



**Government
of South Australia**

Department for Transport,
Energy and Infrastructure

**Main North Road / Adelaide
Road - Gawler**

**FINAL DRAFT ROAD
MANAGEMENT PLAN**

June 2008

Date	Revisions	Amended by
2/1/08	Review of RMP, added Nineteenth St, Flinders St and revised recommendations.	A. Townsend, L. Ing
Mar 08	Incorporating Council comments	A. Townsend
4-6-2009	Update Redbanks Road roundabout concept sketch	C. D'Agostini

TABLE OF CONTENTS

- 1 OVERVIEW- 1 -**
- 2 EXISTING ROAD ENVIRONMENT..... - 2 -**
 - 2.1 GENERAL DESCRIPTION..... - 2 -
 - 2.2 BEHAVIOUR OF TRAFFIC AND LAND USE..... - 2 -
 - 2.3 ROAD CROSS SECTION..... - 5 -
 - 2.3.1 Section 1..... - 5 -
 - 2.3.2 Section 2..... - 5 -
 - 2.3.3 Section 3..... - 6 -
 - 2.3.4 Section 4..... - 7 -
 - 2.4 PARKING PROVISION..... - 8 -
 - 2.5 PUBLIC TRANSPORT..... - 8 -
 - 2.6 METROPOLITAN AREA ROAD WIDENING PLAN (MARWP)..... - 9 -
 - 2.7 THE NORTHERN EXPRESSWAY (NEXY) AND THE NORTHERN CONNECTOR - 9 -
 - 2.8 STURT HIGHWAY UPGRADE..... - 10 -
 - 2.9 POTENTIAL FUTURE DUPLICATION OF MAIN NORTH ROAD AND ADELAIDE ROAD..... - 10 -
 - 2.10 ASSET SUSTAINMENT..... - 10 -
 - 2.10.1 Road Pavement..... - 10 -
 - 2.10.2 Structures - 11 -
 - 2.10.3 Electrical Assets - 11 -
 - 2.10.4 Routine Maintenance..... - 12 -
- 3 ROAD ROLE AND FUNCTION - 13 -**
 - 3.1 FUNCTIONAL OUTCOMES - 13 -
- 4 RECOMMENDED ROAD LAYOUT - 16 -**
- 5 ROAD SAFETY..... - 18 -**
 - 5.1 INTERSECTION CRASHES..... - 18 -
 - 5.2 SPEED ENVIRONMENT..... - 19 -
 - 5.3 BICYCLE LANES..... - 19 -
 - 5.4 PEDESTRIANS..... - 20 -
- 6 ROAD CAPACITY - 21 -**
 - 6.1 CURRENT TRAFFIC VOLUMES..... - 21 -
- 7 TRAFFIC ISSUES AND RECOMMENDATIONS - 23 -**
 - 7.1 RECOMMENDATIONS FOR INTERSECTIONS/ JUNCTIONS..... - 23 -
 - 7.1.1 Main North Road - Redbanks Road..... - 23 -
 - 7.1.2 Main North Road – Paxton Street..... - 24 -
 - 7.1.3 Main North Road – Flinders Street..... - 27 -
 - 7.1.4 Murray Street - Horrocks Place (The Barossa Valley Way)..... - 28 -
 - 7.1.5 Adelaide Road – Seventh Street & Twelfth Street..... - 29 -

7.1.6	<i>Adelaide Road – Sixth Street</i>	- 30 -
7.1.7	<i>Main North Road – Fifth Street and Nineteenth Street</i>	- 32 -
7.1.8	<i>Main North Road and Barnet Street</i>	- 34 -
7.1.9	<i>Main North Road – Trinity Drive</i>	- 38 -
7.2	RECOMMENDATION FOR MID-BLOCK SECTIONS.....	- 39 -
7.2.1	<i>Section 1 – Kestrel Rd to Redbanks Rd</i>	- 41 -
7.2.2	<i>Section 2 – Redbanks Rd to Horrocks Place (Barossa Valley Way)</i>	- 41 -
7.2.3	<i>Section 3 – Seventh Street to Sherriff Street</i>	- 41 -
7.2.4	<i>Section 4 – Sherriff Street to Trinity Drive</i>	- 42 -
7.3	OTHER TRAFFIC MANAGEMENT/ COMMUNITY CONCERNS.....	- 42 -
8	TREATMENT SUMMARY	- 43 -
8.1	INTERSECTION/ JUNCTION TREATMENTS.....	- 43 -
8.2	MID-BLOCK TREATMENTS.....	- 45 -
9	CONCLUSION	- 46 -
10	APPENDIX A – INTERSECTION CRASH DATA	- 47 -
11	APPENDIX B – MID BLOCK CRASH DATA	- 50 -

GLOSSARY

AADT	Average Annual Daily Traffic – The number of axle pairs crossing at a specific site per year and dividing this number by 365
DDA	Disability Discrimination Act 1992
DTEI	Department for Transport, Energy and Infrastructure
Intersection	Place where two or more roads cross
Junction	Place where two or more roads meet
MARWP	Metropolitan Area Road Widening Plan
NEXY	Northern Expressway
Pedestrian Refuge	An island in a carriageway set aside for the exclusive use of pedestrians
PDO	Property damage only
Right Angle Crash:	A crash occurring with vehicles turning right out of a side street
Right Turn Crash	A crash occurring with a vehicle turning right from the main road into a side street
RMP	Road Management Plan

1 OVERVIEW

This draft Road Management Plan (RMP) provides an overall view of the existing operational and safety issues and provides recommendations for traffic management improvements on the following sections of the arterial road network in Gawler:

- Main Street and Murray Street, between The Gawler Bypass and Horrocks Place (Barossa Valley Way)
- Adelaide Road, between Twelfth Street and Sheriff Street
- Main North Road, between Sheriff Street and Trinity Drive.

The draft Road Management Plan is not intended to address potential longer term major road improvement needs (eg road duplication) resulting from future residential and industrial development. Major road improvements that would significantly change the operation of the road corridor are highlighted where known, however extensive investigations of any major improvements are outside the scope of this document.

This document is focussed at identifying potential short term road improvement needs to improve safety and traffic operations of the existing roads.

The process undertaken to identify existing traffic management issues included:-

- research of historical transport investigation records
- site auditing and observations
- analysis of recorded crash data and traffic flow statistics
- preliminary discussions with council officers and through information gained from the local community

By looking at a road on a route basis, traffic management improvements can be developed to take into account a range of factors including:-

- broader transport objectives
- role and function of the road
- needs of all modes of transport including, freight, buses, bicycles and pedestrians
- community needs and expectations
- ensuring that any treatments are consistent with longer term plans for the road or area where these are known
- appropriate standards and guidelines to ensure consistency and effectiveness of any proposed treatments

This draft RMP will form the basis for discussion and comment with the Town of Gawler and the community with a view to further development and eventual implementation of the plan. Note that whilst the draft RMP proposes a number of recommended treatments, the proposals are presently not funded. Funding for any improvements will need to be considered against other statewide priorities in future financial years. This approach ensures that the funds available each year are allocated to the projects where the greatest benefit can be provided to the community as a whole.

2 EXISTING ROAD ENVIRONMENT

2.1 GENERAL DESCRIPTION

The section of Main North Road and Adelaide Road that is referred to in this report is located within the Town of Gawler. It is an urban arterial road, which provides access to the Gawler Township and connects to the Barossa Valley Way and the Sturt Highway providing access to the Barossa Valley, Roseworthy, Clare Valley, Freeling townships and beyond.

For the purposes of the report, the road has been divided into four sections of similar cross section and road conditions (refer to Figure 2-1), although the road through these sections varies as detailed in Section 2.3;

Section 1: Main North Road between Kestrel Road and Redbanks Road

Section 2: Main North Road and Murray Street between Redbanks Road and Horrocks Place

Section 3: Adelaide Road between Twelfth Street and Sheriff Street

Section 4: Main North Road between Sheriff Street and Trinity Drive

The length of Murray Street between Section 2 and 3 has not been included in this study as responsibility for the care, control and maintenance of this road is with the Town of Gawler.

2.2 BEHAVIOUR OF TRAFFIC AND LAND USE

Main North Road, Evanston, Adelaide Road and Main North Road, Willaston all form one road. The abutting land use, however, changes along the length of the road.

The section of Main North Road in Willaston services mainly residential development with some lower demand service facilities including a post office and caravan park. Traffic is generated from the suburbs of Hewett and Willaston. Access from outer lying areas such as Freeling, Roseworthy and Mallala to Gawler is gained via the Sturt Highway and other arterial roads linking these towns to access shopping, business and educational facilities.

Adelaide Road services part of Gawler's shopping precinct and supports a number of convenience facilities, including fast food outlets.

Main North Road through Evanston services a mix of commercial, residential and educational facilities. Access to the Gawler area from the south is achieved by the connection to the Gawler Bypass.

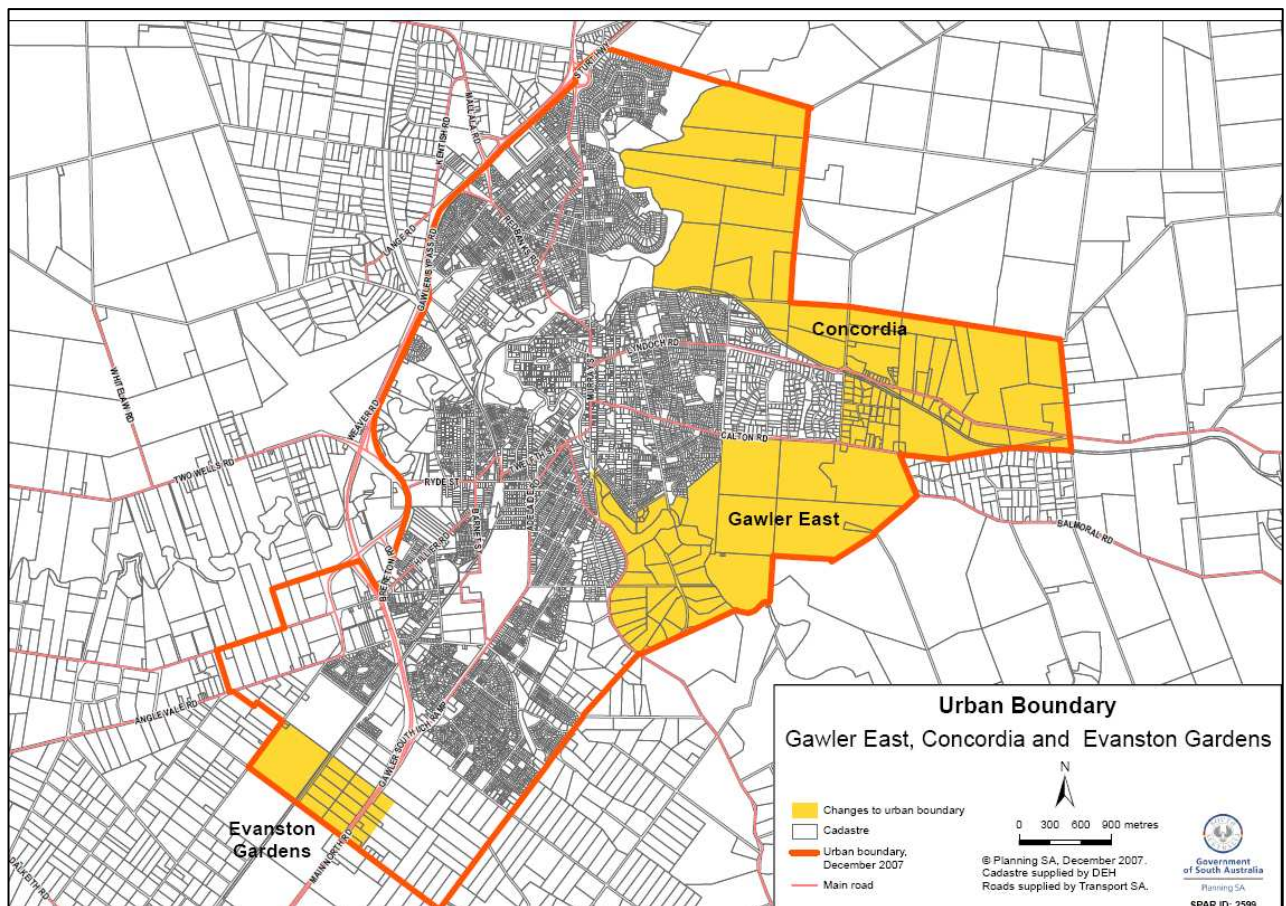
Development occurring now and in the future in the Gawler area will predominately be of a residential nature (in terms of property numbers). Vacant areas within Evanston Gardens and Evanston South have formed part of the Urban Growth Boundary for some time, and residential developments are being considered for these areas.

In December 2007, the State Government formally adopted its proposal to expand Adelaide's urban growth boundary to include additional land for medium term urban development. Under the changes, a total of approximately 900 hectares of land has been brought inside the urban boundary in the Gawler East (320ha), Concordia (500 ha) and Evanston Gardens (79 ha) areas and earmarked for future residential development over the next 15 – 20 years.

There is also the potential for infilling of vacant land to the east and west of Main North Road at Evanston Park and Evanston. This will see the generation of additional traffic to Gawler for shopping and other services. Some of this traffic will need to access the school precinct, as well as travel further south to access broader employment opportunities.

This additional demand may drive the expansion of existing service and retail facilities within the Gawler town centre. This may further exacerbate congestion at these locations where traffic demand increases, but where there is limited opportunity to improve the efficiency of the road network due to lack of road reserve in developed locations. Consideration will need to be given to the location and level of access provided to any new or expanded development.

Council should review the section of Murray Street under its control to define the level of accessibility and amenity for this main street, taking into account the possible future expansion of retail facilities predominantly located in the precinct to the west of Murray Street. Alternatives to access the shopping precinct also need to be considered such as the Julian Whitelaw Terrace connection parallel to Murray Street.



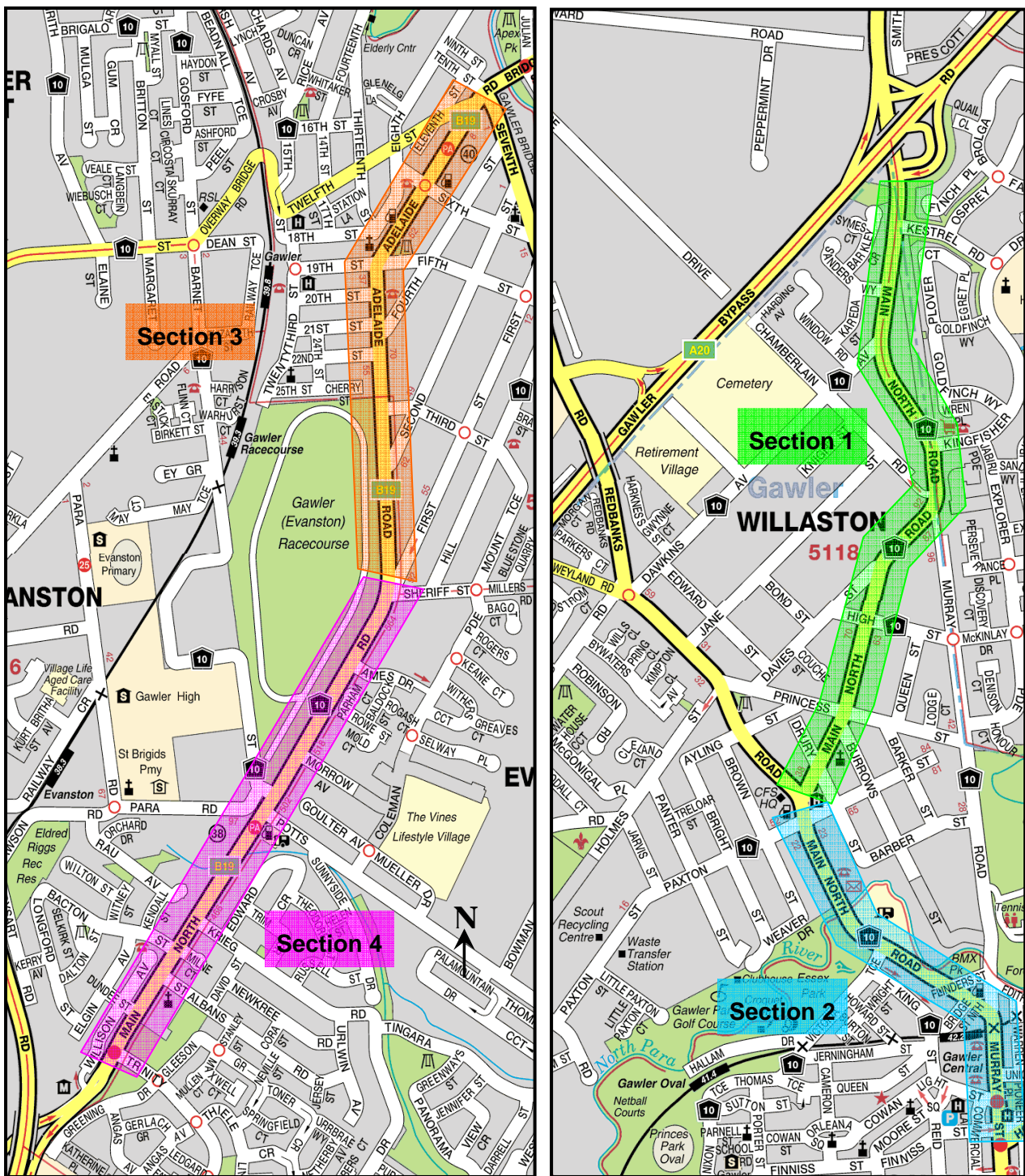


Figure 2-1 – Length of study along Main North Road and Adelaide Road Evanston Park to Hewett

2.3 ROAD CROSS SECTION

The arterial roads through Gawler are for the most part two lane roads with one lane in each direction. The general cross section varies from unsealed shoulders to bike lanes and painted medians.

2.3.1 Section 1

Kestrel Road to Redbanks Road:

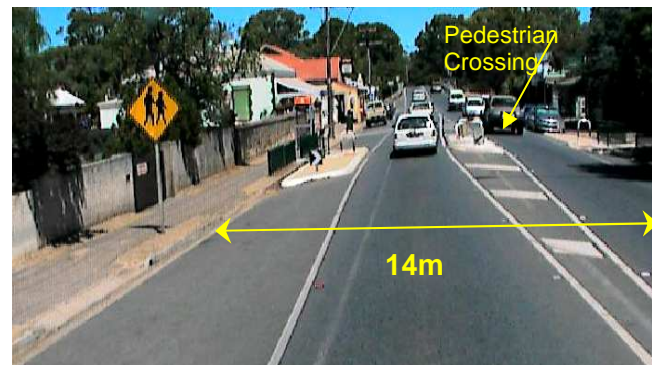
- 7m wide pavement
- no kerbing, wide unsealed shoulders
- no bicycle lane
- no formalised parking area
- open verge drains on both sides and trees on both sides
- substandard road lighting
- road reserve width approximately 40 metres



2.3.2 Section 2

Redbanks Road to North Para River:

- 14m wide pavement
- kerbing on both sides
- raised pedestrian refuge and associated road lighting
- formalised on street parking
- no bicycle lane
- substandard road lighting
- road reserve width approximately 40 metres



North Para River – Flinders Street

- varying pavement width
- narrow road width over North Para River bridge
- kerbing in front of caravan park – setback from road carriageway
- no dedicated on road bicycle facilities
- on road parking on both sides between Victoria Tce and Flinders St
- some footpath facilities provided
- substandard road lighting



Flinders Street – Horrocks Place

- 15m wide pavement
- kerbing on both sides
- no dedicated on road bicycle facilities (except at Cowan St)
- on road parking on both sides
- some footpath facilities provided
- substandard road lighting
- signalised junction with Cowan St



2.3.3 Section 3

Seventh Street to Fifth/Nineteenth Street:

- 19m wide pavement
- kerbed on both sides - painted median scheme
- bicycle lanes in both directions
- formalised parking lanes
- raised pedestrian refuge north of Sixth Street
- substandard road lighting
- road reserve width approximately 25 metres



Fifth/Nineteenth Street to Second Street:

- 15m wide pavement
- kerbed on both sides
- no bicycle facilities
- formalised road parking
- substandard road lighting
- road reserve width approximately 21 metres



Second Street to Sherriff Street:

- 10m wide pavement
- kerbing and on road parking permitted on eastern side
- footpath on eastern side only
- unsealed shoulder on western side of carriageway
- no bicycle facilities
- formalised parking available on eastern side
- substandard road lighting
- road reserve width approximately 20 metres



2.3.4 Section 4

Sherriff Street to Potts Road:

- 7m wide pavement
- unsealed shoulder on both sides with open drain on eastern side
- no bicycle facilities
- no formalised on road parking
- substandard road lighting
- Lack of drainage infrastructure and existing drainage issues
- road reserve width approximately 20 metres



Potts Road to Krieg Road:

- 7m wide pavement
- kerbing and footpath on eastern side, unsealed shoulder on western side with open drain
- full time cycle lanes begin north of Krieg Road.
- no formalised on road parking
- substandard road lighting
- road reserve width approximately 25 metres



Krieg Road to Trinity Drive:

- 13m wide pavement
- raised median with footpath and kerbing on eastern side
- full time cycle lanes
- on road parking not permitted
- road lighting generally meets current standards
- road reserve width varies between approximately 22 - 25 metres



2.4 PARKING PROVISION

On street parking is provided along most of the arterial road link through Gawler. Sections 2 and 3 have a good level of on street parking. Both sections 1 and 4 do not have formal parking areas but unmarked and unsealed areas where parking can occur.

Parking bays are recommended in line with the general treatment shown in Figure 4.1. In some sections where it is proposed to install a painted median, or at locations where right turn lanes are proposed, either part time or full time parking bans will be required.

Council will need to consider the provision of additional off street parking in the commercial and retail areas. Opportunities may arise when assessing future development proposals to expand or create new facilities to ensure appropriate levels of parking are provided within the development site.

2.5 PUBLIC TRANSPORT

Gawler is served by the Adelaide to Gawler rail line providing access between Gawler and Adelaide. Within Gawler there are a large number of private transport operators of buses, coaches and vehicles that use the arterial road link through Gawler. There are no metroticket bus services operating in Gawler.

Currently Barossa Adelaide Passenger Service are the main provider accessing Gawler on a daily basis. These services mainly utilise Murray Street and Adelaide Road (up to 16 buses per day with varying frequencies - ie between 2 - 4 services per day) and Main North Road (up to 8 buses a day with varying frequencies). These services are providing access between the Barossa and Adelaide as well as school services in surrounding areas. Other streets being accessed regularly on weekdays include Twelfth Street, Nineteenth Street, 22nd Street, Lyndoch Road, Mallala Road, Carlton Road, Cheek Avenue and Kentish Road (information supplied by bus operators).

Smaller taxi services and the Dial-A-Ride service travel within the township of Gawler (and generally provide access to key facilities and services) and while there may be considerable use of these vehicles they are generally smaller people mover vehicles. There may be scope in the future however to consider these vehicles when planning parking, bus indents, provision of footpaths etc to assist with passenger loading, particularly as the majority of these passengers have disabilities or other mobility constraints.

2.6 METROPOLITAN AREA ROAD WIDENING PLAN (MARWP)

The MARWP Act was developed in 1972 as a means to control building works so that land would be available for the widening of existing and construction of future arterial roads with minimum disruption to abutting property, should this need arise in the future.

For the arterial roads included in this RMP no MARWP requirements have been identified. Unless land acquisition is undertaken, any future road widening would need to be undertaken within the existing road reserve width to reduce effecting adjacent properties and to manage projects within reasonable cost limits. Any projects requiring land acquisition will generally be high cost and will provide less benefits to road users compared to other lower cost projects (in terms of benefit / cost ratio).

2.7 THE NORTHERN EXPRESSWAY (NEXY) AND THE NORTHERN CONNECTOR

The proposed Northern Expressway will form part of the AusLink National Network. It will provide a highly effective bypass route that will ease congestion on Main North Road. It will connect the Sturt Highway (the Adelaide to Sydney AusLink Network Corridor) at Gawler to Port Wakefield Road (the Adelaide to Perth AusLink Network Corridor). The NEXY corridor will traverse a new route across the northern Adelaide plains through mainly rural and horticultural land. It will be of rural freeway design standard and consist of divided dual high-speed carriageways, with grade separated access to main connecting roads and restricted access to local roads.

The State Government has also announced the intention to investigate the feasibility of a proposed road and rail Northern Connector, which would connect the Northern Expressway to the Port River Expressway and South Road.

NEXY and the proposed Northern Connector are primarily aimed at improving access to Adelaide for freight transport via the Sturt Highway, including freight for export from interstate as well as the key regional fruit and wine producing areas of the Riverland and Barossa Valley. Together with the Port River Expressway it will provide a high standard link between the Sturt Highway at Gawler and the Port of Adelaide, South Australia's main shipping port.

Further economic, amenity and safety benefits will be provided to people living in the rapidly developing northern suburbs that straddle Main North Road, as well as those living on the northern Adelaide plains, wishing to access Adelaide and Adelaide's western suburbs.

Redbanks Road will provide a connection between NEXY and the northern areas of Gawler. Traffic volumes on Redbanks Road are therefore expected to increase. Refer to Section 7.1.1 of this document for proposed treatments to address expected traffic volumes and existing safety issues.

The Twelfth Street connection through to Two Wells Road may provide an attractive alternative to those people living on the southern side of Murray Street to access NEXY rather than using the Gawler Bypass / Main North Road to access areas to the south. This may place additional loading on the Adelaide Road junction which currently experiences a significant number of crashes (refer Section 7.1.5).

2.8 STURT HIGHWAY UPGRADE

The Federal government provided funding in 2006 to upgrade the Sturt Highway from Gawler to Nuriootpa. Access improvements at the Gawler Belt Interchange will form part of this major upgrade.

Upgrading of the interchange, including duplication of the existing bridge over Main North Road, is currently under construction and is expected to be completed in early 2009. The upgrade will allow for all movements to and from Main North Road and the Sturt Highway which will improve access to and from Gawler for the extensive residential development in Hewett, immediately south-east of the interchange.

2.9 POTENTIAL FUTURE DUPLICATION OF MAIN NORTH ROAD AND ADELAIDE ROAD

It is recognised that traffic volumes on Main North Road and Adelaide Road are continuing to grow, and that some congestion occurs on the existing two lane, two way road configuration during peak periods. Despite the growth in traffic volumes, the existing single lane in each direction has sufficient capacity to cater for the current traffic volumes (refer Section 6.1).

Major capital investments into road improvements, such as the duplication of roads, needs to be considered in the context of all investment needs across the state. The Strategic Infrastructure Plan for South Australia provides the framework for the consideration of all such major investments, with available funding being focussed towards high priority projects. Priority road investment needs within the state at this time include the completion of the Port River Expressway, construction of the Northern Expressway, upgrading South Road, enhancing freight routes, and improving safety. The Strategic Infrastructure Plan also identifies the need to investigate the potential for a north east bypass of Gawler. This potential new road is being investigated by the Department in the context of the recent changes to the Urban Growth Boundary.

At this stage the duplication of Main North Road and Adelaide Road is not considered to be a high priority. The Department will however continue to monitor the need and priority for any major improvements to the road.

2.10 ASSET SUSTAINMENT

DTEI undertake a number of asset sustainment activities across the road network, including the following.

2.10.1 Road Pavement

DTEI undertook a visual inspection of the road surface in March 2008 and revealed the following:

- Gawler Bypass (southern end) - Twelfth St: pavement is in average condition, with some crazing and environmental cracking present.
- Barossa Valley Way - Redbanks Road: pavement is generally in good condition.
- Redbanks Road - Gawler Bypass (northern end): pavement is in average condition, with a significant amount of environmental cracking present.

The following major pavement rehabilitation works have recently been undertaken on this road:

- 1999/2000: Barossa Valley Way - North Para River
- 2000/2001: North Para River - Redbanks Road

There are no proposed plans to undertake major pavement rehabilitation works on this road in the current forward program (ie next three years), however DTEI will re-assess this road in conjunction with other roads across the Adelaide Metropolitan area in determining the list of potential candidate projects to receive funding in future financial years.

2.10.2 Structures

Two existing drainage structures are identified within the roads under investigation in this RMP:

- Culvert over Potts Creek

The culvert consists of two sections, an older 3-cell concrete box culvert upstream and a newer single cell culvert downstream.

The structure was last inspected in September 2007 and its condition was rated as "good". At this time, the suggested reconstruction would be no sooner than the year 2026.

This culvert has not required any major maintenance work over the last 5 years, nor are there any planned works in the next 5 years.

- Bridge over North Para River – Willaston Bridge

This bridge consists of 3 spans of iron girders approximately 19m in length with a concrete bridge deck.

The bridge was last inspected in September 2006 and its condition rated as "good". At this time, the suggested reconstruction would be no sooner than the year 2030.

The bridge was strengthened to T44 standard in 2004. There are no major works planned on this structure for the next five years.

2.10.3 Electrical Assets

DTEI manage the current electrical assets which include road lighting, either mounted on ETSA stobie poles or in some cases fixed on DTEI tubular light poles. The majority of road lighting on Main North Road and Adelaide Road does not meet the current road lighting standards, as those standards have been reviewed over time, while the asset has not been upgraded to meet the latest requirements.

It should be noted that the street lighting mounted on ETSA stobies is owned by ETSA, with DTEI paying a tariff to ensure the lighting is maintained.

DTEI will need to work with ETSA to negotiate a program of works to upgrade the existing lighting to the latest standards. There will be a high cost associated with this work.

Other electrical assets include traffic signals and pedestrian actuated crossings (PAC) at the following locations:

Trinity Drive
Horrocks Road
Cowan Street
Near Potts road
Between Sixth and Seventh Streets

Road lighting assets are regularly audited and any identified maintenance undertaken as required. Traffic signal and PAC assets are subject to a routine maintenance program.

2.10.4 Routine Maintenance

Routine Maintenance activities on Main North Road and Adelaide Road are undertaken through an external maintenance contract. The contract is reviewed every 5 years.

Works undertaken through these contracts include:

- Undertaking the inspection, recording and reporting of defects
- Preparing and implementing the Maintenance program and works program
- Undertaking the repair of defects that have reached intervention level

3 ROAD ROLE AND FUNCTION

Both Main North Road and Adelaide Road are significant roads through the residential and commercial areas of the township of Gawler, and are vital in providing access throughout the local area of Gawler. In the context of the Planning Strategy for Metropolitan Adelaide, neither of these roads have been identified as a Strategic route, or a Primary or Secondary Freight route. Adelaide Road and Main North Road (south of the centre) are nevertheless both considered to be Primary Commuter and Secondary Cycling routes by the Department.

The broader role and function of these roads is set out below:

- cater for longer distance commuter trips to/from Gawler during peak traffic periods
- providing access to a number of residential, commercial, educational and other precincts of cultural and social activity
- provide links between Gawler and other areas of Adelaide, as well as between Gawler and regional areas to the north and west of the state (and beyond) via the Sturt Highway and Barrier Highway. Importantly Main North Road and Adelaide Road through Gawler is not considered to be a major 'through' route for traffic, as this is the role of the Gawler Bypass.
- provide a link to important tourist destinations both within Gawler and beyond in the Barossa Valley
- provide reasonably long, inter-suburban connections and access to key cycle trip generators (e.g. local shopping, schools and other places of social activity)
- some sections of these roads are areas of high pedestrian activity associated with concentrated areas of commercial, business, educational or entertainment activity (e.g. schools, shopping centres, businesses)
- providing a safe, Disability Discrimination Act (DDA) compliant and pedestrian friendly road layout is a key consideration in identifying improvement needs to meet the above functions.

3.1 FUNCTIONAL OUTCOMES

Functional outcomes are safety and operational objectives to assist in the selection of traffic management components such as traffic signals, traffic lanes, access control, roadside environment and pedestrian facilities.

A functional outcomes analysis has been used to develop an overall plan of how the arterial roads being considered in this RMP should look and operate.

Recommended design and operational requirements for these roads are shown in Table 3.1 below.

Table 3-1 - Functional Outcomes and recommended design and operational requirements for Main North Rd and Adelaide Road, Gawler.

System Management Components	Functional Outcomes	Recommended Design and Operational Requirements
CAPACITY / LANES	<ul style="list-style-type: none"> provide adequate road space and number of lanes to ensure safe and efficient operation cater for bicycles 	<ul style="list-style-type: none"> one uninterrupted traffic lane in each direction to cater for existing traffic volumes indent bus stops where necessary lane widths of 3.5m lanes or greater needed on single lane roads provide cycle lane, or wider kerb lane to accommodate bicycles
TURNING TRAFFIC	<ul style="list-style-type: none"> traffic turning right or U turning, should not interfere with the flow of through traffic 	<ul style="list-style-type: none"> provide right turn storage lanes at key intersections or at busy access points painted median to be provided for the entire length raised median to be used at critical locations ban all U Turn manoeuvres at median openings where protected right turn lanes are NOT provided
ACCESS	<ul style="list-style-type: none"> in general, maintain existing level of access to local areas. limit direct access where safety or efficiency takes precedence 	<ul style="list-style-type: none"> use painted medians to provide safe access to adjacent property provide raised medians to prevent undesirable movements / access.
SPEED LIMITS	<ul style="list-style-type: none"> speed limits appropriate to road environment and adjacent development 	<ul style="list-style-type: none"> maintain existing speed limits
TRAFFIC MANAGEMENT AND SAFETY AT INTERSECTIONS	<ul style="list-style-type: none"> minimise conflict points at busy intersections to reduce crashes 	<ul style="list-style-type: none"> provide active control (e.g. traffic signals, roundabouts) at major intersections if warranted where possible, minimise conflict points at uncontrolled intersections to improve safety (e.g. ban turn or cross movements) use raised medians at intersections where clearer traffic control is needed
PEDESTRIANS AMENITY AND SAFETY	<ul style="list-style-type: none"> ensure a safe accessible road environment for pedestrians consider needs of more vulnerable groups (e.g. children, older pedestrians) 	<ul style="list-style-type: none"> provide raised medians / walk throughs at busy pedestrian crossing points provide kerb ramps or cut outs at all road crossing points provide appropriately designed footpaths with appropriate clear width and height clearances (Council) reduce traffic speeds where appropriate provide road lighting to appropriate standards all pedestrian facilities to be DDA compliant

System Management Components	Functional Outcomes	Recommended Design and Operational Requirements
LANDSCAPING AND ROADSIDE FURNITURE	<ul style="list-style-type: none">• remove or protect roadside hazards	<ul style="list-style-type: none">• trim or remove vegetation where necessary for road safety• remove unprotected roadside obstacles or drop offs (e.g. exposed surface drainage/culverts)• ensure new landscaping / urban design elements do not create a new hazard

4 RECOMMENDED ROAD LAYOUT

The painted median shown in figure 4.1 below represents the preferred cross section for the arterial roads considered in this Road Management Plan.

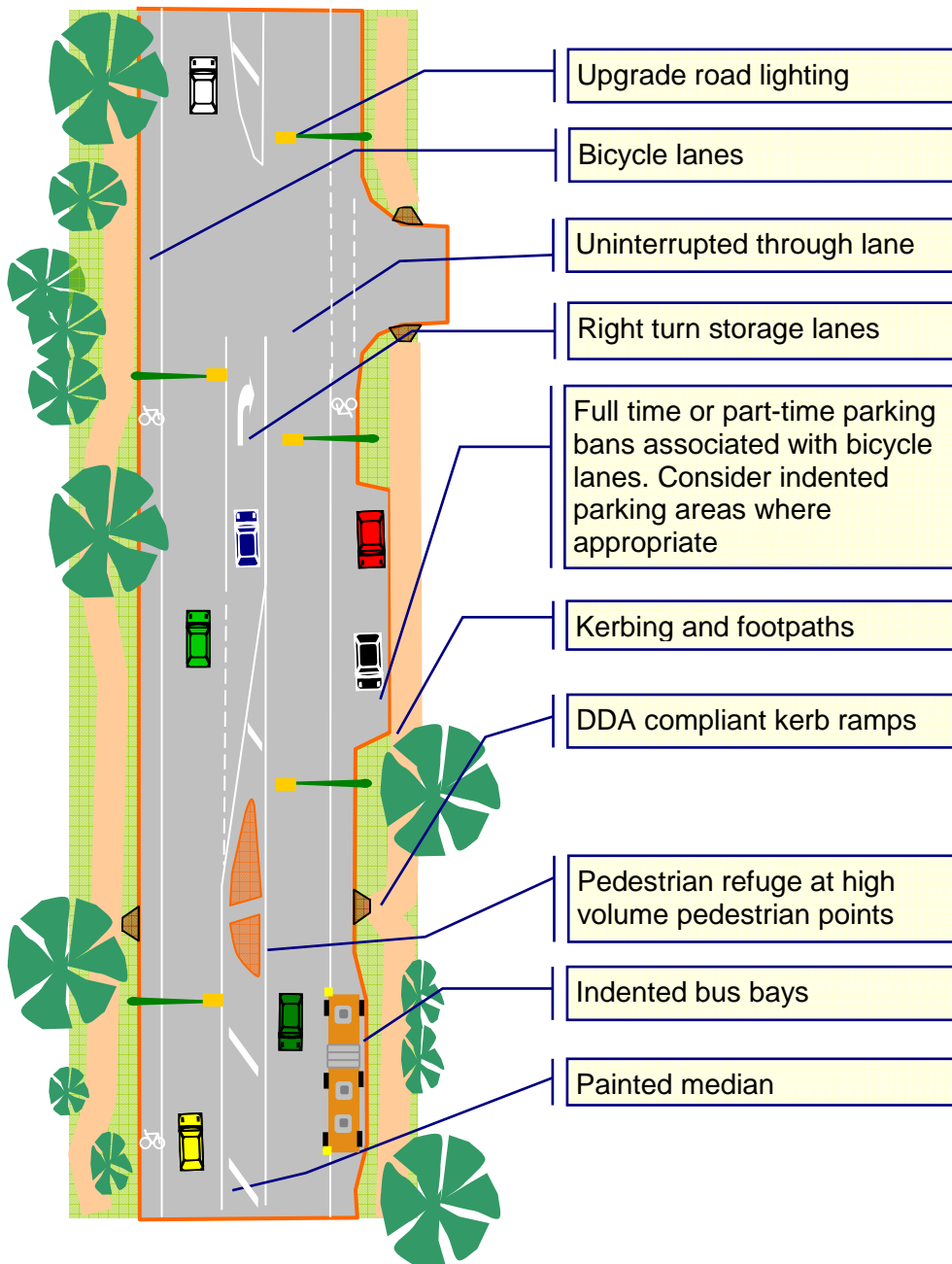


Figure 4-1 – Painted Median Scheme, recommended cross section

Painted medians provide numerous road safety, traffic flow and economic benefits to road users by:

- providing more orderly traffic flow without reducing or increasing the road traffic capacity
- reducing the likelihood of rear-end collisions through the creation of right turn lanes
- preventing the dangerous and illegal practice of overtaking on the left hand side
- improving pedestrian safety through the provision of an area to stop in the middle of the road
- improving cyclist safety through the provision of a bicycle lane
- separating opposing traffic flows, reducing the potential of head on collisions
- maintaining access to adjacent properties

The recommended road layout will need to be adapted to suit the available road reserve width, while endeavouring to achieve the overall benefits of a painted median scheme as described above.

Bicycle lanes are included in the preferred cross section. They are dedicated lanes for cyclists and their aim is to help cyclists, motorists and pedestrians to share the available road space with greater safety and allow a smoother flow of traffic.

Bicycle lanes are marked with continuous painted lines on the road, they are signed and a bicycle symbol may be painted in the lane itself. Some bicycle lanes operate during specific times, such as peak hours, and others operate all the time. Signage will specify if lanes only operate during certain times.

Parking restrictions may be required in some locations to enable the implementation of the proposed scheme (refer Section 2.4)

Upgrade of lighting will be reviewed as part of the painted median scheme. Particular attention will be given to locations of high pedestrian volumes and at those locations where raised islands are introduced into the road cross section.

The installation or upgrade of kerbing, drainage systems, footpaths and driveways comes under the care, control and management of the local council, Town of Gawler. Any roadworks involving the upgrade or installation of the above will require coordination and cooperation between DTEI and Town of Gawler. This may include, but not be limited to, sharing of resources, working cooperatively to secure alternative funding sources, aligning works programs to deliver specific projects, etc.

5 ROAD SAFETY

5.1 INTERSECTION CRASHES

Analysis of the crash data includes only those recorded events that resulted in casualties (ie personal injuries or fatalities) or property damage where the estimated value of damage was greater than \$3000.

Intersections with higher crash rates (i.e. more than 8 crashes in 5 years) are listed in Table 5-1 below, including intersection location and crash type. Analysis of these sites and recommendations are made in Section 7. All other crashes are listed in Appendix A for reference.

Table 5-1 - Key Intersection Crashes 2002- 2006

<i>Sect.</i>	<i>Intersection</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Casualty</i>	<i>Total</i>	<i>Traffic Volumes</i>
2	Paxton Street	Right Angle	10	1	11	14300
		Hit Fixed Object	1	-	1	
		Total	11	1	12	
2	Flinders Street	Rear End	4	4	8	15300
		Right Turn	-	1	1	
		Total	4	5	9	
2	Horrocks Place (Barossa Valley Way)	Right Turn	5	-	5	15300
		Right Angle	3	2	5	
		Hit Fixed Object	3	-	3	
		Side Swipe	-	1	1	
		Rear End	1	-	1	
		Hit Pedestrian	-	1	1	
		Total	12	4	16	
3	Twelfth Street	Rear End	3	4	7	21900
		Right Angle	1	2	3	
		Hit Pedestrian	-	2	2	
		Right Turn	1	-	1	
		Total	5	8	13	
3	Sixth Street	Rear End	7	2	9	21900
		Hit Fixed Object	3	-	3	
		Right Angle	1	1	2	
		Hit Pedestrian	-	2	2	
		Side Swipe	1	-	1	
		Total	12	5	17	

3	Nineteenth Street/ Fifth Street				21900	
		Right Angle	2	3		5
		Right Turn	1	-		1
		Head On	-	1		1
		Rear End	1	-		1
Total	4	4	8			
4	Barnet Street				20900	
		Right Angle	6	4		10
		Total	6	4		10
4	Trinity Drive				20900	
		Rear End	9	3		12
		Hit Fixed Object	1	-		1
		Total	10	3		13

'Traffic Volume' is the latest AADT information available to DTEI (as at September 2007).

It should be noted that, in general terms, the department prioritises the importance of treating specific crash sites using a ranking system aligned to the criteria to determine a 'Black Spot'. The ranking of both signalised and unsignalised intersections is reviewed each year.

Eligible road safety works are those designed to treat sites with a recorded history of casualty crashes in accordance with the criteria as outlined below.

For discrete sites (e.g. an intersection, mid-block or short road section less than 3 km), the minimum eligibility criterion will be a history of at least three reported casualty crashes in the last five years at the site.

Section 7.1 indicates the relative priority of the individual site based against the Black Spot priority listing.

5.2 SPEED ENVIRONMENT

The existing speed limit on the arterial roads varies between 50km/h and 60km/h. The 60km/h speed limit applies to the southern section of Main North Road, from Trinity Drive to Second Street and 50km/h speed limit applies for the rest of the road, ending at the Gawler Belt interchange.

The speed limits on the arterial roads being considered in this RMP were reviewed in June 2003. DTEI consider the posted speed limits are appropriate to the road environment at this time.

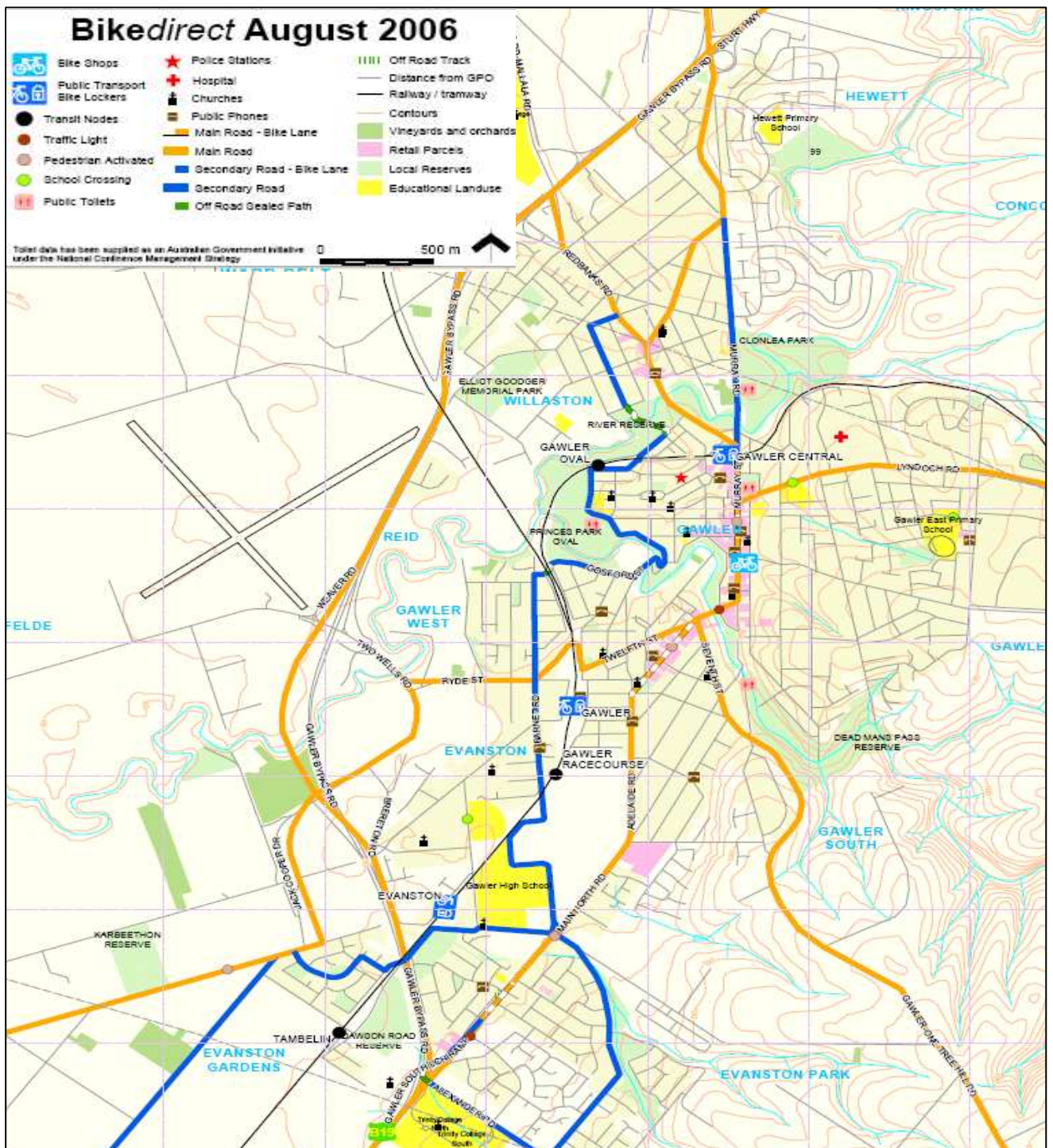
5.3 BICYCLE LANES

Both the "Bike Direct" network (Figure 5.1) and the Town of Gawler's "Local Area Bicycle Plan" identify the arterial road link through Gawler as an important link in the local bicycle network. There are very few alternatives for cyclists travelling north-south through Gawler, with the only alternative route being Barnet Road/Gosford Street, across the river and railway line. This alternate route is very indirect, making Main North Road the preferred cycling route.

Formal bicycle lanes are provided in some areas of section 3 & 4. Therefore widening of the narrow cross sections incorporating marked bicycle lanes have been recommended in line with the recommended cross section for this road to provide safer facilities for on road cyclists along the arterial road through Gawler.

The Town of Gawler is currently preparing a Cycling and Walking Strategy for Gawler. Once this work is completed the recommendations will need to be reviewed in line with the RMP to identify any conflicts or potential opportunities to undertake projects to achieve outcomes from both perspectives.

Figure 5-1 - Bike Direct Map, Main North Road Gawler



6 ROAD CAPACITY

6.1 CURRENT TRAFFIC VOLUMES

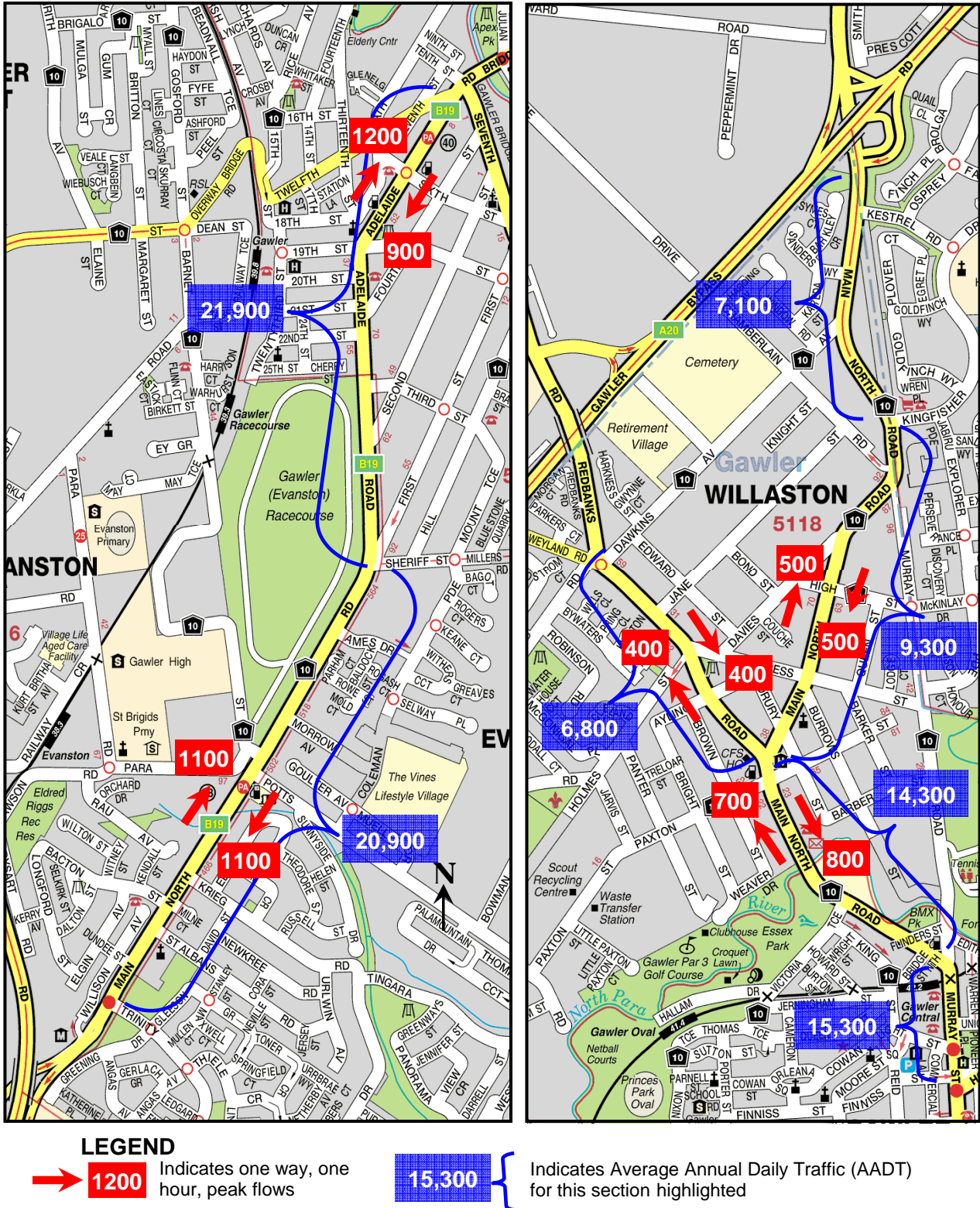


Figure 6-1 - Average Annual Daily Traffic (AADT) and one way peak hour flows (2006)

The Annual Average Daily Traffic (AADT) volumes for all road sections in this report vary from 5,400 vehicles on Main North Road in Hewett to 21,900 on Adelaide Road south of Gawler town centre. Figure 6-1 provides a map showing the distribution of AADT volumes.

It should be noted that a single clear lane of traffic has the capacity to cater for between 1400 to 1800 vehicles per hour, dependant on the number and frequency of side roads and other factors which influence the smooth progression of traffic along a road. (*Austroads, Guide to traffic engineering practice, Part 2, Road way capacity*).

Currently, the existing road configuration of the road is capable of supporting the recorded traffic volumes along the roads covered in this RMP.

Some sections of the road have narrow pavement widths which lowers capacity. Road widening to provide additional road width for turning traffic, stopping busses and cyclists in these sections is therefore highly desirable.

7 TRAFFIC ISSUES AND RECOMMENDATIONS

7.1 RECOMMENDATIONS FOR INTERSECTIONS/ JUNCTIONS

7.1.1 Main North Road - Redbanks Road

The Main North Road / Redbanks Road intersection experienced 5 recorded crashes in the period from 2002 to 2006. From a safety perspective the site is performing relatively well when considering there are some 600 other unsignalised junctions across the metropolitan road network that experienced higher instances of casualty crashes over the same period. Actual observations of the operation of the site during peak periods have shown that there are significant delays experienced on Redbanks Road. These delays are expected to increase when NEXY is operational.

Table 7-1- Summary of crashes at Main North Road and Redbanks Road junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
1	Redbanks Road									
		Right Angle	3	1						4
		Head On	-	1						1
		Total	3	2		3	1	1		5

Traffic analysis of the intersection using predicted traffic volumes in 2011 and 2021 show that an intersection treatment is required to cater for the large increase in volume. Two options have been reviewed which will improve the congestion through the intersection. Treatment options include traffic signals or a roundabout; refer to Figure 7-1 and Figure 7-2 respectively.

DTEI has reviewed the two options in conjunction with a review of the operational issues associated with the Main North Road / Paxton Street intersection (refer Section 7.1.2).

The roundabout option provides the best solution to address issues at both the Redbanks Road and Paxton Street intersections, maintaining accessibility to Paxton Street west while enabling a reduction of conflicting movements at the Paxton Street / Main North Road intersection.

Roundabouts also provide less delays out of peak times, as vehicles are not required to wait for traffic lights to change when other vehicles are not present.

DTEI will present both options to the Council and Community for further consideration and comment.

7.1.2 Main North Road – Paxton Street

There were 12 recorded crashes in the period from 2002 to 2006 at Main North Road and Paxton Street intersection, with the primary type being right angle crashes (11) mainly occurring on Paxton Street (west). It should be noted that of all recorded crashes, only one resulted in injury to vehicle occupants. The operation of this junction should be considered in relation to some 600 other unsignalised junctions across the metropolitan road network that experienced higher instances of casualty crashes over the same period which would qualify those sites for Black Spot funding. This junction does not meet the Black Spot criteria.

Table 7-2 - Summary of crashes on Main North Road and Paxton Street intersection

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
2	Paxton Street									
		Right Angle	10	1						11
		Hit Fixed Object	1	-						1
		Total	11	1	1	3	1	4	3	12

Possible factors contributing to the crashes at this site include poor delineation of the junctions and drivers exiting Paxton Street west without due care.

To address the high incidence of right angle crashes on Paxton Street rationalisation of movements at the junction will be necessary.

Eliminating the cross movements and right turn out movements from Paxton Street west will address the high incidence of crashes at this location. Access restrictions to the local area, in particular the industrial precinct, would be minimised if the roundabout option at Redbanks Road is supported.

The right turn out of Paxton Street west would be achieved by undertaking a 'U Turn' movement via the proposed roundabout at the Redbanks Road junction. (refer Section 7.1.1)

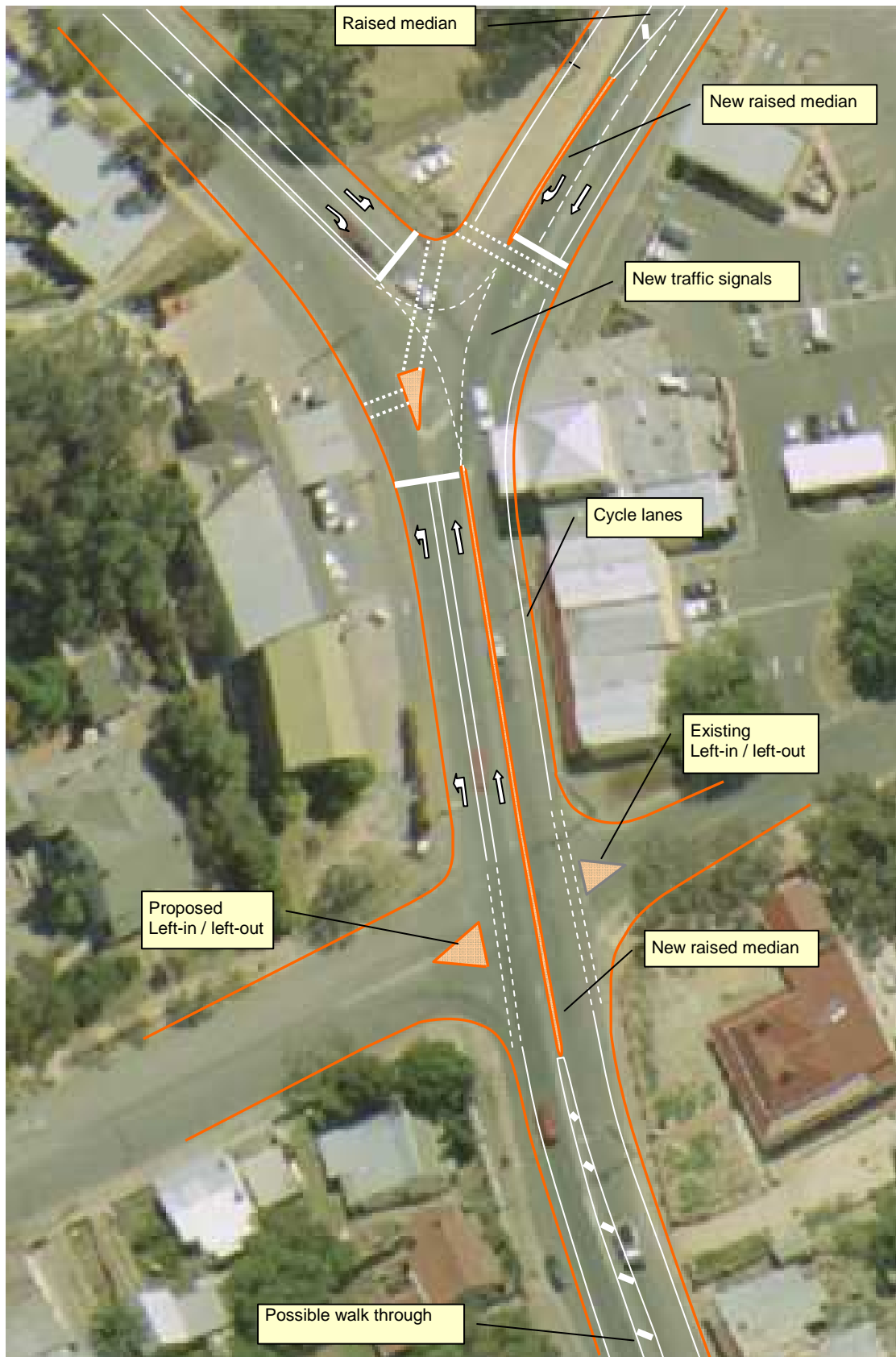


Figure 7-1- Traffic Signal option for Redbanks Road and Main North Road, including Paxton Street



7.1.3 Main North Road – Flinders Street

There were 9 recorded crashes at this site in the period from 2002 – 2006 with 8 rear end crashes and one right turn crash (as shown in Table 7-3). The number of casualty crashes recorded at this site meets the Black Spot criteria, although there are some 160 other unsignalised junctions across the metropolitan area that have a higher number of casualty crashes, and would therefore be a higher priority to address from the departments perspective.

To address the incidence of rear end accidents occurring at the junction, DTEI propose to install a painted right turn lane into Flinders Street (Figure 7-3), in line with the overall proposed painted median treatment as depicted in Figure 4.1.

Larger scale treatments may be required at this junction in the future, dependant on the role of Flinders Street in the local road network hierarchy. Connections to Murray Road provide a link to the Hewett area without the need to traverse Main North Road and particularly through the Redbanks Road junction. DTEI will need to seek Council support for any proposed treatment at this junction to ensure changes do not adversely affect the local road network. Council should undertake a study to consider the local area traffic management requirements to provide input into the consideration of additional treatments at this site.

Table 7-3 - Summary of crashes at Flinders Street junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
2	Flinders Street	Rear End	4	4						8
		Right Turn	-	1						1
		Total	4	5	1	1	1	3	3	9



Figure 7-3 Concept of treatment at Main North Road and Flinders Street junction

7.1.4 Murray Street - Horrocks Place (The Barossa Valley Way)

There were 16 recorded crashes at this site in the period from 2002 – 2006, with the predominant crash types being right turn (5) and right angle (5) crashes (as shown in Table 7-4). The number of casualty crashes recorded at this site meets the Black Spot criteria, although there are some 330 other signalised junctions across the metropolitan area that have a higher number of casualty crashes, and would therefore be a higher priority to address from the departments perspective.

Improvements were made to this intersection in 2005 (Figure 7-4) to improve the junction capacity and pedestrian accessibility. Table 7-4 shows that since the upgrade there has only been one recorded crash (in 2006).

Analysis of the capacity of the junction indicates that it is operating at an acceptable level of service. In view of the low number of crashes since 2005 it is not proposed to recommend any further improvements at this time. DTEI will continue to monitor the operation of this site.

Table 7-4 - Summary of crashes at Murray Street and Horrocks Place junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
2	The Barossa Valley Way (Horrocks Place)	Right Turn	5	-						5
		Right Angle	3	2						5
		Hit Fixed Object	3	-						3
		Side Swipe	-	1						1
		Rear End	1	-						1
		Hit Pedestrian	-	1						1
		Total	12	4	5	4	3	3	1	16

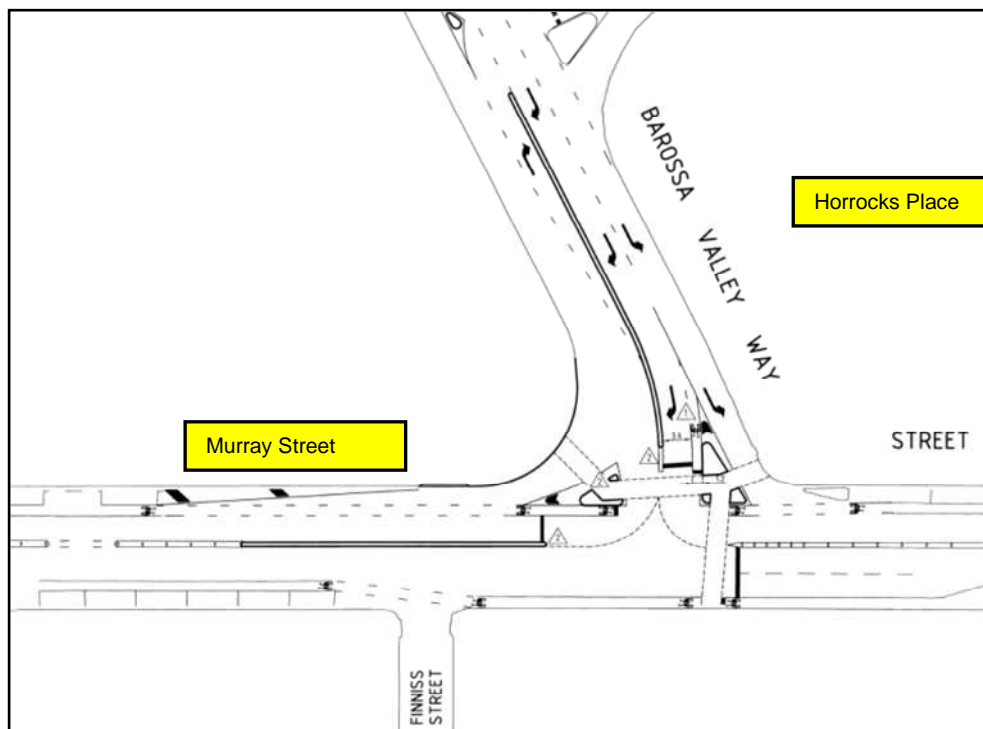


Figure 7-4 - Current layout of Murray Street and Horrocks Place junction

7.1.5 Adelaide Road – Seventh Street & Twelfth Street

The number of recorded crashes at this site was 13 for the period from 2002 to 2006. Of the 13 crashes, 7 were of the rear end type.

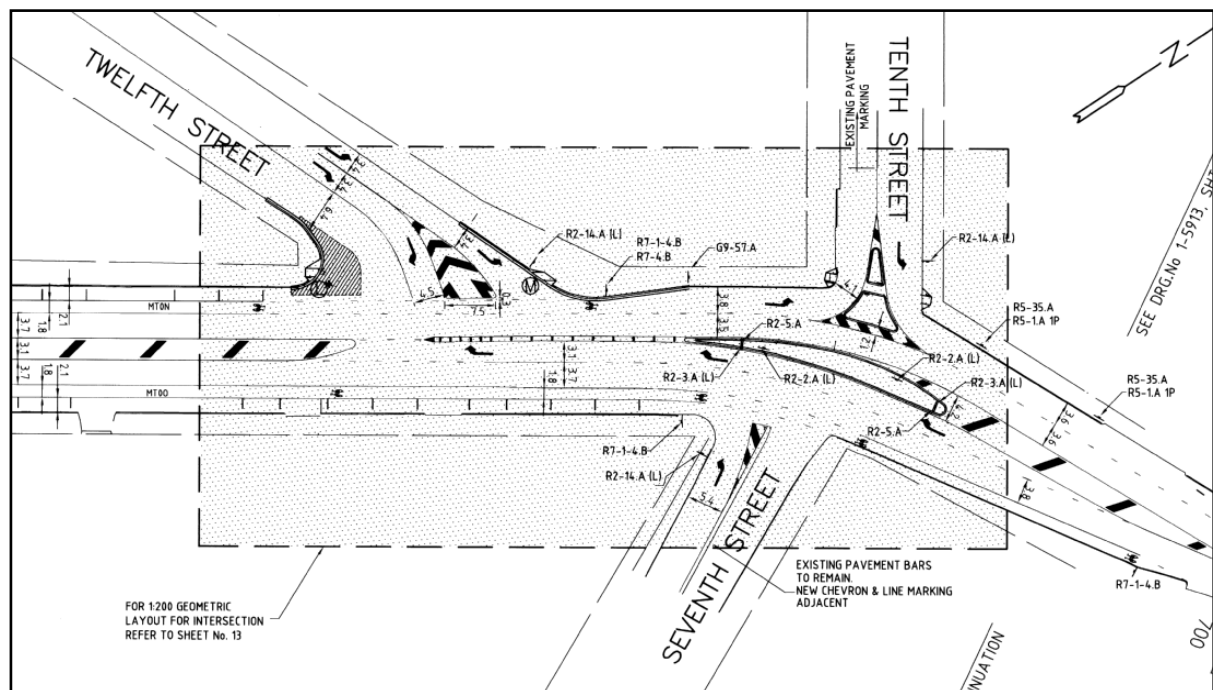
Changes were made to the Adelaide Road/ Twelfth Street junction in late 2002 as shown in Figure 7 - 5. Since the installation of the treatment, crashes have reduced significantly in the period from 2004 to 2006 (refer to Table 7-5).

Twelfth Street will provide a connection through to NEXY via the interchanges at Angle Vale Road and Two Wells Road. For this reason, there is a potential that vehicle movements will increase at the Adelaide Road / Twelfth Street junction as people use either of these connections to access the expressway.

At this time, statistics indicate that the predominant crash type (rear end) is related to the left turn movement out of Twelfth Street. DTEI will consider options to increase the approach angle to the junction in an effort to reduce these crash types.

The number of casualty crashes recorded at this site meets the Black Spot criteria, although there are some 60 other unsignalised junctions across the metropolitan area that have a higher number of casualty crashes, and would therefore be a higher priority to address from the departments perspective.

Figure 7-5 - Improvements to Adelaide Road/ Twelfth Street Junction undertaken in 2002



Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
3	Twelfth Street & Seventh Street	Rear End	3	4						7
		Right Angle	1	2						3
		Hit Pedestrian	-	2						2
		Right Turn	1	-						1
		Total	5	8	4	6	1	1	1	13

Table 7-5 - Number of Crashes at Adelaide Road/Twelfth Street Junction from 2002 to 2006

7.1.6 Adelaide Road – Sixth Street

There were total of 17 crashes recorded at this site in the period from 2002 – 2006. Nine were rear end type crashes and two involved pedestrians. Table 7-6 summarises all the crashes by type and year in which it occurred.

Table 7-6 - Summary of crashes at Sixth Street from 2002-2006

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
3	Sixth Street	Right Angle	1	1						2
		Hit Fixed Object	3	-						3
		Side Swipe	1	-						1
		Rear End	7	2						9
		Hit Pedestrian	-	2						2
		Total	12	5	2	6	3	4	2	17

In 2001, a roundabout was installed at the intersection of Adelaide Road and Sixth Street intersection (Figure 7.7). The roundabout was installed as part of a major upgrade of Adelaide Road under the National Black Spot Program. The upgrade catered for the increase in traffic along Adelaide Road as well as drivers crossing Adelaide Road.

Since the installation of the roundabout the number of crashes at the intersection has fluctuated. At the same time, traffic volumes on Sixth Street have also significantly increased. Prior to the upgrade Sixth Street was carrying approximately 1100 vehicles per day. A traffic count conducted in 2003 showed traffic volumes had almost doubled to 2000 vehicles per day.

This indicates that local traffic has most likely been attracted to this intersection due to the increased level of accessibility afforded to the minor road traffic by the roundabout.

A further analysis of the crashes at junctions adjacent to Sixth Street (from Second Street to Twelfth Street) showed that from 1996 to 2001 there were a total of 56 recorded crashes, with only 6 crashes at Sixth Street.

In the period from 2002 to 2006 (after the installation of the roundabout), the number of crashes at nearby junctions reduced significantly (25 crashes) however crash numbers at Sixth Street increased to 17.

Overall the installation of a roundabout has reduced the total numbers of crashes on Adelaide Road between Twelfth Street and Second Street from 62 crashes between 1996-2001 down to 42 crashes between 2002 and 2006. The roundabout provides a good level of control for all approaches.

DTEI will work with council to consider options to improve safety at this intersection, including pedestrian safety (e.g. pedestrian fencing, widening the splitter islands). Reference will be made to the outcomes of Councils cycling and walking strategy in considering any possible further treatments at this location.

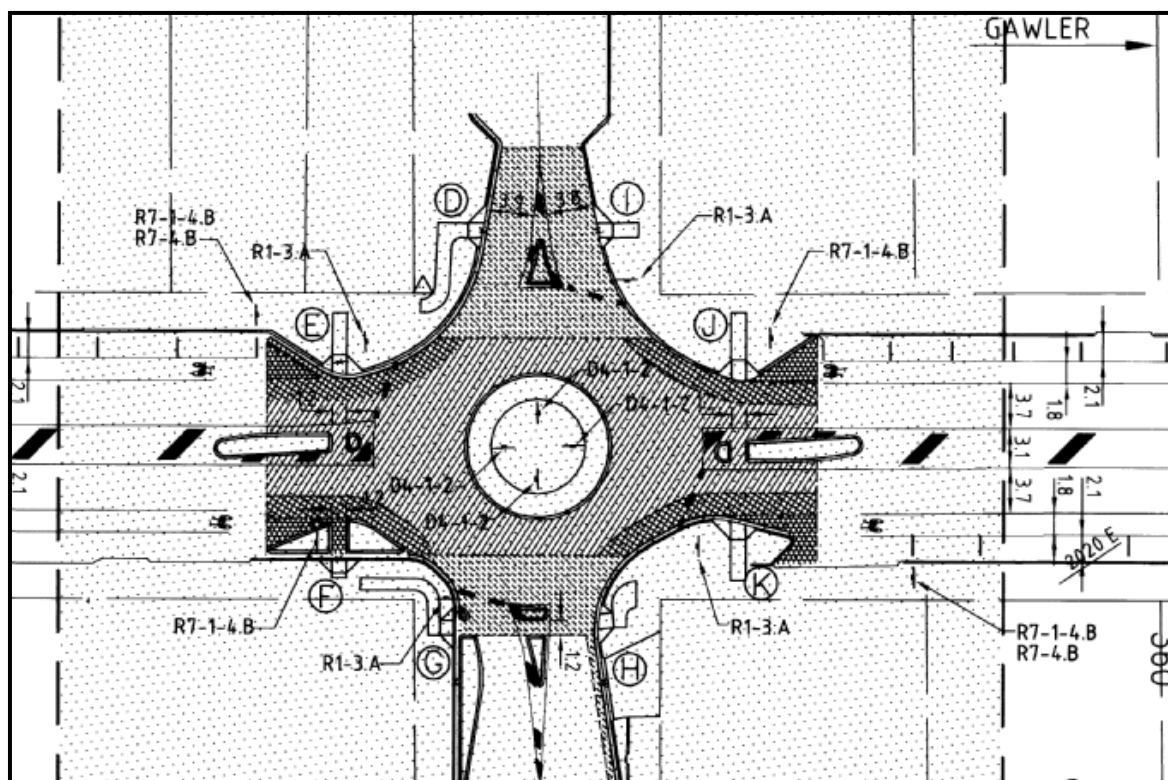


Figure 7-7 – Existing traffic control layout

7.1.7 Main North Road – Fifth Street and Nineteenth Street

There were a total of 13 crashes recorded at this site in the period from 2002 – 2006. Five were right angle type crashes. Table 7-7 summarises all the crashes by type and year in which it occurred.

Table 7-7 Summary of crashes at Nineteenth Street and Fifth Street from 2002 to 2006

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
3	Nineteenth Street/ Fifth Street	Right Angle	2	3						5
		Right Turn	1	-						1
		Head On	-	1						1
		Rear End	1	-						1
		Total	4	4	3	1	2	1	1	8

Possible factors contributing to the crashes at this site involve vehicles failing to take due care when crossing Adelaide Road from 19th to 5th Street.

One option to address the number of right angle crashes is to rationalise movements at the junction, restricting Fifth Street to left in left out and Nineteenth Street to left in left out and right in movements (Figure 7.8). This will significantly improve safety at the junction, however Nineteenth Street provides direct access to the Gawler railway station, with some commuters parking on the local road network to access the train services on the Gawler line.

Given this, it is understood Council do not support this option.

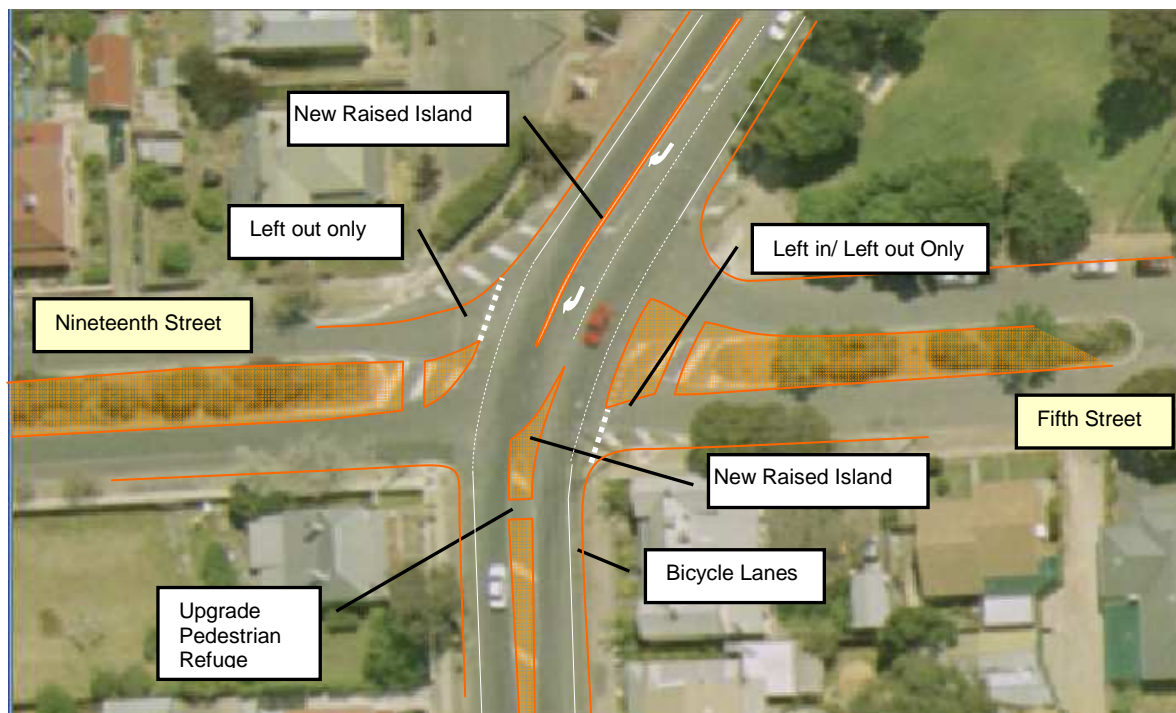


Figure 7-8 Concept for channelisation at Adelaide Road, Nineteenth Street and Fifth Street

The option of a roundabout is supported at this location by Council. The concept design shown in Figure 7.9 indicates that a single lane roundabout could be installed generally within the existing road reserve. Further design work will need to be undertaken to confirm the extent of works required to accommodate this form of traffic control.



Figure 7-9 Concept for roundabout at Adelaide Road, Nineteenth Street and Fifth Street

7.1.8 Main North Road and Barnet Street

There were 10 crashes recorded at this intersection in the period from 2002 – 2006. All 10 were right angle type crashes as shown in Table 7-8.

Table 7-8 - Summary of crashes at Main North Road and Barnet Street junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
4	Barnet Street	Right Angle	6	4						10
		Total	6	4	2	2	2	2	2	10

The current layout of the junction is shown in Figure 7.10, which has a right turn lane into Barnet Street and right turn acceleration lane on Main North Road.

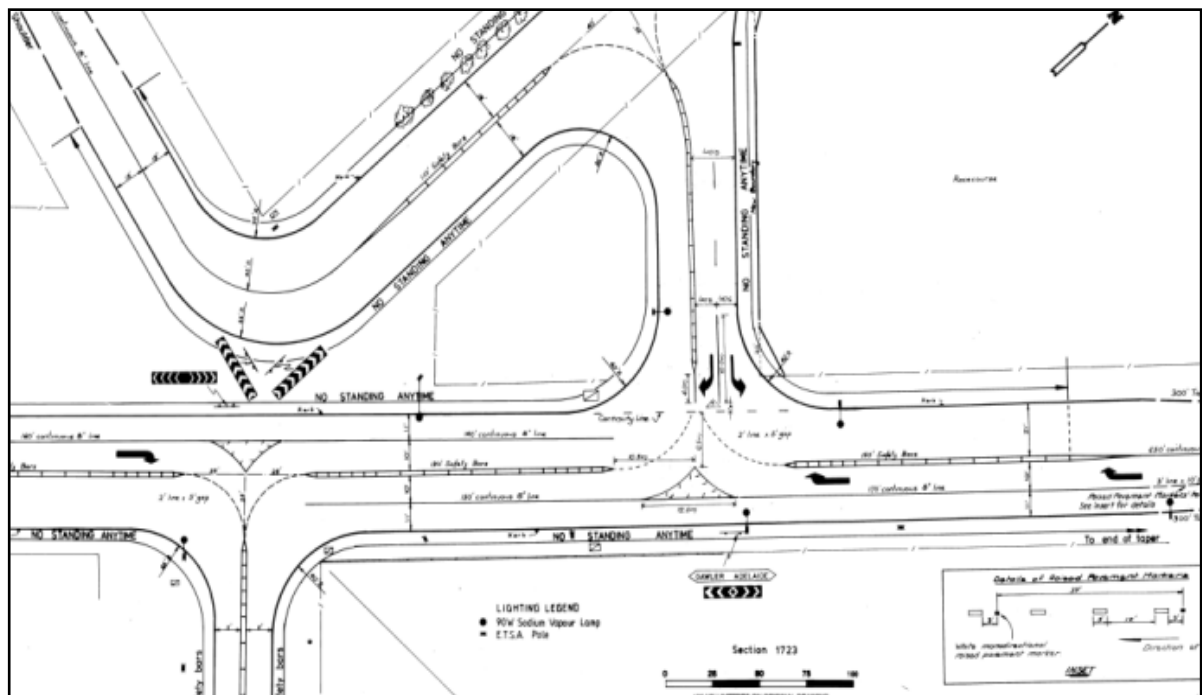


Figure 7-10 - Current layout of Main North Road and Barnet Street junction

Possible factors contributing to the crashes at this site include:

- drivers having difficulty turning right out of Barnet Street due to a continuous flow of vehicles on Main North Road
- current layout of road may be confusing with 4 lanes between Barnet Street and Potts Road

A suggested short term treatment is to remove the right turn acceleration lanes on Main North Road from both Potts Road and Barnet Street and install a painted median where vehicles turning right may store, as shown in Figure 7-11.



Figure 7-11 - Recommended short term treatment for Barnet St and Potts Road on Main North Road

It should be noted that the proposed bulky goods development on the western side of Main North Road (to the south of the Potts Road junction) will provide a sheltered right turn facility to access the development as per Figure 7 -12.



Figure 7-12 - Access to proposed bulky goods development

Potential residential development to the east of Main North Road will likely increase traffic movements at this intersection. DTEI will be working with council during 2008 to identify potential further intersection improvement options at this site, to accommodate future traffic volumes. The nature and potential timing of implementation of these more significant improvements will be determined as part of the investigations with council.

Initial traffic modelling undertaken by DTEI nevertheless suggests the installation of traffic signals at both Potts Road and Barnett Street, with the Barnett junction being relocated further northeast, would likely be the preferred option for improvement. This would be preferred over creating a new signalised 4-way intersection by connecting Potts Road and Para Road.

Traffic signals will enhance access to future development either side of Main North Road, for both pedestrians and vehicular traffic.

To achieve a suitable level of capacity at a signalised site, the through lanes on Main North Road would need to be duplicated to have two lanes in each direction. The extent of duplication of lanes on Main North Road will need to be considered as part of the investigations to be undertaken with Council. Figure 7 – 13 provides an indicative concept of a traffic signal arrangement at this site.



Figure 7-13 Concept traffic signals layout at Main North Road, Para Road and Potts Road

7.1.9 Main North Road – Trinity Drive

There were 13 crashes recorded at this intersection in the period from 2002 – 2006. Twelve were rear end type crashes distributed across all three approaches (refer Table 7.9).

In terms of the operation from a capacity perspective, the junction is performing at a satisfactory level of service.

The number of casualty crashes recorded at this site meets the Black Spot criteria, although there are some 360 other unsignalised junctions across the metropolitan area that have a higher number of casualty crashes, and would therefore be a higher priority to address from the departments perspective.

Table 7-9- Summary of crashes at Main North Road and Trinity Drive junction

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
4	Trinity Drive	Rear End	9	3						12
		Hit Fixed Object	1	-						1
		Total	10	3	6	-	6	-	1	13

A possible factor contributing to the crashes at this site is the poor observation of traffic signals, particularly during school peak periods. Figure 7 -14 shows the current layout of Main North Road and Trinity Drive.

The number of rear end type crashes is not considered excessive in terms of other traffic signal sites across the metropolitan area. No specific recommendations are made for this location at this time. DTEI will continue to monitor the operation of the junction.

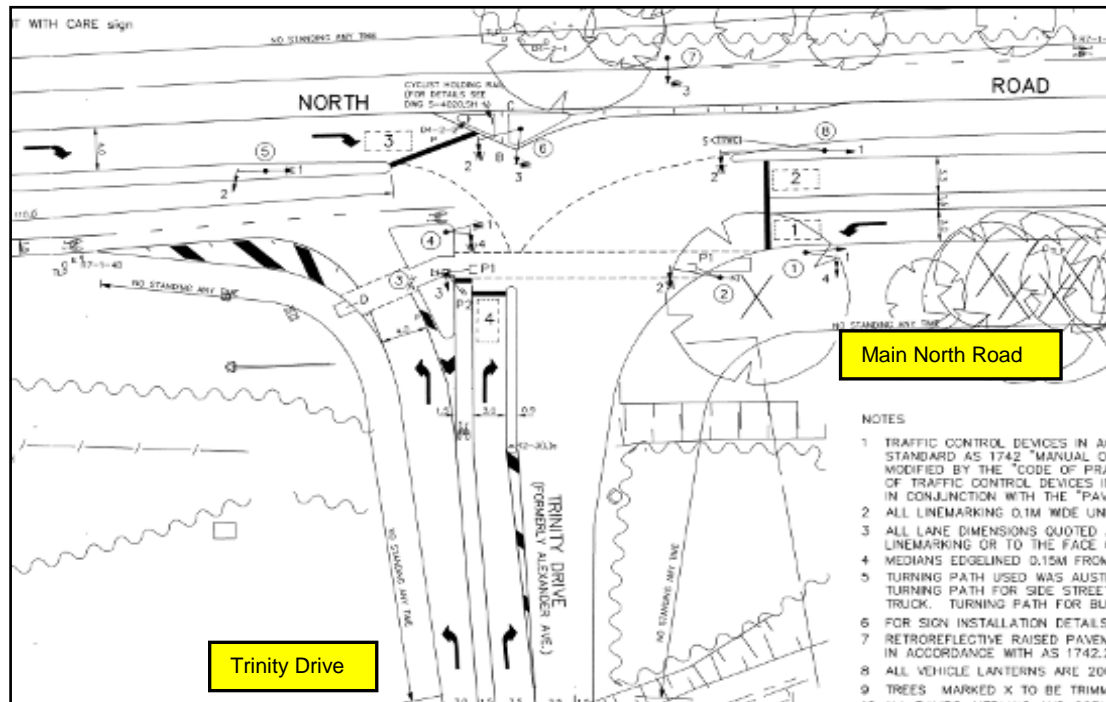


Figure 7-14- Existing layout of Main North Road and Trinity Drive junction

7.2 RECOMMENDATION FOR MID-BLOCK SECTIONS

Mid block crashes which occurred between 2002 and 2006 are listed in Table 7.10 below. A full comprehensive table of all crashes can be found in Appendix B, showing the year in which the crashes occurred.

The data collected relies on accurate recording by the officer or personnel involved. In some cases the exact location is not known and therefore recorded as an unknown location. These crashes have been included within the mid – block crash data.

Table 7-10 - Key Mid-Block Crashes for 2002 - 2006

<i>Sect.</i>	<i>Intersection</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Casualty</i>	<i>Total</i>	<i>Traffic Volumes</i>
1	Kestrel Road – Redbaks Road	Hit Tree	1		1	7100-9300
		Right Angle	1		1	
		Rear End	1		1	
		Hit Pedestrian		1	1	
		Total	3	1	4	
1	Unknown Location (along Main North Road, Willaston)	Right Angle	1		1	7100-9300
		Rear End	6	4	10	
		Hit Fixed Object	3		3	
		Side Swipe	2		2	
		Head On	2		2	
		Total	14	4	18	
2	Redbanks Road – Horrocks Place					14300-15300
		Right Angle	2	1	3	
		Side Swipe	7		7	
		Hit Fixed Object	1		1	
		Rear End	2	2	4	
Total	12	3	15			
3	Twelfth Street – Nineteenth Street	Hit Fixed Obj	1		1	21900
		Rear End	15	4	19	
		Side Swipe	3		3	
		Hit parked car	2		2	
		Right Angle	2		2	
		Total	24	4	28	
3	Nineteenth Street - Second Street	Hit Fixed Obj	1		1	21900
		Hit Pedestrian		1	1	
		Rear End	3	2	5	
		Head On	1		1	
		Side Swipe	1		1	
		Total	6	3	9	
3	Second Street - Sheriff Street	Hit Parked Car	1		1	21900
		Side Swipe	1		1	
		Hit Fixed		1	1	
		Rear end	1		1	
		Total	3	1	4	

<i>Sect.</i>	<i>Intersection</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Casualty</i>	<i>Total</i>	<i>Traffic Volumes</i>
3	Unknown Location (along Adelaide Road)	Rear End	12	6	18	21900
		Side Swipe	3	2	5	
		Right Angle	1	1	2	
		Hit Parked Car	2		2	
		Hit Fixed Object	1		1	
		Head On	1		1	
		Total	20	9	29	
4	Sheriff Street – Potts Road	Side Swipe	1	1	2	20900
		Rear End	1		1	
		Total	2	1	3	
4	Potts Road - Krieg Road					20900
		Rear End	2	4	6	
		Hit Fixed	1	-	1	
Total	3	4	7			
4	Krieg Road - Trinity Drive	Rear End	2		2	20900
		Total	2		2	
4	Unknown Location (along Main North Road)	Hit Fixed Object	4		4	20900
		Rear End	2		2	
		Roll Over		1	1	
		Side Swipe	1		1	
		Total	7	1	8	

NOTE: The number of crashes with unknown locations along the section of Murray Street (Section 2) can not be identified, as Murray Street extends beyond the boundaries of this study.

7.2.1 Section 1 – Kestrel Rd to Redbanks Rd

The majority of section 1 is an unkerbed narrow stretch of road with a large number of road side hazards (open drain culverts and road side trees). The average road width is approximately 7m and the average annual daily traffic (AADT) for this section of road is 5400 vehicles.

Recorded crash numbers are relatively low. However, traffic flows are expected to increase due to NEXY and other developments in the area. Facilities for pedestrians and cyclists in this section are poor.

It is recommended to further upgrade this section as per the preferred layout in Figure 4.1. DTEI will need to work with council as major work is required to upgrade this section to the preferred layout.

7.2.2 Section 2 – Redbanks Rd to Horrocks Place (Barossa Valley Way)

The typical cross section of Section 2 is a wide carriageway with kerbing on both sides of the road for a large portion of the section. The AADT for this section is 14,300 vehicles.

The upgrade of Main North Road between Redbanks Road and Paxton Street has been recommended in section 7.1.1 and 7.1.2.

The recommended layout in figure 4.1 may be achievable without the widening of Main North Road.

7.2.3 Section 3 – Seventh Street to Sherriff Street

This section from Seventh Street to Sherriff Street has the highest number of recorded crashes compared to other sections. The number of crashes can be attributed to the high traffic volume (AADT 21,900) and the greater number of business along this portion of Adelaide Road having direct access to the arterial road.

The cross section of Section 3 varies from a painted median scheme to a wide carriageway with parking on both sides:

Seventh St to Nineteenth St – Painted median scheme as per the preferred layout

Nineteenth St to Second St – Wide carriageway with parking

Second St to Sherriff St – Narrow carriageway with kerbing on eastern side only

It is recommended that a consistent cross section be provided through the whole section, consistent with the recommended layout of Figure 4.1.

7.2.4 Section 4 – Sherriff Street to Trinity Drive

Section 4, Sherriff Street to Trinity Drive, also varies in cross section from a raised median scheme or a narrow carriageway with poor facilities for pedestrians and cyclists. This section carries approximately 20,900 vehicles per day (AADT).

The current cross sections are as follows:

- Sherriffs St to Potts Rd – narrow carriageway unsealed shoulders on both sides
- Potts Rd to Krieg Rd – narrow carriageway with unsealed shoulder on western side and kerbing on the eastern side
- Krieg Rd to Trinity Drive – wide carriageway width with raised median. No recommendation made

It is recommended that a consistent cross section be provided through the whole section, consistent with the recommended layout of Figure 4.1.

7.3 OTHER TRAFFIC MANAGEMENT/ COMMUNITY CONCERNS

The community often raises concerns with regards to road safety or operational issues with DTEI or Council. Issues relating to the roads in this RMP have been identified from DTEI records and are listed below.

No.	Date	Concerns	Action
1	12-Feb-07	<ul style="list-style-type: none"> • Concerned with Paxton Street and Main North Road intersection, risk posed to traffic turning right out of Paxton due to large volume of oncoming traffic. 	Concerns have been addressed - refer to recommended treatment in section 7.1.2.
2	20-Feb-07	<ul style="list-style-type: none"> • Concerned with the condition of Main North Road, Willaston. • No kerbing from Redbanks road to outskirts of town. Need defined right turn lanes. • No sealed shoulder so cars overtaking turning vehicles must leave bitumen. 	Concerns have been addressed in section 7.2.1. Recommended upgrading the road to preferred layout of Figure 4.1.
3	26-Feb-07	<ul style="list-style-type: none"> • Concerned about the lack of Pedestrian footpath and crossing, particularly for impaired people. 	The preferred layout of Figure 4.1 will address these concerns as it provides an area for pedestrians to cross and store. DTEI will consider the installation of a raised pedestrian refuge.

8 TREATMENT SUMMARY

A number of traffic management and road maintenance improvements have been recommended in this report. Recommendations are summarised in the following tables, included in the table is a priority rating for each recommendation.

Three levels of priority are indicated – High (RED), Medium (ORANGE) and Low (YELLOW).

The priority of treatments has been determined based on:

safety benefits, to improve safety for vulnerable road users,

reducing roadside hazards

improving amenity and appearance of the roads

benefit/cost appraisal of treatment

8.1 INTERSECTION/ JUNCTION TREATMENTS

Priority of treatments has been made by experienced practitioners within DTEI.

ROAD SECTION	TREATMENT	PRIORITY
Main North Road Redbanks Road/ Paxton Street	Installation of signals or roundabout at Redbanks Road and modification to Paxton St	High
Main North Road Flinders Street	Installation of a painted right turn lane into Flinders Street.	Medium
Murray Street Horrocks Place	No recommendation – monitor operation	Monitor
Adelaide Road Twelfth Street/ Seventh Street	improve left turn from 12 th Street	Medium
Adelaide Road Sixth Street	Improvements to pedestrian safety	Medium
Adelaide Road Nineteenth Street and Fifth Street	Rationalisation of movements out of Nineteenth and Fifth Street	High
Main North Road Barnet Street	Installation of a painted median scheme to reduce the number of lanes (short term treatment)	Medium
Main North Road	No recommendation – monitor operation	Monitor

Trinity Drive		
---------------	--	--

8.2 MID-BLOCK TREATMENTS

ROAD SECTION	TREATMENT	PRIORITY
Adelaide Road Fourth St – Fifth St	Consider the installation of a raised pedestrian refuge	Monitor
Main North Road Kestrel Rd - Redbanks Rd	It is recommended to further upgrade this section as per the preferred layout in figure 4.1	Medium
Main North Road Redbanks Rd – Horrocks Pl	It is recommended to further upgrade this section as per the preferred layout in figure 4.1	Medium
Adelaide Road Nineteenth St – Second St	It is recommended to further upgrade this section as per the preferred layout in figure 4.1	High
Adelaide Road Second St – Sheriff St	It is recommended to further upgrade this section as per the preferred layout in figure 4.1	High
Main North Road Sheriff St – Potts Rd	It is recommended to further upgrade this section as per the preferred layout in figure 4.1	High
Main North Road Potts Rd – Krieg Rd	It is recommended to further upgrade this section as per the preferred layout in figure 4.1	High

9 CONCLUSION

This RMP has made a number of recommendations to address the operational and safety issues that have been identified.

All of the proposed recommendations are conceptual only, and will therefore require further development and consultation with the Town of Gawler and the community prior to any proposed implementation.

Importantly, funding commitments to the initiatives detailed in this plan are subject to normal budgetary processes and priorities.

Initially, implementation of recommendations is likely to be limited to the higher priority and more cost effective treatments that target specific sites with higher crash rates. The design of specific treatments will aim at consistency with and target the longer-term functional outcomes outlined in this Road Management Plan.

10 APPENDIX A – INTERSECTION CRASH DATA

Sect.	Mid-Block Section	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total
1	Kestrel Road	Total								0
1	Sanders Way	Total								0
1	Dawkins Avenue	Total								0
1	Kingfisher Drive	Total								0
1	Chamberlain Road	Rear End		1						1
		Total		1			1			1
1	Davies Street	Total								0
1	High Street	Total								0
1	Princess Street	Right Angle	2	3						5
		Side Swipe	1	-						1
		Hit Fixed Object	1	-						1
		Total	4	3	1	3	2		1	7
1	Drury Street	Right Angle		1						1
		Total		1	1					1
1	Redbanks Road	Right Angle	3	1						4
		Head On	-	1						1
		Total	3	2		3	1	1		5
2	Paxton Street	Right Angle	10	1						11
		Hit Fixed Object	1	-						1
		Total	11	1	1	3	1	4	3	12
2	Victoria Terrace	Hit Fixed Object	-	1						1
		Right Turn	1	-						1
		Right Angle	-	1						1
		Total	1	2		2	1			3
2	Flinders Street	Rear End	4	4						8
		Right Turn	-	1						1
		Total	4	5	1	1	1	3	3	9
2	Bridge Street Nth	Right Angle	1							1
		Total	1			1				1
2	Union Street	Right Turn	1							1
		Total	1				1			1
2	Cowan Street	Rear End	-	1						1
		Right Angle	1	-						1
		Total	1	1			1		1	2
2	Finniss Street	Hit Parked Vehicle	1							1
		Rear End	1							1
		Total	2		1		1			2
2	Barossa Valley Way	Right Turn	5	-						5
		Right Angle	3	2						5
		Hit Fixed Object	3	-						3
		Side Swipe	-	1						1
		Rear End	1	-						1
		Hit Pedestrian	-	1						1

		Total	12	4	5	4	3	3	1	16	
Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total	
3	Twelfth Street	Rear End	3	4						7	
		Right Angle	1	2						3	
		Hit Pedestrian	-	2							2
		Right Turn	1	-							1
		Total	5	8	4	6	1	1	1	1	13
3	Sixth Street	Rear End	7	2						9	
		Hit Fixed Object	3	-							3
		Right Angle	1	1							2
		Hit Pedestrian	-	2							2
		Side Swipe	1	-							1
		Total	12	5	2	6	3	4	2	2	17
3	Nineteenth Street/ Fifth Street	Right Angle	2	3						5	
		Right Turn	1	-						1	
		Head On	-	1							1
		Rear End	1	-							1
		Total	4	4	3	1	2	1	1	1	8
3	Twentieth Street	Rear End	2	-						2	
		Right Angle	1	-						1	
		Hit Fixed Object	-	1							1
		Total	3	1	3	1					4
3	Twenty First Street	Total								0	
3	Fourth Street	Total								0	
3	Twenty Second Street	Right Angle	2							2	
		Total	2				1	1		2	
3	Third Street	Rear End	1							1	
		Total	1					1		1	
3	Second Street	Rear End	2	1						3	
		Right Turn	1	-						1	
		Total	3	1	1	1	1		1	4	
3	First Street	Total								0	
3	Sheriff Street	Rear End	1							1	
		Total	1			1				1	
4	Ames Drive	Right Angle	1							1	
		Total	1					1		1	
4	Morrow Avenue	Head On	1							1	
		Total	1						1	1	
4	Barnet Street	Right Angle	6	4						10	
		Total	6	4	2	2	2	2	2	10	
4	Potts Road	Rear End	1	1						2	
		Right Angle	1	-						1	
		Total	2	1				2	1	3	
4	Krieg Road	Rear End	1	-						1	
		Head On	-	1						1	
		Total	1	1		1			1	2	
4	Milne Court	Total								0	
4	Bacton Street	Hit Fixed Object	1							1	

		Total	1		1					1
--	--	--------------	----------	--	----------	--	--	--	--	----------

<i>Sect.</i>	<i>Intersection</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Casualty</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>Total</i>
4	St Albans Rd	Right Angle	1							1
		Total	1						1	1
4	Dundee Street	Total								0
4	Trinity Drive	Rear End	9	3						12
		Hit Fixed Object	1	-						1
		Total	10	3	6		6		1	13

11 APPENDIX B – MID BLOCK CRASH DATA

Sect.	Intersection	Crash Type	PDO \$3000+	Casualty	2002	2003	2004	2005	2006	Total	
1	Kestrel Road – Redbaks Road	Hit Tree	1					1		1	
		Right Angle	1				1			1	
		Rear End	1						1		1
		Hit Pedestrian		1				1			1
		Total	3	1			1	2	1		4
1	Unknown Location (along Main North Road)	Right Angle	1			1				1	
		Rear End	6	4	4	1	3	2		10	
		Hit Fixed Object	3				2	1			3
		Side Swipe	2				1	1			2
		Head On	2			1	1				2
		Total	14	4	4	3	7	4			18
2	Redbanks Road – Horrocks Place	Right Angle	2	1			2		1	3	
		Side Swipe	7		2	1	2	2		7	
		Hit Fixed Object	1		1						1
		Rear End	2	2		1		1	2		4
		Total	12	3	3	2	4	3	3	3	15
2	Unknown Location*										
		Total									*
3	Twelfth Street – Nineteenth Street	Hit Fixed Obj	1			1				1	
		Rear End	15	4	2	6	5	3	3	19	
		Side Swipe	3		2		1				3
		Hit parked car	2		1	1					2
		Right Angle	2				1		1		2
		Total	23	4	5	8	7	3	4	4	27
3	Nineteenth Street - Second Street	Hit Fixed Obj	1						1	1	
		Hit Ped		1					1	1	
		Rear End	3	2		2		2	1		5
		Head On	1		1						1
		Side Swipe	1		1						1
		Total	6	3	2	2		2	3		9
3	Second Street - Sheriff Street	Hit Parked Car	1						1	1	
		Side Swipe	1			1				1	
		Hit Fixed		1		1					1
		Rear end	1			1					1
		Total	3	1		3				1	4
3	Unknown Location (along Adelaide Road)	Rear End	12	6	4	4	5	5		18	
		Side Swipe	3	2		2	2	1		5	
		Right Angle	1	1	1	1				2	
		Hit Parked Car	2				2				2
		Hit Fixed Object	1					1			1
		Head On	1			1					1
		Total	20	9	5	8	9	7	-		29

* Total of 31 (PDO \$3000+ and Casualty) crashes on Murray Street, Gawler. As the study does not include the entire length of Murray Street exact numbers can not be determined as locations are not known.

<i>Sect.</i>	<i>Intersection</i>	<i>Crash Type</i>	<i>PDO \$3000+</i>	<i>Casualty</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>	<i>Total</i>
4	Sheriff Street – Potts Road	Side Swipe	1	1	1			1		2
		Rear End	1		1					1
		Total	2	1	2			1		3
4	Potts Road - Krieg Road									
		Rear End	2	4	2	2			2	6
		Hut Fixed	1	-					1	1
	Total	3	4	2	2			3	7	
4	Krieg Road - Trinity Drive	Rear End	2				1	1		2
		Total	2				1	1		2
4	Unknown Location (along Main North Road)	Hit Fixed Object	4		1	1	1	2		4
		Rear End	2					1		2
		Roll Over		1	1					1
		Side Swipe	1			1				1
		Total	7	1	2	2	1	3		8