Hr Vol	44	80	108	40	84	110	46	104	142	43	84	119	44	89	118	53	55	101	44	50	82
AM Hr Factor	0.07	0.12	0.09	0.06	0.14	0.09	0.07	0.16	0.11	0.07	0.13	0.09	0.07	0.13	0.09	0.10	0.10	0.09	0.11	0.12	0.10
AM Peak 85%	46	47	46	45	45	45	52	45	52	44	47	44	48	52	50	45	51	44	50	48	47
AM Peak Time	11:00	8:00	8:00	11:00	7:00	7:00	10:00	8:00	8:00	11:00	9:00	9:00	10:00	8:00	8:00	11:00	8:00	11:00	10:00	9:00	10:00
PM Pk Hr Vol	87	49	121	83	54	127	79	41	107	76	46	104	91	47	126	67	46	113	44	41	85
PM Hr Factor	0.14	0.08	0.10	0.13	0.09	0.10	0.12	0.06	0.08	0.12	0.07	0.08	0.14	0.07	0.09	0.12	0.08	0.10	0.11	0.10	0.10
PM Peak 85%	44	44	44	45	46	45	46	48	48	40	48	43	40	57	45	40	50	42	40	51	44
PM Peak Time	16:00	15:00	16:00	16:00	15:00	15:00	16:00	15:00	16:00	16:00	15:00	16:00	16:00	14:00	16:00	12:00	15:00	12:00	14:00	14:00	14:00







Classification Satistics 24Hr Vol	9-Dec-13			10-Dec-13			11-Dec-13			12-Dec-13			13-Dec-13			14-Dec-13			15-Dec-13		
	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way	Northbound	Southbound	2 way
1 Car	548	569	1117	562	516	1078	591	573	1164	569	577	1146	608	598	1206	503	486	989	365	368	733
2 Car+Trailer	12	19	31	9	12	21	8	5	13	10	11	21	11	12	23	10	16	26	11	11	22
3 2 axle Truck	40	48	88	42	57	99	45	49	94	48	37	85	42	43	85	33	35	68	20	27	47
4 3 axle Truck	7	10	17	6	3	9	13	9	22	7	6	13	5	4	9	2	2	4	0	1	1
5 4 axle Truck	2	0	2	1	1	2	1	0	1	3	0	3	0	0	0	2	1	3	1	2	3
6 3 axle Semi	3	5	8	0	3	3	2	3	5	0	1	1	0	0	0	2	2	4	2	5	7
7 4 axle Semi	3	0	3	0	1	1	2	2	4	1	0	1	0	2	2	0	1	1	1	1	2
8 5 axle Semi	0	0	0	1	2	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
9 6 axle Semi	0	0	0	0	1	1	1	1	2	1	0	1	1	1	2	2	1	3	0	1	1
10 7/8axle Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 B-Double	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12 Road Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Class 13 Unknown	0	1	1	2	0	2	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Definitions:
85th Percentile Speed = The speed at or below which 85% of volume is observed to travel
Short = 1-2, Medium = 3-5, Long = 6-12

Appendix B

Crash Statistics

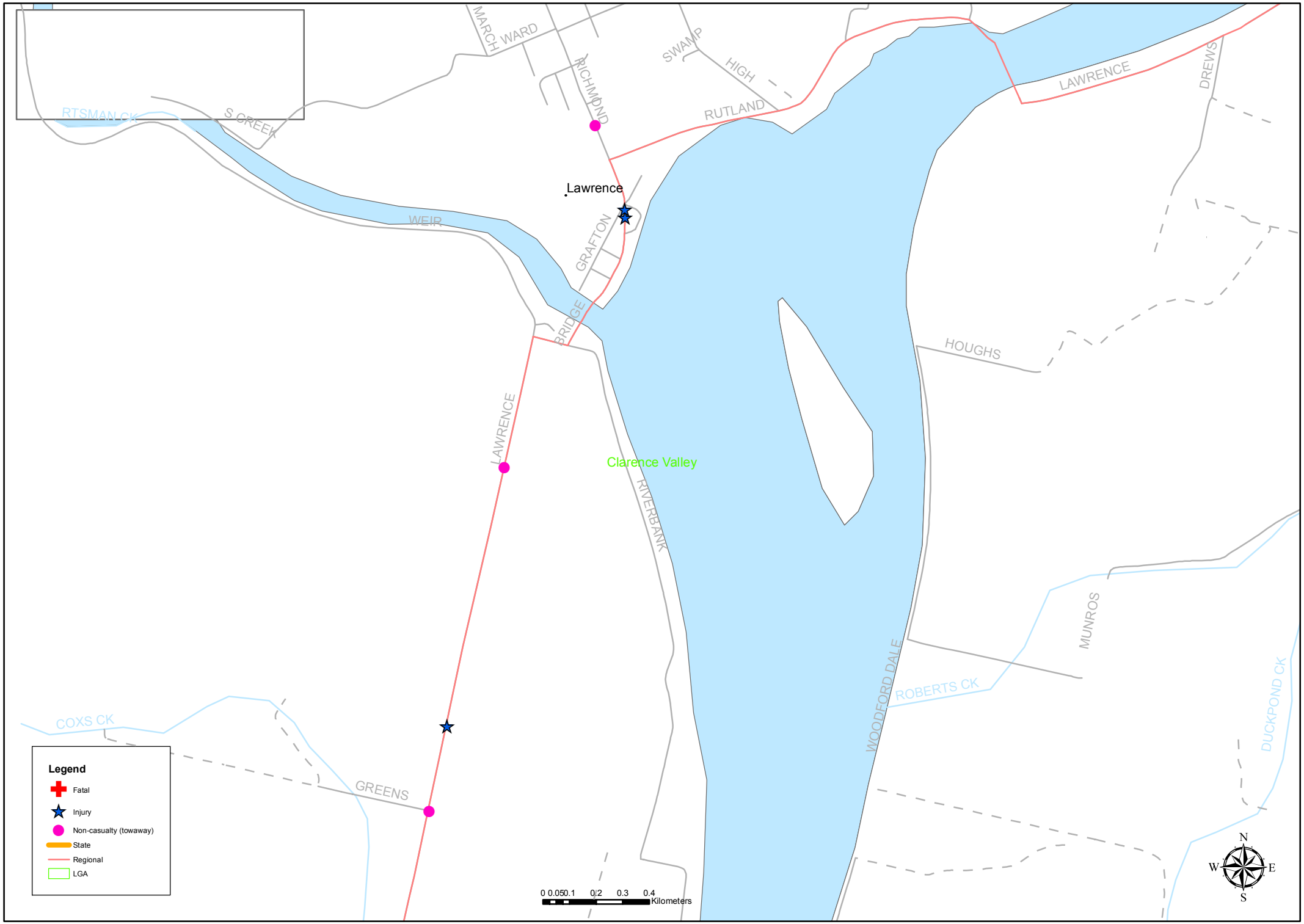
Detailed Crash Report

Transport Centre for Road Safety

Crash No.	Date	Day of Week	Time	Distance		ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash	Killed	Injured	Factors
																					S F
Northern Region																					
Clarence Valley LGA																					
Lawrence																					
Bridge St																					
682767	24/08/2009	Mon	23:05	20 m	S	GRAFTON ST	2WY	STR	Fine	Dry	50	1	TRK	M24	S in BRIDGE ST	50	Proceeding in lane	I	0	1	F
E40045482							RUM:	71	Off rd left => obj						Fence (prior to 2014)						
744470	01/03/2011	Tue	23:30	50 m	S	GRAFTON ST	2WY	STR	Raining	Wet	50	1	4WD	F34	N in BRIDGE ST	50	Proceeding in lane	I	0	1	
E263569392							RUM:	73	Off rd rght => obj						Fence (prior to 2014)						
Lawrence Rd																					
700375	25/01/2010	Mon	18:30	1.5 km	S	WEIR RD	2WY	STR	Fine	Dry	100	1	CAR	M36	N in LAWRENCE RD	220	Proceeding in lane	I	0	1	S
E40208569							RUM:	71	Off rd left => obj						Fence (prior to 2014)						
Richmond St																					
728864	06/09/2010	Mon	09:30		at	NUMBER 24 HN	2WY	STR	Fine	Dry	50	2	CAR	F63	N in RICHMOND ST	10	Turning right	N	0	0	
E193653493							RUM:	21	Right through				4WD	M51	S in RICHMOND ST	50	Proceeding in lane				
Lower Southgat																					
Lawrence Rd																					
832836	02/03/2013	Sat	21:00		at	GREENS LANE	XJN	STR	Unk	Wet	100	1	CAR	F23	N in LAWRENCE RD	65	Proceeding in lane	N	0	0	
E51041238							RUM:	74	On road-out of cont.												
726180	15/09/2010	Wed	16:00	500 m	S	RIVERBANK RD	2WY	STR	Fine	Dry	100	2	WAG	M65	N in LAWRENCE RD	80	Proceeding in lane	N	0	0	
E41908923							RUM:	30	Rear end				CAR	F72	N in LAWRENCE RD	20	Proceeding in lane				

Report Totals: Total Crashes: 6 Fatal Crashes: 0 Injury Crashes: 3 Killed: 0 Injured: 3

Crashid dataset MR152 Greens Lane to Lawerence Ferry Crash Data 1/7/2008 to 30/06/2013


MARCH WARD
RICHMOND
SWAMP
HIGH
RUTLAND
LAWRENCE
DREWS
RTSMANLCK
S CREEK
Lawrence
WEIR
GRAFTON
BRIDGE
HOUGHS
LAWRENCE
Clarence Valley
RIVERBANK
MUNROS
WOODFORD DALE
ROBERTS CK
DUCKPOND CK
COXS CK
GREENS
Legend
Fatal
Injury
Non-casualty (towaway)
State
Regional
LGA
0 0.05 0.1 0.2 0.3 0.4
Kilometers
N
W
E
S

Summary Crash Report

Transport Centre for Road Safety

# Crash Type		
Car Crash	5	83.3%
Light Truck Crash	1	16.7%
Rigid Truck Crash	0	0.0%
Articulated Truck Crash	0	0.0%
'Heavy Truck Crash	(0)	(0.0%)
Bus Crash	0	0.0%
"Heavy Vehicle Crash	(0)	(0.0%)
Emergency Vehicle Crash	0	0.0%
Motorcycle Crash	0	0.0%
Pedal Cycle Crash	0	0.0%
Pedestrian Crash	0	0.0%

' Rigid or Artic. Truck " Heavy Truck or Heavy Bus
These categories are NOT mutually exclusive

Location Type		
*Intersection	1	16.7%
Non intersection	5	83.3%

* Up to 10 metres from an intersection
~ 07:30-09:30 or 14:30-17:00 on school days

Collision Type		
Single Vehicle	4	66.7%
Multi Vehicle	2	33.3%

Road Classification		
Freeway/Motorway	0	0.0%
State Highway	0	0.0%
Other Classified Road	4	66.7%
Unclassified Road	2	33.3%

Contributing Factors		
Speeding	1	16.7%
Fatigue	1	16.7%
Alcohol	0	0.0%

Weather		
Fine	4	66.7%
Rain	1	16.7%
Overcast	0	0.0%
Fog or mist	0	0.0%
Other	0	0.0%

Road Surface Condition		
Wet	2	33.3%
Dry	4	66.7%
Snow or ice	0	0.0%

Natural Lighting		
Dawn	0	0.0%
Daylight	3	50.0%
Dusk	0	0.0%
Darkness	3	50.0%

Crash Movement		
Intersection, adjacent approaches	0	0.0%
Head-on (not overtaking)	0	0.0%
Opposing vehicles; turning	1	16.7%
U-turn	0	0.0%
Rear-end	1	16.7%
Lane change	0	0.0%
Parallel lanes; turning	0	0.0%
Vehicle leaving driveway	0	0.0%
Overtaking; same direction	0	0.0%
Hit parked vehicle	0	0.0%
Hit railway train	0	0.0%
Hit pedestrian	0	0.0%
Permanent obstruction on road	0	0.0%
Hit animal	0	0.0%
Off road, on straight	0	0.0%
Off road on straight, hit object	3	50.0%
Out of control on straight	1	16.7%
Off road, on curve	0	0.0%
Off road on curve, hit object	0	0.0%
Out of control on curve	0	0.0%
Other crash type	0	0.0%

Speed Limit					
40 km/h or less	0	0.0%	~ 40km/h or less	0	0.0%
50 km/h zone	3	50.0%	80 km/h zone	0	0.0%
60 km/h zone	0	0.0%	90 km/h zone	0	0.0%
70 km/h zone	0	0.0%	100 km/h zone	3	50.0%
			110 km/h zone	0	0.0%

CRASHES	6	
Fatal crash	0	0.0%
Injury crash	3	50.0%
Non-casualty crash	3	50.0%

CASUALTIES	3	
Killed	0	0.0%
Injured	3	100.0%
^ Unrestrained	1	33.3%

^ Belt fitted but not worn, No restraint fitted to position OR No helmet worn

Time Group		% of Day	
00:01 - 02:59	0	0.0%	12.5%
03:00 - 04:59	0	0.0%	8.3%
05:00 - 05:59	0	0.0%	4.2%
06:00 - 06:59	0	0.0%	4.2%
07:00 - 07:59	0	0.0%	4.2%
08:00 - 08:59	0	0.0%	4.2%
09:00 - 09:59	1	16.7%	4.2%
10:00 - 10:59	0	0.0%	4.2%
11:00 - 11:59	0	0.0%	4.2%
12:00 - 12:59	0	0.0%	4.2%
13:00 - 13:59	0	0.0%	4.2%
14:00 - 14:59	0	0.0%	4.2%
15:00 - 15:59	0	0.0%	4.2%
16:00 - 16:59	1	16.7%	4.2%
17:00 - 17:59	0	0.0%	4.2%
18:00 - 18:59	1	16.7%	4.2%
19:00 - 19:59	0	0.0%	4.2%
20:00 - 21:59	1	16.7%	8.3%
22:00 - 24:00	2	33.3%	8.3%

Street Lighting Off/Nil			% of Dark
1	of	3 in Dark	33.3%

Crashes		Casualties
1	2013	0
1	2011	1
3	2010	1
1	2009	1

~ School Travel Time		
Involvement	2	33.3%

McLean Periods			% Week
A	0	0.0%	17.9%
B	0	0.0%	7.1%
C	1	16.7%	17.9%
D	0	0.0%	3.5%
E	0	0.0%	3.6%
F	2	33.3%	10.7%
G	0	0.0%	7.1%
H	0	0.0%	7.1%
I	2	33.3%	12.5%
J	1	16.7%	10.7%

Day of the Week						# Holiday Periods		
Monday	3	50.0%	Thursday	0	0.0%	Sunday	0	0.0%
Tuesday	1	16.7%	Friday	0	0.0%	WEEKDAY	5	83.3%
Wednesday	1	16.7%	Saturday	1	16.7%	WEEKEND	1	16.7%

New Year	0	0.0%	Queen's BD	0	0.0%	Easter SH	0	0.0%
Aust. Day	0	0.0%	Labour Day	0	0.0%	June/July SH	0	0.0%
Easter	0	0.0%	Christmas	0	0.0%	Sept./Oct. SH	0	0.0%
Anzac Day	0	0.0%	January SH	1	16.7%	December SH	0	0.0%

Crashid dataset MR152 Greens Lane to Lawerence Ferry Crash Data 1/7/2008 to 30/06/2013

Percentages are percentages of all crashes. Unknown values for each category are not shown on this report.

Melbourne

A Level 25, 55 Collins Street
PO Box 24055
MELBOURNE VIC 3000
P +613 9851 9600
F +613 9851 9610
E melbourne@gta.com.au

Canberra

A Unit 4, Level 1, Sparta Building, 55 Woolley Street
PO Box 62
DICKSON ACT 2602
P +612 6243 4826
F +612 6243 4848
E canberra@gta.com.au

Townsville

A Level 1, 25 Sturt Street
PO Box 1064
TOWNSVILLE QLD 4810
P +617 4722 2765
F +617 4722 2761
E townsville@gta.com.au

Sydney

A Level 6, 15 Help Street
CHATSWOOD NSW 2067
PO Box 5254
WEST CHATSWOOD NSW 1515
P +612 8448 1800
F +612 8448 1810
E sydney@gta.com.au

Adelaide

A Suite 4, Level 1, 136 The Parade
PO Box 3421
NORWOOD SA 5067
P +618 8334 3600
F +618 8334 3610
E adelaide@gta.com.au

Brisbane

A Level 4, 283 Elizabeth Street
BRISBANE QLD 4000
GPO Box 115
BRISBANE QLD 4001
P +617 3113 5000
F +617 3113 5010
E brisbane@gta.com.au

Gold Coast

A Level 9, Corporate Centre 2
Box 37
1 Corporate Court
BUNDALL QLD 4217
P +617 5510 4800
F +617 5510 4814
E goldcoast@gta.com.au

www.gta.com.au

GTAconsultants