



Road Safety Audit

Sturt Highway – Waikerie

May 2018



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RAA

Prepared By

Matthew Vertudaches
Traffic Engineer

Date 23 May 2018

T: 08 8202 4703
E: mvertudaches@raa.com.au

Approved By

Charles Mountain
Senior Manager Road Safety

Date 23 May 2018

T: 08 8202 4568
E: CMountain@raa.com.au

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| V1.1 | 11/5/2018 | MV | CM | Edits. |
| V1.2 | 23/5/2018 | MV | CM | For issue. |
| | | | | |

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Appendix A: Decision Tracking Form

Appendix B: Sketch of Audit Recommendations

1 Introduction

This report presents the findings of a road safety audit carried out on 1/5/2018.

The safety audit was carried out due to a significant road safety complaints in this area and conducted by an audit team comprising:

- Senior Road Safety Auditor – Charles Mountain; and
- Road Safety Auditor – Matthew Vertudaches.

This road safety audit report identifies a number of issues relating to freight movements, parking accessibility, pedestrian safety and speed limits. This audit covers the extent of the Sturt Highway between Ian Oliver Drive and Curtis Road.

1.1 Purpose

The audit is undertaken in accordance with best practice principles in accordance with a safe system framework to ensure that road safety is a primary consideration at all times.

A driver's expectations about the standard of the carriageway, road markings, delineation and a forgiving roadside environment are a major contributing factor in his or her ability to negotiate the road environment safely.

Traffic safety principles need to be considered in order to provide road users with the safest road environment possible. Such principles include:

- Creating safe carriageways that facilitate appropriate tracking of motor vehicles, specifically at locations where topographical or property boundary constraints require changes to alignment;
- Ensuring all road user types are considered, with appropriate facilities to ensure safe operation and travel of all user types;
- Roadside features and constraints – typically close proximity features and intersections which increase the likelihood of crashes;
- Managing crash severity risk through the implementation of safety design principles to ensure injury is minimised in the event of a crash; and
- Ensuring that safety related design criteria such as appropriate sight distances, have been considered.

The findings, opinions and recommendations in this report are based on an examination of the location, and may not cover every deficiency that is present on site. It is considered that adoption of the recommendations set forth in this report should improve the level of safety on this section of the Sturt Highway in Waikerie.

1.2 Site Location

The site is located within the District Council of Loxton Waikerie area of jurisdiction and shown in Figure 1. Sturt Highway is under the care and control of the Department of Planning Transport and Infrastructure (DPTI). The intersections with Ian Oliver Drive, Maggea Road and Curtis Road are also under the care and control of DPTI.



Figure 1: Location Plan

1.3 Audit Team

The audit team comprised:

- Charles Mountain
Charles is the Senior Manager of Road Safety at RAA. He has extensive experience in transport, traffic and road safety. Prior to joining RAA he had over 25 years' experience in local government managing a wide variety of traffic, access and parking issues. Charles has qualifications in engineering, business management and is a qualified road safety auditor.
- Matthew Vertudaches
Matthew is a Traffic Engineer at RAA and has been with the organisation for 2 years. He has undertaken five days of Road Safety Audit training and Treatment of Crash Location training at the Queensland University of Technology. Matthew has qualifications in civil engineering with experience in civil and traffic engineering, traffic investigations and local government.

1.4 Audit Process Methodology

This Safety Audit has been undertaken in accordance with the Austroads Guide to Road Safety - Part 6: Road Safety Audits, and is aimed at ensuring that appropriate safety consideration is given, thus minimising the potential occurrence of crashes and reducing the severity of crashes that occur.

The entire length of the site was inspected on foot and also by vehicle on 1/5/2018. A night audit was not undertaken by the auditors as the issues are most prevalent during business

hours. The weather condition at the time of the inspection was fine with no rain. This site inspection forms the basis of the audit findings that are detailed in subsequent sections of this report.

Non-conformances and hazards have been identified using the Austroads guide and relevant guidelines or standards such as, Austroads 'Guide to Traffic Engineering Practice', DPTI technical standards and guidelines, and relevant Australian Standards.

Non-conformances or hazards identified in this report have been rated based on the probability and severity of possible crashes that could result from the identified issue. Possible actions have been suggested for the identified issues as a guide for consideration.

1.5 Responding to the Audit Report

Responsibility for road design always rests with the designer/project manager and not with a road safety auditor. A project manager or road authority is under no obligation to accept every recommendation set out in this report and it is not the auditor's role to agree or approve of the road authorities audit response.

It is expected that this formal road safety audit report will be responded to in writing with reasoning given for rejections of any recommendations made in this report. Written confirmation outlining how or when accepted recommendations may be useful and should be provided wherever possible.

To assist the road authority in responding, an area for formal response is provided in Appendix A of this road safety audit report.

2 Safety Audit Findings

Whilst it is important to ensure that a traffic control treatment and road environment is designed to a consistent standard, there are times when, due to physical or financial constraints, this is not always possible. This report does not consider the potential cost of projects, and makes recommendations based solely upon safety needs.

The following section describes each of the non-conformances or hazards identified during the audit. They are then summarised in section 2.4.

2.1 General Comments

Item 1: Parking

There is no convenient formalised parking on site for eastbound heavy vehicles or caravans. The parking facility on Maggea Road is recognised however at the time of our site inspection these were not utilised because an eastbound heavy vehicle or caravan is required to make three right turns, two of these across a Major Highway in order to access and leave this parking facility.

Heavy vehicle combinations and holidaymakers towing caravans instead utilise the eastbound service lane for parking, which creates safety issues due to restricted entry and egress issues for other vehicles.

During the audit teams' observations on site, the service lane was blocked or partially blocked by parked vehicles for the majority of the time which in turn results in dangerous entry and egress manoeuvres for other vehicles entering or leaving Sturt Highway to access businesses.

It is recommended that a formal parking arrangement on the north side of Sturt Highway be provided for eastbound caravans and heavy vehicle combinations. Vacant land opposite the Growers Wine Group driveway could potentially be used for this purpose. It is also recommended that upon providing parking to these vehicles, 'no parking' areas are clearly signed and marked out to discourage dangerous and illegal parking.

Item 2: Footpaths

Frequent pedestrian movements were noted between the various businesses on Sturt Highway. Pedestrians currently walk unprotected along the service road and contend with parked vehicles and moving vehicles in order to access multiple businesses. It is currently considered that there is a high risk of a crash involving a pedestrian at this site with this current practice.

It is recommended that dedicated pedestrian walkways are provided for pedestrians to safely access businesses in the precinct.

Item 3: Speed Limit

A number of reference documents can be used to determine an appropriate speed limit for a road, including:

- The Speed Limit Guideline for South Australia (Produced by DPTI)
- AS1742.4 Australian Standard Manual of uniform traffic control devices Part 4: Speed Controls
- Austroads Guide to Road Safety Part 3: Speed Limits and Speed Management.

The speed limit guideline for South Australia states that a 60km/h speed limit should apply to main roads in a built up area. The guideline uses the following definition for a built up area:

Built-up area – In relation to a length of road, an area in which either of the following is present for a distance of at least 500m, or if the length of road is shorter than 500m, for the whole road:

- *Buildings, not over 100m apart, on land next to the road.*
- *Street lights not over 100m apart.*

GIS software has been used to estimate the length of Sturt Highway in question between Waikerie Honda and the residence at 12937 Sturt Highway to be approximately 650m.

Typical 60km/h speed limit examples given in the guideline include roads in rural residential, commercial or retail areas which do not meet the legal definition for the urban default limit and main roads in rural towns outside of the central business district.

Typical 80km/h speed limit examples given in the guideline include rural roads in partially built up areas with limited adjacent development, typically a small village in a rural area, or roads through urban/rural fringe areas. Houses may be located on larger allotments and be set back from the road, allowing drivers accessing these properties to enter and leave the road in a forward direction.

AS1742.4 also suggests appropriate speed limits based on roadside development. The standard defines a fully built up area as:

Residential, business or industrial development extending along at least 90% of the road frontage on both sides of the road. The development may include schools, shops, playing fields etc. The appropriate speed limit is 60km/h but 70km/h or 80km/h may be appropriate on urban arterial roads with improved cross-section or reduced levels of direct access.

And a partially built up area as:

Residential, business or industrial development along 25% - 90% of the road frontage on both sides of the road. This is typical of an urban fringe area or a township in a rural area. The appropriate speed limit is generally 80km/h but 60km/h or 70km/h may be appropriate if there is extensive vehicular or pedestrian activity on the road

For the purposes of assessing the area against AS1742.4, the area would be classed as a partially built up area however due to limited development on the Southern side of Sturt Highway. Due to extensive vehicular and pedestrian traffic, a speed limit lower than 80km/h would be appropriate according to this standard.

The desirable minimum length for a 60km/h zone is 600m and the desirable minimum length for an 80km/h zone is 800m and this is consistent across both guidelines. When an 80km/h zone is used as a 'buffer zone' into a lower speed limit, 400m is the desirable length.

Austroroads Guide to Road Safety discusses typical speed limits and considerations that need to be made when setting a speed limit. This document specifies that previous crash history should be a strong consideration when reviewing a speed zone, as well as the roadside environment and operating performance of the road including:

- Activities that generate a large number of pedestrians
- Road cross section
- Whether there is restricted access on one or both sides of the road,
- Whether the development on each side of the road is similar or vastly different,
- The frequency and set back of driveways,
- The nature and level of the roadside environment (i.e. residential, commercial/shopping, industrial).

After assessing this area against each speed limit guideline, it is recommended that a 60km/h speed limit is applied for approximately 800m of Sturt Highway replacing 800m of the existing 80km/h speed limit zone. An electronic variable speed limit should be considered which could allow vehicles to travel 80km/h overnight where there are considerably less vehicles and pedestrians in the area. It is recommended that traffic counts and movements including pedestrian activity is reviewed in order to determine suitable times to implement a potential variable speed limit zone.

Figure 2 below outlines the recommended speed limit arrangement for Sturt Highway in Waikerie.




Figure 2: Recommended speed limit layout for Sturt Highway in Waikerie

This option utilizes an 80km/h buffer zone for approximately 400m on the western approach, a 60km/h zone of approximately 800m and a 1.7km 80km/h zone on the eastern approach. It should also be noted that the 60km/h zone in this option is contained entirely within the current 80km/h zone and changes to the total length of the speed zone are not required. By replacing 800m of 80km/h road with a 60km/h speed limit, the total increase in travel time is 12 seconds.


An 80km/h buffer zone is preferred to '60 ahead' advisory signage due to the risks associated with a potential increase in Sturt Highway speeds at the intersections with Ian Oliver Drive and Holder Top Road and these should be maintained at 80km/h in their own right.

2.2 Specific Findings

| Item No. | Item Description |
|----------|---|
| 4 | Lack of formalised entry/exit points to northern service road  <p>Figure 3: Satellite image of entry point to northern service road (Google, 2018)</p>  <p>Figure 4: Current line marking on approach to northern service road</p> <p>A painted island separates the eastbound lane of Sturt Highway from the service road to access businesses on the north side. This island is continuous with no breaks or formalised entry or exit points. Vehicles are entering and leaving the service road at different locations across the island which is causing confusion and generates many near misses.</p> <p>It is recommended that entry and exit points to the service road are clearly defined and that a concrete island or other form of physical barrier be installed between Sturt Highway and the service road to prevent uncontrolled movements into and out of the service lane.</p> |

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| 5 | Long vehicles parking on northern service road |
| | <div></div> <p>Figure 5: Caravans parking in the service road. In this case caravans blocked designated parking spaces in front of New Land Bakery as well as the exit to the drive-through.</p> <div></div> <p>Figure 6: B-Doubles and caravans parking on the service road. In this case B-Doubles blocked off the service road and a caravan blocked off a possible route around the B-Doubles. The only option for vehicles to pass was to drive across the painted island and onto the highway around the parked vehicles.</p> <p>Long vehicles such as freight and tourists towing caravans regularly stop on the service road to access businesses. This creates numerous issues including:</p> <ul style="list-style-type: none">• Driver confusion about where to safely park• Reducing sight distance to other vehicles on the service road and pedestrians• Restricting access to businesses and blocking parking locations. |

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| | <p>It is recommended that parking facilities are provided on the north side of Sturt Highway that are convenient and accommodate road trains and caravan drivers that regularly stop in Waikerie. The parking facility on Maggea Road is recognised however this is seldom utilised nor is it desirable for eastbound freight to perform three right turns in order to use this parking facility then continue east.</p> <p>This area could be used effectively for caravans, but needs improved signage to alert approaching drivers of this parking facility.</p> <p>Two locations that may be feasible to provide long vehicle parking include the currently vacant land east of Illalangi Gourmet Foods and the open paved area west of New Land Bakery. Both of these options should be explored for potential parking provisions.</p> |
| 6 | Lack of safe or formalised pedestrian crossing location |
| | <p>Pedestrians were noted to be regularly crossing Sturt Highway between Maggea Road and the Growers Wine Group driveway. There are no pedestrian refuges or any infrastructure in place to direct pedestrians to a common or safe crossing location. This causes pedestrians to cross the road close to where they park their vehicle. It is hazardous for pedestrians to be crossing a major highway and freight corridor with an 80km/h speed limit and no protection.</p> <p>It is recommended that, along with a scheme of concrete traffic islands and a lower speed limit, at least one pedestrian refuge is provided with pedestrian fencing restricting access across the highway at locations other than where the refuge is located.</p> <p>This could be located at a point between the New Land Bakery and Viewpoint Café, away from the right turn lane into Growers Wine Group.</p> |

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| 7 | Heavy vehicles driving over painted median when turning right into Growers Wine Group |
| | <div></div> <p>Figure 7: The channelised right turn lane into Growers Wine Group was barely long enough, causing heavy vehicles to drive on the painted median prior to entering the turn lane.</p> <p>Heavy vehicles turning right into Growers Wine Group drive over the painted median island at high speed prior to entering the channelised right turn lane. This poses a high risk to pedestrians who regularly stand on this painted median when crossing Sturt highway.</p> <p>It is recommended that the channelised right turn lane is extended to safely accommodate deceleration and right turn movements, and a raised concrete median is installed to restrict vehicles from driving on the islands and increase the level of safety for pedestrians.</p> |

8

Painted Traffic Islands




Figure 8: Vehicles regularly enter and exit the highway sporadically over painted islands.





Figure 9: Vehicles regularly enter and exit the highway sporadically over painted islands.

Painted traffic islands and medians on site are functioning poorly. The intention of these devices is generally to direct and restrict traffic however painted traffic islands are regularly being utilised for U-turns, right turns and entering and exiting the highway.

It is recommended that raised concrete islands and medians are utilised as an alternative to painted traffic islands between Ian Oliver Drive and Growers Wine Group. Sections of painted island may still be used on the noses of these island to

| | |
|---|--|
| | <p>accommodate the wider swept paths of caravans and heavy vehicle where required.</p> <p>It is noted that if raised concrete traffic islands are installed that upgrades to street lighting will be required as discussed below in item 11.</p> |
| 9 | <p>90 degree parking in front of New Land Bakery</p>  <p>Figure 10: 90 degree parking in front of New Land Bakery causes some vehicles to back out onto Sturt Highway.</p> <p>Current 90 degree parking in front of New Land Bakery requires traffic to back out into the service road but in some cases vehicles are backing straight out onto Sturt Highway. Due to poorly parked vehicles, sight distance to the west is regularly restricted for these vehicles and they are backing out blind.</p> <p>It is recommended that 60 degree angle parking is installed to encourage drivers to back out into the service road rather than backing out onto the major highway. When parking in the area is formalised, sight distance issues for reversing vehicles should be far less common.</p> |

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| 10 | Stobie Poles |
| |  <p>Figure 11: Stobie poles present a hazard and also restrict potential parking locations</p> <p>Stobie poles on site are a crash risk however are generally set back from Sturt Highway. Two stobie poles in particular raise concern, namely the stobie pole opposite Maggea Road and the stobie pole opposite the Growers Wine Group driveway.</p> <p>It is recommended that these two stobie poles are removed and power is undergrounded, with hazard signs installed on stobie poles in the short time. This will provide safety benefits by removing hazardous fixed objects within the clear zone but also provide clear space to consider for additional long vehicle parking spaces.</p> |
| 11 | Street Lighting |
| | <p>A low level of street lighting is currently provided on site. If raised concrete traffic islands are installed, the level of street lighting will need to be reviewed and upgraded as necessary to meet relevant DPTI and Australian standards and provide sufficient visibility of these devices.</p> |
| 12 | Lack of formalised right turn access into service road for westbound vehicles |
| | <p>Westbound vehicles were regularly sighted turning right from the painted median into parking spaces on the north side of the road or to perform a U-turn onto the service road. This manoeuvre puts pedestrians at risk who utilise the painted median to perform a two stage crossing. As there is currently no channelised right turn lane, this is causing drivers to turn right from many different locations depending on their destination.</p> |

| | |
|-----------|---|
| | <p>It is recommended that a channelised right turn lane is provided in the median to the south of Maggea Road with a break also provided in the service road island. This will formalise this right turn movement and allow safer right turns for vehicles and pedestrians.</p> |
| 13 | <p>Poor layout at Railway Terrace intersection</p> |
| | <div></div> <p>Figure 12: The end of Railway Terrace is very poorly delineated and priorities are not clear with the beginning of the Sturt Highway service road.</p> <p>The Railway Terrace intersection was causing a number of safety issues, including:</p> <ul style="list-style-type: none">• Vehicles turning right from Railway Terrace onto Sturt Highway,• Vehicles travelling west along the service lane to access Railway Terrace• Near misses between vehicles entering the service road from railway terrace and vehicles entering the service road from Sturt Highway. <p>It is recommended that this intersection is formalised with line marking and pavement bar treatments to restrict vehicle access directly onto Sturt Highway from Railway Terrace.</p> <p>Railway Terrace could be extended in front of residential properties to provide safe access to these properties and connect to the service road near the New Land Bakery.</p> <p>This would leave space between the Sturt Highway service road and the extension of Railway Terrace to consider for long vehicle parking, especially if the stobie pole is removed as recommended in item 10.</p> |

2.3 Guide to Ranking System

The audit team has raised issues in respect to road safety that should be given due consideration. To assist and gauge the relevant importance of each of the safety issues documented in this report, the following risk matrix has been considered in and a priority ranking system shown in Table 4 has been adopted.

Table 1: Likelihood

| Likelihood | Description |
|-----------------|---|
| Highly probably | It is likely that more than one crash of this type could occur within a five year period. |
| Occasional | It is likely that less than one crash of this type could occur within a five year period. |
| Improbably | Less than one crash of this type could occur within a 10 year period. |

Table 2: Severity

| Severity | Description |
|----------|--|
| Major | The crash is likely to result in a fatality or serious injuries |
| Moderate | The crash is likely to result in minor injuries or large scale of property damage. |
| Minor | The crash is likely to result in minor property damage or many near miss crash events. |

Table 3: Safety Issue Ranking System

| SEVERITY \ LIKELIHOOD | Improbable | Occasional | Highly Probable |
|-----------------------|------------|------------|-----------------|
| Minor | Low | Low | Medium |
| Moderate | Low | Medium | High |
| Major | Medium | High | High |

Table 4: Safety Issue Ranking System

| Safety Issue Ranking | Likelihood of a crash resulting in serious or fatal injury |
|-----------------------|---|
| Priority 'A' (High) | A major concern that should be addressed and requires changes to avoid serious safety problems. |
| Priority 'B' (Medium) | A significant safety concern that requires consideration of changes to improve safety. |
| Priority 'C' (Low) | A safety concern of lesser significance, but which should be addressed as it may improve overall safety. |
| Comment | A concern or an action that may be outside the scope of the RSA, but which may improve the overall design or be of wider significance. The responsibility for any action on comments may fall to the response road authority. |

2.4 Summary of Recommendations

The road safety audit findings and suggested actions detailed throughout this report have been summarised in Table 5.

Table 5: Audit Recommendations Summary

| Item | Deficiency | Suggested Action | Risk Rating |
|------|---|---|-------------|
| 1. | Parking | Provide parking on the northern side of Sturt Highway for caravans and heavy vehicle combinations | A |
| 2. | Footpaths | Provide dedicated pedestrian walkways. | A |
| 3. | Speed Limit | Reduce speed limit to 60km/h for approximately 800m through the site. | A |
| 4. | Lack of formalised entry/exit points to northern service road | Clearly define entry and exit points to the service road by utilising raised concrete traffic islands. | A |
| 5. | Long vehicles parking on northern service road | Provide parking on the northern side of Sturt Highway for caravans and heavy vehicle combinations | A |
| 6. | Lack of safe or formalised pedestrian crossing location | Install pedestrian refuges and fencing as part of a raised concrete median scheme | A |
| 7. | Heavy vehicles driving over painted median when turning right into Growers Wine Group | Extend channelized right turn lane | B |
| 8. | Painted Traffic Islands | Utilise raised concrete islands and medians as an alternative to painted islands between Ian Oliver Drive and Growers Wine Group | A |
| 9. | 90 degree parking in front of New Land Bakery | Convert to 60 degree parking to reduce the number of vehicles reversing onto Sturt Highway | C |
| 10. | Stobie Poles | Underground power in certain locations to remove stobie poles and create space for caravan and heavy vehicle parking. | C |
| 11. | Street Lighting | Improve street lighting if raised concrete island scheme is adopted. | B |
| 12. | Lack of formalised right turn access into service road for westbound vehicles | Install channelised right turn lane in the median to allow westbound vehicles to safely access the northern service road. | C |
| 13. | Poor layout at Railway Terrace intersection | Improve delineation with line marking and pavement bar treatments to restrict direct access onto Sturt Highway from Railway Terrace | B |

The sketch in Appendix B visually summarises the recommendations outlined in the Road Safety Audit Report. This is not to scale and should only be used to visualise some of the possible treatment options that have been recommended in this road safety audit report.

Audit Team Statement

The above safety audit findings and suggested actions are the opinion of the audit team, and are aimed at changes that may be implemented in order to improve safety. The issues raised in this report, together with recommendations, should be considered for implementation.



Date: 23/5/18,

Charles Mountain
Senior Manager of Road Safety
Lead Road Safety Auditor



Date: 23/5/18

Matthew Vertudaches
Traffic Engineer
Road Safety Auditor

Appendix A

Decision Tracking Form

Road Safety Audit Report Recommendations

DECISION TRACKING FORM

Project Title: Sturt Highway, Waikerie RSA

Road Safety Audit Stage: Existing Road Safety Audit

Project Manager: Department of Planning, Transport and Infrastructure,
District Council of Loxton Waikerie

Designer: N/A

Road Safety Auditors: Charles Mountain, Matthew Vertudaches

| Item No. | Recommendation | Risk Rating | Road Authority Response/Comments | Road Authority Decision |
|----------|---|-------------|----------------------------------|-------------------------|
| 1. | To prevent vehicles parking dangerously. Provide parking on the northern side of Sturt Highway for caravans and heavy vehicle combinations | A | | |
| 2. | Provide dedicated pedestrian walkways. | A | | |
| 3. | Reduce speed limit to 60km/h for approximately 800m through the site. | A | | |
| 4. | Clearly define entry and exit points to the service road by utilising raised concrete traffic islands. | A | | |
| 5. | To prevent vehicles parking on the northern service road. Provide parking on the northern side of Sturt Highway for caravans and heavy vehicle combinations | A | | |
| 6. | Install pedestrian refuges and fencing as part of a raised concrete median scheme | A | | |
| 7. | Extend channelized right turn lane into Growers Wine Group | B | | |

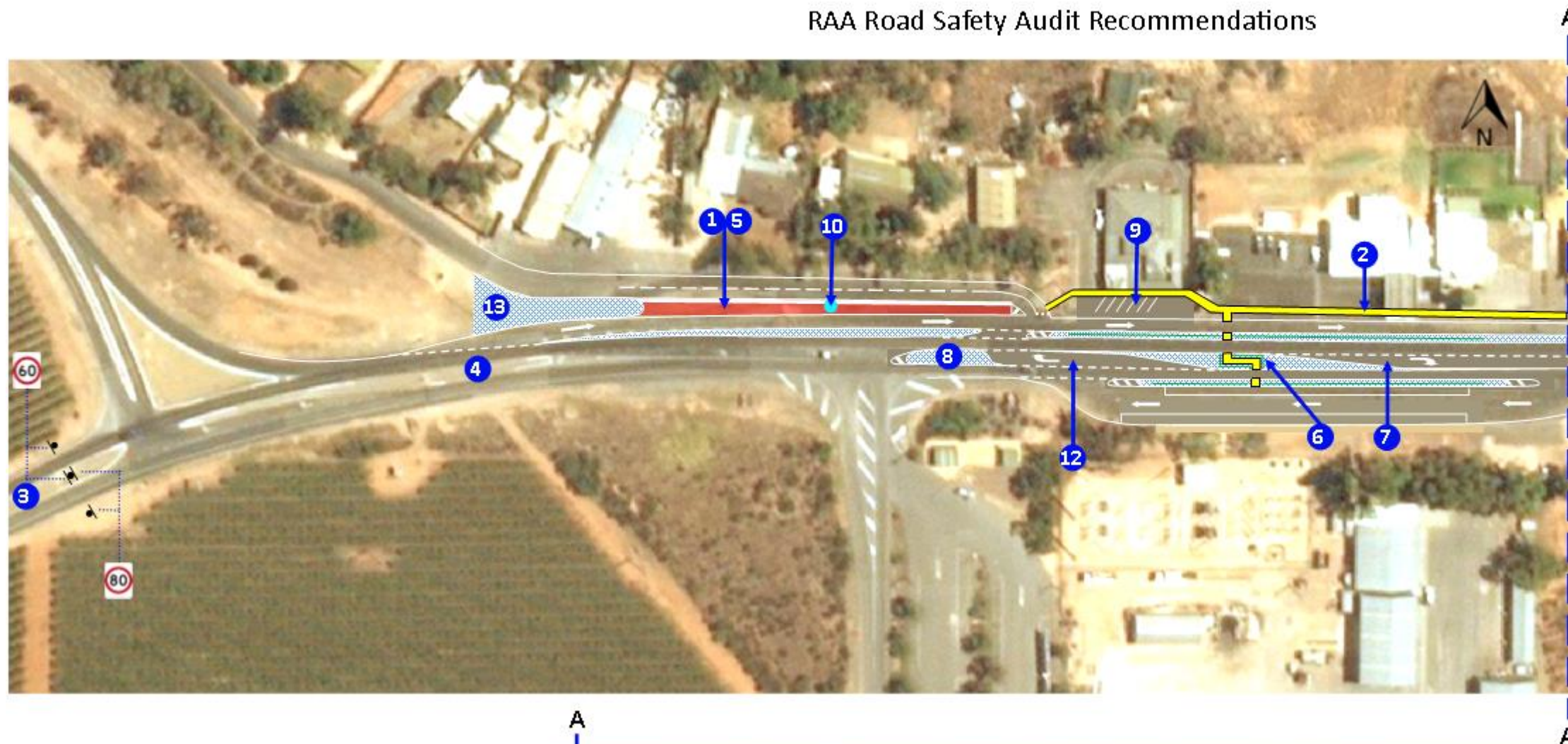
| Item No. | Recommendation | Risk Rating | Road Authority Response/Comments | Road Authority Decision |
|-----------------|---|--------------------|---|--------------------------------|
| 8. | Utilise raised concrete islands and medians as an alternative to painted islands between Ian Oliver Drive and Growers Wine Group | A | | |
| 9. | Convert to 60 degree parking to reduce the number of vehicles reversing onto Sturt Highway | C | | |
| 10. | Underground power in certain locations to remove stobie poles and create space for caravan and heavy vehicle parking. | C | | |
| 11. | Review street lighting and upgrade as necessary if raised concrete island scheme is adopted. | B | | |
| 12. | Install channelised right turn lane in the median to allow westbound vehicles to safely access the northern service road. | C | | |
| 13. | Improve delineation with line marking and pavement bar treatments to restrict direct access onto Sturt Highway from Railway Terrace | B | | |

Appendix B

Sketch of audit recommendations

Sturt Highway, Waikerie

RAA Road Safety Audit Recommendations



List of Recommendations

- 1 Long vehicle parking
- 2 Footpaths/walkways
- 3 Speed limit
- 4 Entry/exit points to service road
- 5 Long vehicle parking
- 6 Pedestrian Refuge and fencing
- 7 Extended right turn lane
- 8 Raised concrete island scheme
- 9 60 degree parking in front of bakery
- 10 Remove stobie poles
- 11 Street lighting upgrade (not shown)
- 12 Formal right turn access
- 13 Improve Railway Terrace intersection

