9. Traffic and Transport

The Traffic and Transport Assessment examined the extent to which the Project is expected to address road safety, accessibility, transport efficiency and capacity as outlined in the Project Objectives (refer to Chapter 3). It also examines how the Project would affect road users during both the construction and operation phases. The Traffic and Transport Assessment also considered the relevant differences between the interim (AMP3) upgrade and the ultimate (AMP1) upgrade.

It is expected that the Project would provide benefits to road users including:

- Increased capacity, which would enable the highway to accommodate the expected future traffic volumes;
- Travel time savings by a reduction in the number of intersections, continuous overtaking opportunities and removing the need to reduce speed through townships;
- Increased safety by reducing traffic volumes within Great Western, continuous overtaking opportunities, grade separated intersections for AMP1, improved alignment geometry and treatment of roadside hazards;
- Improved efficiency and safety for freight; and
- The potential to reduce the traffic on local roads due to the Western Highway becoming the preferred route.

It is anticipated that some local landowners may have slightly increased travel times in both the interim and ultimate upgrade due to reduced access to the highway. However, there are sufficient opportunities to complete a U-Turn that this is not anticipated to be a significant issue. In addition, agricultural machinery is not permitted on freeways, and therefore alternative access arrangements would be required for transport of these vehicles under the ultimate upgrade.

The majority of adverse impacts are expected to occur during the construction phase of the Project where is it expected that there would be short term impacts on the operation of the existing Western Highway, including potential impacts to road safety through a change in road conditions, and a reduction in transport efficiency. Construction of the Project would be staged and traffic management plans would be implemented to reduce these impacts. It is expected that the potential impacts from the construction would be acceptable and that the Project would ultimately result in a net benefit to the community.

9.1 EES Objectives

The EES objectives for Traffic and Transport are:

- To provide for the duplication of the Western Highway between Ararat and Stawell to address safety, efficiency and capacity issues.
- To avoid or minimise disruption and other adverse effects on infrastructure, land use (including agriculture and residential) and households, as well as road users during construction and/or resulting from the highway alignment.

This chapter discusses the existing Western Highway traffic conditions, including capacity, safety and accessibility. The potential impacts of the highway duplication on traffic movement and access has been assessed, as well as the potential impact of heavy vehicles required for construction of the highway. Where appropriate, mitigation measures have been recommended to minimise the potential impact. More specifically, this chapter addresses the following EES scoping requirements:

The EES should:

- Identify expected or modelled transport outcomes of the Project in terms of capacity, traffic volumes, travel times, safety and accessibility.
- Describe road design features and the alignments that have been adopted to optimise the benefits (including increased safety) of the duplication for road users, having regard to effects on other environmental and social values.
- Consider whether design provisions to enable safer access for vehicles entering and leaving the highway are warranted in specific areas.
- Address potential risk areas to road safety, such as wildlife corridors, and outline any specific measures to avoid, minimise and mitigate road safety issues.
- Characterise the current traffic conditions in terms of capacity, travel times, safety and accessibility.
- Identify and assess potential effects of the Project on existing traffic conditions, including traffic movement (i.e. rail, freight, buses, cyclists and pedestrians) and access. This should include potential effects of temporary road closures, heavy vehicles required for construction on nearby existing arterial roads and the ability of these roads to accommodate increased traffic during the Project's construction.
- Identify and assess potential effects of road construction and operation on the rail line and interface, especially near intersections and crossings.

- Identify traffic management and safety principles for the construction and operation phases, covering (where appropriate) road safety, different traffic routes, hours of use, traffic speeds, types of vehicles and emergency services access provisions.

The EES should also include assessment of the consistency of the final project proposal with the provisions of the *Transport Integration Act 2010*.

This chapter is based on a Traffic and Transport Assessment completed by GHD Pty Ltd (2012b). The detailed assessment report is included in Technical Appendix D.

9.2 Study Area

The study area for the traffic and transport assessment commences at Pollard Lane, west of Ararat, extending for a distance of approximately 24 kilometres (km) to Gilchrist Road, east of Stawell and encompassing a corridor extending up to 1500 metres (m) either side (east and west) of the edge of the existing highway, except around Great Western where it extends up to 1800m (encompassing the extent of new alignment possibilities). See Figure 9-1.

9.3 Methodology

The methodology for the traffic and transport assessment included:

- Review of completed reports related to the Project including review of traffic data collected in 2009 and 2012 for the study area;
- Visiting the site on a typical day to understand the existing traffic conditions and identify any safety and/or accessibility issues along the route. In addition, any pedestrian, cyclist, public transport and heavy vehicle facilities were identified;
- Undertaking an up-to-date crash history assessment for the study area; and
- Review of the public transport timetables and identifying any existing bus and rail services within the vicinity of the study area.

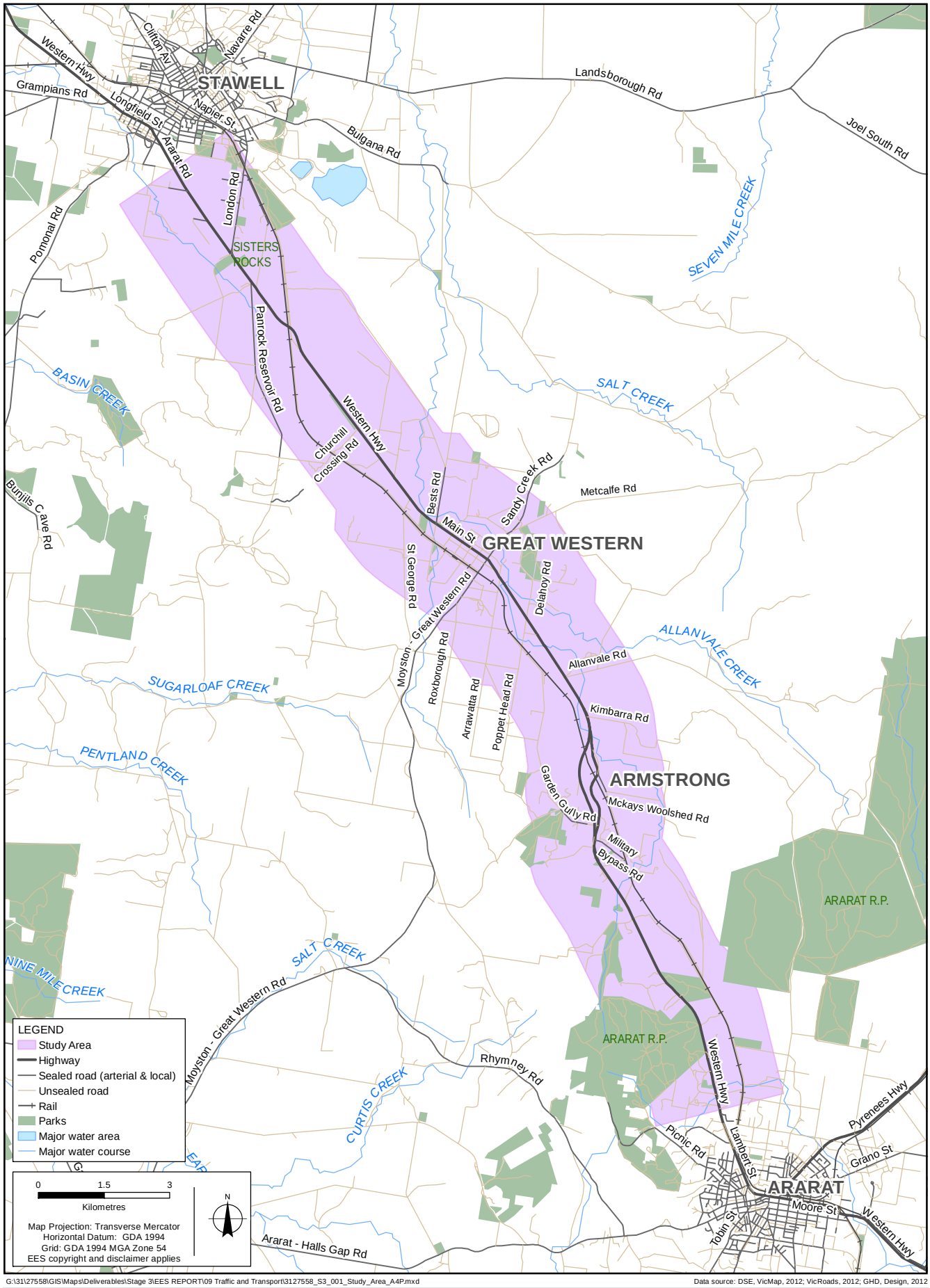

Figure 9-1 Section 3 Study Area

9.4 Legislation and Policy

The relevant legislation and government policies related to traffic and transport are outlined in Table 9-1.

Table 9-1 Relevant Traffic and Transport Legislation and Policies

Legislation / Policy	Description
Victorian	
Transport Integration Act 2010	The *Transport Integration Act 2010* sets out the charter for Victoria's transport agencies, including VicRoads, to: ▪ Manage the road system in a manner which supports a sustainable Victoria by seeking to increase the share of public transport, walking and cycling trips as a proportion of all transport trips in Victoria. All new transport projects must be assessed using a triple bottom line framework which considers the economic, environmental and social costs and benefits of the project.
Road Management Act 2004	The Victorian *Road Management Act 2004* provides 'practical guidance to any person conducting, or proposing to conduct, any works on a road in Victoria.' The Act has been established to promote safe and efficient road networks and a coordinated approach for the management of public roads. The Road Management Act (General) Regulations 2005 and the Road Management Act (Works and Infrastructure) Regulations 2005 have been established under the *Road Management Act 2004* and are to be complied with for all public roads.
VicRoads Access Management Policies (2006)	The VicRoads Access Management Policies provide the design criteria for each road classification. The duplication of Western Highway is to be designed for Access Management Policy 3 (AMP3) and planned for eventual upgrade to Access Management Policy 1 (AMP1).
Arrive Alive 2008-2017, Victoria's Road Safety Strategy	This strategy has the objective of significantly improving road safety across the State and substantially reducing the incidence of deaths and serious injuries on Victorian roads. Improvement works to this section of the Western Highway are expected to offer crash reductions over the life of the Project (30 years), which would ultimately contribute to the achievement of this Government objective.

9.5 Existing Conditions

The Western Highway (A8) is a national highway that forms part of the link between Melbourne and Adelaide. From Melbourne's western fringe to the Sunraysia Highway (B220) in Ballarat, it is a freeway standard, dual-carriageway road. However, beyond this point, it reduces to a single carriageway rural road with overtaking lanes in specific locations.

9.5.1 Road Network

The existing Western Highway within the study area intersects a number of roads and access points. A description of each of the major roads which intersect the Western Highway within the study area between Ararat and Stawell is provided in Table 9-2. The location of these roads is shown in Figure 9-1. Access to the Western Highway from these roads currently allows for vehicles to turn either left or right onto the highway. In addition to these intersections, there are also many driveways that provide access from properties, directly onto the Western Highway. According to a VicRoads audit, there are 30 direct property accesses onto the Western Highway for Section 3. These access points have been noted and provision would be made for their continued use in both the interim and ultimate upgrade.

Table 9-2 Major Intersecting Road Summary

Road Name	Description
Garden Gully Road/Military Bypass Road/Eaglehawk Road	▪ Access to Garden Gully Road, Military Bypass Road and Eaglehawk Road is provided at the same Give Way priority controlled staggered cross-intersection on the Western Highway. ▪ Garden Gully Road and Military Bypass Road are two-lane, two-way sealed roads with no posted speed limit. Garden Gully Road has direct access to the existing Western Highway, however access to Military Bypass Road is provided by a service road. ▪ Eaglehawk Road is accessed from the existing Western Highway via a service road. It is an unsealed two-lane, two-way road with a short 60m sealed section at the intersection with the service road. It has no posted speed limit. ▪ Garden Gully Road is the only one of these roads that provides though access, leading to Garden Gully.
Kimbarra Road	▪ Unsealed two-lane, two way road with a 150m sealed section on approach to the intersection with Western Highway. ▪ Give Way sign controlled T-intersection with Western Highway. ▪ No posted speed limit.
St. Ethels Road/Delahoy Road	▪ Local unsealed two-lane, two-way roads that forms a Give Way controlled cross intersection with Western Highway. ▪ No posted speed limits. ▪ Delahoy Road has two access points to Western Highway: a left-out, right-in and through access; and a left-in, right-out access.
Garden Gully Road/Stephenson Street	▪ These roads form a staggered T-intersection with Western Highway in the Great Western township. ▪ Garden Gully Road is a sealed two-lane, two-way road running parallel to the Western Highway and forms a Give Way controlled intersection with the Western Highway. It has a 60 kilometres per hour (km/h) speed limit. ▪ Stephenson Street is an unsealed two-lane, two-way road with no posted speed limit (assumed 50km/h speed limit as it is within the Great Western township urban limit).
Sandy Creek Road/Moyston-Great Western Road	▪ Intersect Western Highway opposite one another at a Give Way sign controlled intersection in the Great Western township. ▪ Roads known locally as Paxton Street. ▪ Sealed two-lane, two-way road with a posted speed limit of 60km/h. ▪ At urban limit of Great Western the speed limit increases to 80km/h and then 100km/h beyond that.
Bests Road/Paterson Road	▪ Bests Road is a sealed two-lane, two-way road with a posted speed limit of 100km/h. ▪ Provides access to Best's Winery and Stephenson Street. ▪ Bests Road forms a Give Way controlled staggered cross-intersection with Paterson Road and Western Highway. ▪ Paterson Road is an unsealed two-lane, two-way road providing local access to properties. ▪ Speed limit in the vicinity of this intersection is 80km/h.
St. George Road	▪ Sealed narrow two-way road with no line marking or posted speed limit. ▪ Crosses rail line to the west and links to the Moyston-Great Western Road. ▪ Forms a Give Way sign controlled intersection with the Western Highway.
Churchill Crossing Road	▪ Unsealed two-lane, two-way road with a short 60m sealed section leading to the intersection with Western Highway. ▪ Crosses the rail line to the west and links to Panrock Reservoir Road. ▪ Forms a Stop sign controlled T-intersection with Western Highway.
Panrock Reservoir Road	▪ Sealed two-lane, two-way road with unsealed shoulders. ▪ No posted speed limit, but it is assumed the default rural speed limit of 100km/h applies. ▪ Forms a Give Way controlled T-intersection with Western Highway. ▪ Monaghan Road intersects Panrock Reservoir Road immediately before its intersection with the existing Western Highway.
London Road	▪ Sealed two-lane, two-way road with no posted speed limit. ▪ Connects Western Highway to the Stawell town centre. ▪ Forms a Give Way controlled T-intersection with Western Highway.

9.5.2 Traffic Volumes and Capacity

9.5.2.1 Current Traffic Conditions

Traffic volume data for this section of the Western Highway was collected by CPG Australia Pty Ltd (CPG) for a week during May 2009. Additional traffic volume information along the Western Highway was also collected for the week of 28 April to 3 May 2012. This data is summarised in Table 9-3 by direction, for average daily volumes and median peak hour volumes. This data was collected at a point just east of Great Western. Due to the nature of the existing highway it is expected that this data is representative of the traffic volumes across the entire study area. Further details of this survey are outlined in Technical Appendix D.

The key findings of the survey are:

- 27 % of traffic volume is made up of heavy vehicles, indicating its demand as a freight route.
- There is a relatively even split in total traffic volumes over an average 24 hour period, though PM peak volumes are generally higher than in the AM peak.
- The maximum observed peak hour volume for available data on Western Highway Section 3 is 233 vehicles in the north-westbound direction at Ch. 11000 (east of Great Western).

The hourly traffic volumes presented in Table 9-3 demonstrate that the Western highway is currently operating approximately 1,000 vehicles per direction per hour below theoretical capacity.

Table 9-3 Western Highway Traffic Volumes

Direction	Average 7-Day Volume (veh/day)	Average Weekday Volume (veh/day)	Maximum Average Midweek AM Peak Volume (veh/h)	Maximum Average Midweek PM Peak Volume (veh/h)
Northbound	All Veh: 2,997 HV: 908	All Veh: 3,204 HV: 1083	202 (11:00am – 12.00pm)	275 (4:00pm – 5:00pm)
Southbound	All Veh: 3,077 HV: 629	All Veh: 3,258 HV: 770	207 (9:00am – 10:00am)	254 (4:00pm – 5:00pm)
TOTAL	All Veh: 6,074	All Veh: 6,462	400 (8:00am – 9:00am)	529 (4:00pm – 5:00pm)

All Veh – all vehicles; HV – heavy vehicles

Vpd – vehicles per day

Source: VicRoads 2012

Future Traffic Volumes

The growth rate of 1.59% (DOTARS 2007 Melbourne – Adelaide Corridor Strategy) was adopted to predict future traffic volumes. Based on the 1.59% growth rate and utilising the highest traffic volume count, the daily two-way traffic volumes are expected to increase to 9,395 vehicles per day, for a 5-day average in 2040. The forecast traffic volumes are outlined in Table 9-4.

Table 9-4 Forecast Future Traffic Volumes (two-way direction)

Year	7 day average (vpd)	7 day % HV	5 day average (vpd)	5 day % HV
2009	5,374	24%	5,761	27
2016	6,002	24%	6,434	27
2026	7,027	25%	7,533	28
2040	8,764	25%	9,395	28

9.5.3 Crash History

An analysis of casualty crash history data for the five year period between 1 January 2007 and 31 December 2011 has been undertaken. This assessment showed that over this period there were 12 casualty crashes which occurred at 12 separate locations. There were no recorded crashes in 2011.

Figure 9-2 shows the locations of crashes in the study area.

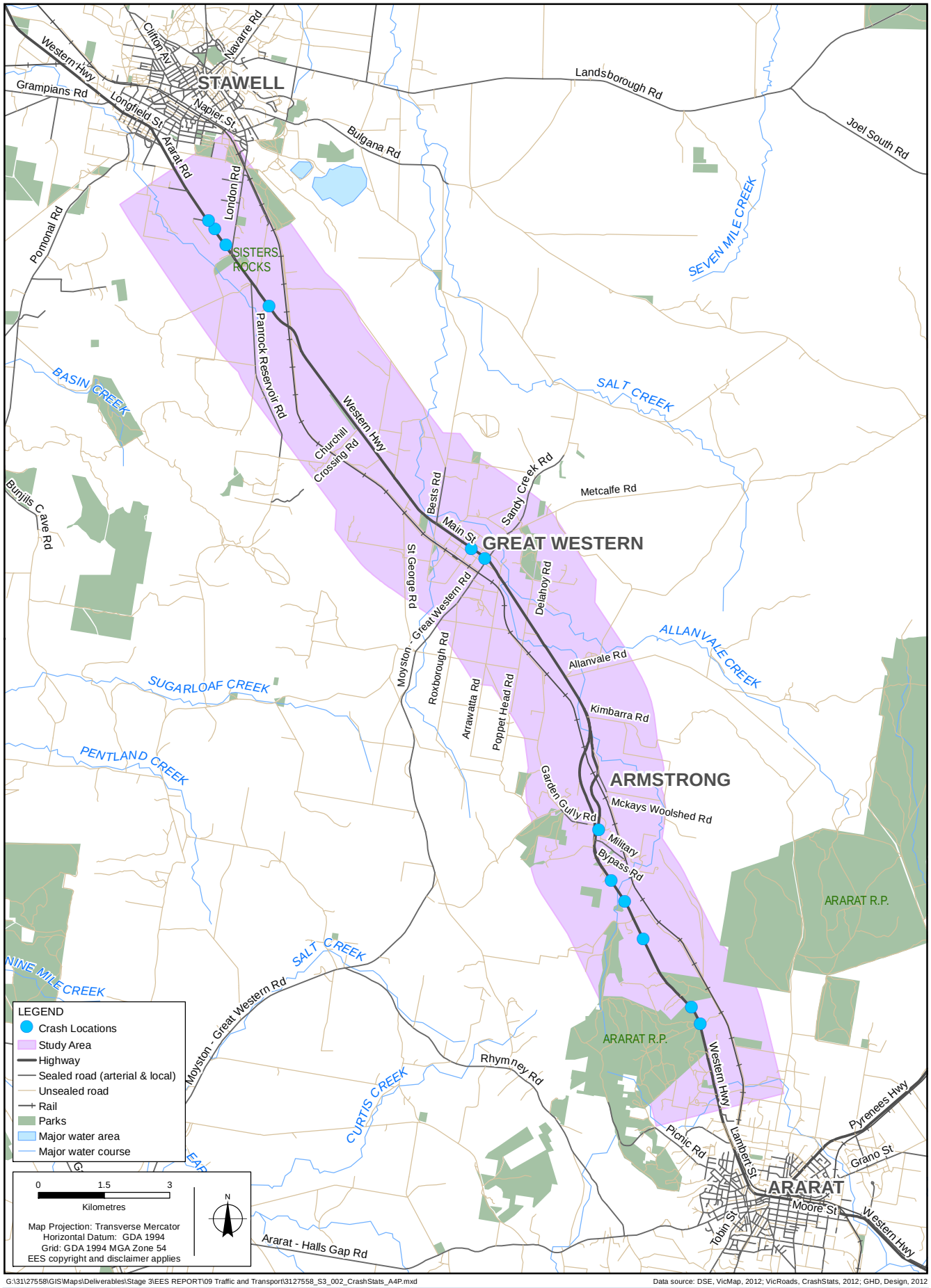

Figure 9-2 Location of Crashes in the Study Area

The following is a summary of the 12 crashes:

- No collisions resulted in a fatality;
- Four collisions resulted in serious injury;
- Six collisions were single vehicle run-off road crashes with five of these occurring on a straight stretch of road;
- Two single vehicle run-off-road to the left collisions occurred in the vicinity of Main Divide Road;
- Three collisions have occurred in the Great Western township. These were three separate crash types and in separate locations;
- Four collisions were intersection related, e.g. right-turn crash, rear-end crash etc. These occurred at intersections with Petticoat Gully/McDonalds Park Road (Armstrong), Old Brewery Road (Armstrong), Rennie Street (Great Western) and Robson Road (Stawell).

There is no obvious trend of collisions that suggest that there are road safety issues at specific locations along this section of Western Highway.

9.5.4 Public Transport

Within the study area, the Melbourne – Adelaide rail line (part of the national interstate rail network) is a single bi-directional track which predominately follows the general alignment of the Western Highway. In general, the rail line is located on the east of the highway from Ararat to Armstrong, to the west of the highway from north of Armstrong to south of Stawell, then on the east of the Western Highway to Stawell and beyond. The rail line does not directly interact with the highway as both existing crossings, at Armstrong rail bridge and Oddfellows rail bridge, are grade separated.

The Melbourne-Adelaide Great Southern Rail 'The Overland' passenger rail service operates between Ararat and Stawell and beyond. There is one north-westbound service on Mondays, Wednesdays and Fridays; and one south-eastbound service on Tuesdays and Thursdays. Figure 9-1 shows the railway line alignment in the study area.

The V/line bus service operates along the Western Highway with stops located within the townships of Ararat, Great Western and Stawell.

Stawell, Ararat and Great Western have schools that coordinate school bus routes that operate along the Western Highway. The bus routes and schedules vary depending on the number and location of students.

9.5.5 Bicycle Lanes

There is no designated bicycle infrastructure on the Western Highway within the project area. There are 2.5m sealed shoulders on the existing highway which may be used by cyclists.

9.6 Impact Assessment

The impact assessment addresses potential impacts of the construction and operation of the proposed alignment of the Project.

9.6.1 Key Issues

The Project would create benefits and some local adverse impacts. The benefits that the Project would create include:

- Increased capacity, which would enable the highway to accommodate the expected future traffic volumes;
- Travel time savings by continuous overtaking opportunities, a reduction in the number of intersections and removing the need to reduce speed through townships;
- Increased safety by reducing traffic volumes within Great Western, grade separated intersections for AMP1, improved alignment geometry, provision of continuous overtaking opportunities and treatment of roadside hazards;
- Improved efficiency and safety for freight;
- Potential to reduce the traffic from local roads due to the Western Highway becoming the preferred route.

The adverse impacts that the Project may create include:

- Changed road environment during construction may result in a reduction in road safety;
- Changed road environment during construction may result in general reduction to performance and efficiency of travel modes;
- Disruption to local access routes post-construction; and
- Potential for some aspects of road safety to be degraded. For example, the increased crossing distance for wildlife may increase the likelihood of collisions with wildlife.

9.6.2 Construction

Short-term traffic impacts considered for the construction of the Project include:

- Impacts of construction traffic on the existing road network; and
- Traffic management impacts associated with the construction of new carriageways, construction sites and haulage routes.

9.6.2.1 Construction Traffic Volumes and Haulage Routes

Traffic generated by the construction of the Project would predominately be associated with the transport of construction machinery, equipment and materials to site. Traffic would also be generated by worksite contractors accessing the site across the day during a six day working week.

It is expected that the construction of the Project would be staged to minimise disruptions and maintain traffic flow along the Western Highway in both directions. It is not expected that night works would be required, although night works would be considered where they may mitigate the construction impacts on the community or travelling public.

The haulage routes for heavy vehicle traffic for the Project would broadly be determined by the construction contractor(s). Given the connectivity of the Western Highway, it is expected that the majority of the haulage would be undertaken on the Western Highway itself to the location of construction sites.

9.6.3 Changed Road Conditions

During construction, it is expected that there would be potentially significant impacts to transport operations (including a reduction in efficiency of travel) and road safety as a result of the changed road environment. For example, it is expected that there could be construction sites located immediately adjacent to the existing highway resulting in the need to reduce speed limits in these areas. There would also be slow moving vehicles entering the traffic stream which could have localised impacts on traffic.

To minimise these potential impacts Traffic Management Plans (TMPs) would be developed and implemented.

9.6.4 Highway Access

It is expected that there would be short-term disruptions to local access points during construction. Where appropriate, detour routes would be provided and are expected to be detailed in the TMPs prepared for the Project.

It is expected that potential access impacts would be able to be adequately managed. Longer term disruptions are not expected as VicRoads requires that the construction does not unduly restrict access to properties and side roads.

9.6.5 Construction AMP3 – AMP1

Construction of the ultimate (AMP1) upgrade would have some impacts on the operation of the interim (AMP3) upgrade, although these impacts are not expected to occur for many years. The traffic and transport assessment identified that acceptable outcomes would be achieved through the implementation of TMPs and through community consultation to inform road users' expectations during the construction phase.

9.6.6 Operation of Interim New Road (Duplicated Highway – AMP3 standard)

This section address the potential operational impacts to the transport network and road users within the study area as a result of the Project at the interim upgrade (duplicated highway), i.e. AMP3 standard for the entire length.

9.6.7 Road Safety

One of the primary benefits of the Project is the improved road safety that would be achieved as part of the Project. Road safety would be improved through:

- Increased clear zone widths;
- Provision of central medians to reduce occurrence of head-on collisions;
- Ability for vehicles to safely overtake along the length of the study area; and
- Horizontal and vertical alignments designed to higher standards.

These features of the duplication are expected to eliminate a high proportion of existing road safety risks and provide for a higher road safety standard than currently exists.

Based on the crash history of the existing road and the crash reduction factors sourced from Austroads for each proposed treatment, it is estimated that the crashes per 100 million km travelled per year would reduce from 4.24 to 3.04 for the interim upgrade. Hence, the Project is anticipated to substantially reduce the incidence of casualty crashes in the study area.

The provision of additional overtaking lanes was also considered as an alternative to the proposed Project. It has been determined that constructing more overtaking lanes along the Western Highway between Ballarat and Stawell alone would not be adequate as:

- Overtaking lanes are not as effective in addressing the road safety issues along the highway;
- Overtaking lanes would not allow the speed limit to be raised to 110km/h;
- Overtaking lanes do not cater for overtaking of vehicles that can travel at or near the speed limit on shallow gradients.

Refer to Section 5.2.2.3 in Chapter 5 (Project Alternatives) for more information.

9.6.8 Capacity and Travel Times

The interim upgrade (AMP3 standard) would increase capacity and improve the operational performance of the highway. The interim upgrade would increase the theoretical capacity of the highway from 2,551 vehicles to 5,063 vehicles per hour (two-way traffic flow).

The Project is expected to provide travel time savings of around two and a half minutes for vehicles travelling along the Western Highway through the study area. The travel time savings would be gained through:

- Bypassing the township of Great Western;

- Increase in the posted speed limit from 100km/h to 110km/h; and
- Additional overtaking opportunities.

The theoretical travel time for the existing highway compared with that under the interim upgrade is estimated to be:

- Existing: 16 minutes 0 seconds
- Interim: 13 minutes 30 seconds.

Travel time savings are expected to benefit the transport of freight and reduce travel times for school buses and emergency services.

It is, however, noted that some landholders would experience minor increases in travel times due to restriction to 'left-in/left-out' only access treatments and service road access locations. It is, however, expected that landholders would consider these minor increases in travel times acceptable due to the improved safety when accessing their properties.

9.6.9 Road Network Impacts

To improve access and improve road safety a number of intersections are proposed to be upgraded to be wide-median treatments during the interim upgrade of the Project (AMP3 standard). The design of these intersections would make provision for heavy vehicles in a manner which is consistent with consideration for road safety. The intersections that would be upgraded to have a wide median treatment include:

- Main Divide Road – The Majors Road;
- Petticoat Gully Road;
- Allanvale Road; and
- Churchill Crossing Road.

Harvey Lane and Hurst Road would also have access to the upgraded Western Highway via a wide median treatment (located between the two roads) and service road connections.

In addition, grade-separation is proposed at Garden Gully Road / Military Bypass Road, Great Western (North and South) and London Road as part of the interim upgrade.

Within the vicinity of the bypass of Great Western, the existing highway would revert to a local road. Streets currently intersecting the existing highway would maintain access but would no longer have direct access to the upgraded Western Highway (as it bypasses the town). Access to Great Western and the roads within the town would be provided through new half diamond interchanges at either end of Great Western. This access arrangement is likely to have a slight increase in travel time for local users, however it is expected to be acceptable due to improved safety aspects associated with heavy vehicles being moved out the town. Altered access arrangements are proposed for the following intersecting side roads:

- Paxton Street (Sandy Creek Road);
- Cubbitt Street;
- Rennie Street;
- Locke Street; and
- Fisher Street.

9.6.10 Highway Access

Existing direct property access to Western Highway would typically be maintained, however the majority of property accesses would be restricted to 'left-in and 'left-out' for safety reasons. To access those properties from the opposing direction, vehicles would be required to travel to the nearest wide median treatment or median break and complete a 'U-Turn'.

Given the 'left-in' and 'left-out' access restriction to the Western Highway, vehicles associated with direct property access may be required to drive further in order to drive in their desired direction of travel. The effect may be a small increase in travel times for those road users. However, these travel time increases are not considered unreasonable as the Project would provide an increase in the level of road safety.

9.6.11 Public Transport

The Melbourne-Adelaide rail line crosses the Western Highway at two locations, both of which are already grade separated. As such, these crossing are not proposed to be altered as part of the interim (AMP3 standard). Consequently, it is expected that the Project would have negligible impact on the safety and operation of the rail line.

The regional V/Line bus services are anticipated to benefit from improved travel times and travel time reliability along the length of the project area, in line with general traffic. Currently, the only V/Line bus stop within the study area is within the Great Western township. The proposed alignment would bypass the township while still providing access to the township from both directions, allowing the bus to safely and efficiently access the stop. Accordingly there would be negligible impacts to bus services or public transport users.

9.6.12 Heavy Vehicles and Freight

The Project would be designed to accommodate High Productivity Freight Vehicles (HPFVs). This would provide the industry the opportunity to improve efficiency of freight movements by increasing the volume transported by a single vehicle. Improved efficiency of freight movement benefits the State through reduced transport costs and benefits the local area by reducing the overall number of heavy vehicles required to be travelling along the Western Highway.

The Project would provide travel time savings for freight vehicles through reduced delays due to a reduction in the number of at-grade intersections and access points and opportunities for heavy vehicles to safely pass or be passed along the length of the study area.

9.6.13 Other Road Users

Within the AMP3 design there is no specific provision for cyclists and pedestrians, however cyclists would be permitted to use the sealed shoulder of the highway.

Emergency services vehicles would benefit from the increase in highway capacity and the reduction in travel times. In some locations, emergency services vehicles may be required to drive to a median break and perform a 'U-Turn' to drive in their preferred direction of travel.

9.6.14 Operation of Ultimate New Road (Freeway to AMP1 standard)

The EES and associated draft Planning Scheme Amendment (PSA) have been developed to plan for the eventual upgrade of the Western Highway to a freeway (AMP1) standard. This upgrade to a freeway standard would not occur for many years into the future, however its impacts have been addressed in the Traffic and Transport Impact Assessment (Technical Appendix D).

The construction impacts of AMP1 would be similar to the construction impacts of AMP3.

9.6.15 Capacity and Operational Impacts

The capacity and operational impacts are generally expected to be similar for the interim upgrade (AMP3 duplicated highway) and ultimate upgrade (AMP1 freeway).

The freeway is expected to provide further travel time savings for vehicles travelling along the Western Highway. These travel time savings would be achieved through restricted access arrangements which would reduce the need for vehicles to slow for vehicles entering or exiting the road. The theoretical travel time savings for the ultimate upgrade have been estimated to be:

- Existing: 16 minutes 0 seconds
- Ultimate: 13 minutes 10 seconds.

9.6.16 Access to Freeway and Road Safety

The major difference between the interim (AMP3) and ultimate (AMP1) upgrade with regard to road safety is access to the freeway, which is limited to grade-separated interchanges, and service roads that would provide access to the local road network and adjacent properties with direct access to the existing highway.

9.7 Risk Assessment

An environmental risk assessment was undertaken on the Project to identify key environmental issues associated with the construction and operation of the Project. The methodology for this risk assessment has been described in Technical Appendix Q. A risk assessment report that explains the process in detail and contains the complete risk register has also been included in Technical Appendix Q.

Table 9-5 shows a summary for traffic and transport of:

- The impact pathways identified; and
- A description of the consequences.

Table 9-5 Traffic and Transport Risks

Risk No.	Impact Pathway	Description of Consequence
T1	Changed road environment during construction results in general reduction to road safety. Examples of road environment changes include heavy vehicles entering/exiting construction accesses, additional or closer roadside hazards, variable speed limits, unfamiliar conditions. Impacted road users include private vehicles, public transport, school buses, cyclists and pedestrians.	Increased incidence of accidents that one or more incidents may result in a fatality.
T2	Changed road environment during construction results in general reduction to performance and efficiency of travel modes. Examples of road environment changes include speed reductions, works resulting in temporary road or lane closures or cumulative impacts of the potential simultaneous construction of three sections of Western Highway. Impacted users can include private vehicles, public transport, school buses, emergency services, cyclists, pedestrians and rail.	Increased disruption or displacement of road users, and increased travel time and/or distance.
T3	The duplication disrupts/severs local access routes including cyclist connectivity post-construction (interim and ultimate operation).	Economic and social disruption through increased travel times and reduced accessibility for some local users. Vehicle traffic, public transport, school buses, emergency services, cyclists, pedestrians, rail crossings and private accesses potentially affected.

Risk No.	Impact Pathway	Description of Consequence
T4	Potential for some aspects of road safety, during (interim) operation of the new road to be degraded. For example: ▪ Increased crossing distance for wildlife exacerbates frequency of accidents. ▪ Increased distance for farm machinery to be travelling along the road. ▪ Changes in atmospheric conditions due to changed road alignment i.e. fog, sunglare. ▪ Movements at intersections and property accesses that are retained.	Increased incidence of accidents that one or more incidents may result in a fatality.
T5	Potential for some aspects of road safety, during (ultimate) operation of the new road to be degraded. For example: ▪ Increased crossing distance for wildlife exacerbates frequency of accidents. ▪ Changes in atmospheric conditions due to changed road alignment i.e. fog, sunglare.	Increased incidence of accidents that one or more incidents may result in a fatality.
T6	Potential for some aspects of road safety to be degraded through inadequate design, including horizontal and vertical geometry, sight distance at all intersections and merge locations (ramps and service road entry/exit)	Increased incidence of accidents that one or more incidents may result in a fatality.
T7	Traffic volumes significantly increase due to induced demand and cause congestion (for the interim and ultimate upgrades).	Increased travel time for road users.

9.8 Environmental Management Measures

VicRoads has a standard set of environmental management measures which are typically incorporated into its construction contracts for road works and bridge works. These measures have been used as the starting point for the assessment of construction related risks and are described in detail in Chapter 21 (Environmental Management Framework). In some instances, additional Project specific environmental management measures have been recommended to reduce risks.

Management measures specific to each identified traffic and transport risk, and the residual risk rating after these environmental management measures have been applied, are outlined in Table 9-6.

9.8.1 Residual Risks

Following the implementation of the proposed mitigation measures including the development and implementation of TMPs, there are not expected to be any significant impacts. The overall risk associated with traffic and transport is medium.

Table 9-6 Traffic and Transport Environmental Management Measures and Residual Risk

Risk No.	Environmental Management Measures	Consequence Description
T1	Contractors to have TMPs for the construction works prepared to identify, assess and appropriately eliminate, reduce or mitigate road safety hazards. TMPs to comply with standard VicRoads practices, the Traffic Management Code of Practice and the *Road Management Act 2004*. TMPs to be reviewed by VicRoads prior to implementation. Road Safety Audits (RSAs) to be undertaken on TMPs. Construction vehicles would generally avoid local roads. Haulage routes for construction traffic and heavy vehicles to be appropriately designated and managed as part of TMPs, with consideration for safety. Implement a communication strategy with the key stakeholders to manage impacts, and inform road users and the community.	Medium

Risk No.	Environmental Management Measures	Consequence Description
T2	Contractors to have TMPs for the construction works prepared to identify, assess and appropriately minimise likely impacts on road operations. TMPs to comply with standard VicRoads practices, the Traffic Management Code of Practice and the *Road Management Act 2004*. TMPs to be reviewed by VicRoads prior to implementation. Road Safety Audits (RSAs) to be undertaken on TMPs. Buses would be provided for rail users in the event that rail operations are temporarily suspended (in consultation with Public Transport Victoria, bus and rail operators). Construction to be staged to allow one carriageway to be operational at all times and traffic flow not to be stopped for any extended period of time. Appropriate consideration to be made of non-motorised road users (ensuring connectivity is not removed), public transport, school buses, emergency services and rail interfaces. This would include: ▪ Local community, Department of Transport and other relevant stakeholders (such as transport operators) consulted and informed of likely disruption due to construction, including impacts to public transport and school bus services. ▪ Haulage routes for construction traffic and heavy vehicles appropriately designated and managed as part of TMPs, with consideration for road operations. ▪ Impact on travel times as a result of TMP implementation to be analysed prior to, and assessed during, construction. Implementation of alternative TMP measures to be considered during construction if impacts on operations are determined to be unacceptable. ▪ Where possible schedule construction works to minimise the impacts at public holidays, school holidays or other times when the Western Highway would reasonably be expected to experience higher levels of demand and to minimise impacts on key user groups. ▪ Communication between construction teams for each section and integration of Traffic Management Strategies.	Medium
T3	Design to maintain access to side roads and properties under interim and ultimate solutions. Access in the interim is via wide median treatments and 'left in' and 'left out' access. Local community and stakeholders to be engaged and informed of positive project outcomes as part of broader community consultation process to address perceptions of localised adverse impacts. Signage and design to allow cyclists to continue to use the shoulder of the highway such that it meets the road rule 95(2) requirements. Possible compensation through the Land Acquisition and Compensation Act.	Low
T4	Road safety audit completed for the design. Assess wildlife corridors and identify mitigation measures (such as culverts) to reduce wildlife crossing the Western Highway via trafficked carriageway. Assessment of atmospheric conditions within the project area during detailed design.	Medium
T5	As per risk T4.	Medium
T6	Appropriate standards are applied to the design. Road safety audit completed for the design.	Medium
T7	Risk is negligible and therefore there are no controls to manage the risk.	Negligible

9.9 Conclusion

It is expected that the Project would provide benefits to road users including:

- Increased capacity, which would enable the highway to accommodate the expected future traffic volumes;
- Travel time savings by a reduction in the number of intersections, provision of continuous overtaking opportunities and removing the need to reduce speed through townships;
- Increased safety by reducing traffic volumes within Great Western township, grade separated intersections for AMP1, improved alignment geometry and treatment of roadside hazards;
- Improved efficiency and safety for freight; and
- The potential to reduce the traffic on local roads due to the Western Highway becoming the preferred route.

The construction of the Project would have short term impacts on the operation of the existing Western Highway, including reduced speed limits on some areas of the highway. Construction of the Project would be staged and traffic management plans would be implemented to reduce these impacts.

Intersection of Garden Gully Road and Western Highway