



SMEC INTERNAL REF: 30043113E

Existing Conditions Road Safety Audit

# Kennett River Tourism Infrastructure Improvements

Reference No. 30043113E  
Prepared for Colac Otway Shire  
13 August 2021

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# Contents

1	Introduction.....	1
2	Project Details.....	2
3	Existing Conditions.....	4
	3.1 Road Network.....	4
	3.2 Land Use.....	4
	3.3 Active and Public Transport.....	4
4	Road Safety Audit Details.....	5
	4.1 Road Safety Audit.....	5
	4.2 Auditors and Audit Process.....	5
	4.3 Previous Audits.....	5
	4.4 Design Drawings.....	5
	4.5 Site Visit.....	5
	4.6 Engineering References.....	5
	4.7 Responding to the Audit Report.....	6
5	Road Safety Audit Findings.....	8
6	Concluding Statement.....	16

## Appendices

Appendix A Site Photographs

## List of Tables

Table 1. How often is the problem likely to lead to a crash? (Source: AGRS – Part 6a, Table 4.1).....	6
Table 2. What is the likely severity of the resulting crash type? (Source: AGRS – Part 6a, Table 4.2).....	6
Table 3. The resulting level of risk (Source: AGRS – Part 6a, Table 4.3).....	6
Table 4. Treatment Approach (Source: AGRS – Part 6a, Table 4.4).....	7
Table 5. Corrective Action Schedule.....	8

## List of Figures

Figure 1. Site Locality Map (Source: OpenStreetMap.Org).....	2
Figure 2. Aerial Imagery (Source: NearMap).....	3

# 1 Introduction

This report presents the finding of a Road Safety Audit conducted in accordance with Austroads Guide to Road Safety, Part 6A: Implementing Road Safety Audits. The Road Safety Audit is an Existing Conditions of Kennett River with the aim to inform the design process for the Geelong City Deal funded improvements to the Kennett River Tourism Infrastructure in Kennett River, Victoria. This audit has been undertaken by a team of independent Department of Transport (DoT) accredited Road Safety Auditors from SMEC's Traffic and Road Safety Team.

In line with Austroads Guide to Road Safety, Part 6A, the sites and proposed works (if applicable) are first contextualised in the first half of this report. Then, the audit details and findings, including a corrective action schedule, is presented in the second half.

## 2 Project Details

Kennett River is a small coastal town located about halfway between Apollo Bay and Lorne on the Great Ocean Road. The town has a small population, which will fluctuate during holiday periods with tourist populating the caravan park and large numbers of day-trip tourists stopping in the town on their way along the Great Ocean Road. The town has one local store, the Kafé Koala, which is located adjacent to the town's main access to the Great Ocean Road. The Kafé Koala operates as a café, / general store as well as providing local tourist information. Adjacent to the café a temporary toilet block, car parking area and vehicle turn around area are provided. Additional focal points for Kennett River include the Kennett River Nature Walk and Kennett River Coastal Reserve.

Growing tourism numbers are creating amenity and safety concerns which include limited parking, pedestrian safety, and limited public convenience/amenity. A locality plan for the site is provided below in Figure 1, with an aerial image presented in Figure 2, and photographs provided in Appendix A.



Figure 1. Site Locality Map (Source: OpenStreetMap.Org)





Figure 2. Aerial Imagery (Source: NearMap)

## 3 Existing Conditions

### 3.1 Road Network

#### 3.1.1 Arterial Network (Department of Transport Managed)

The Great Ocean Road is an Australian National Heritage listed road connecting Torquay and Allansford generally following the south coast of Victoria. The road is a marked two-lane, two-way B-class arterial road (also known as B100). In the vicinity of Kennett River, the Great Ocean Road is estimated to carry 6,000 vehicles per day (source: Open Source data) and provides a posted speed limit of 50km/h. A paired V/Line bus stop is located on either side of Great Ocean Road approximately 110m south of Hawdon Avenue. The Apollo Bay bound stop provides a flag only with the Melbourne bound stop providing a flag, concrete hardstand and shelter. Beach access and a beach carpark are found on the east side of Great Ocean Road. There are no footpaths to connect these facilities to the Kennett River town centre (Kafe Koala).

#### 3.1.2 Local Network (Colac Otway Shire Managed)

Hawdon Avenue is an unmarked two-way local road that runs in a general northeast-southwest direction adjacent to the subject area and has a posted speed limit of 50km/h. Hawdon Avenue provides a narrow seal with grassed shoulders adjacent to open table drains. No footpaths are provided on Hawdon Avenue.

Grey River Road is an unmarked two-way local road that runs in a general north-south orientation before adopting a curvilinear alignment as it meanders through the Otway Ranges. Grey River Road provides a narrow seal for approximately 300m before reverting to gravel surface. The sealed section provides a posted speed limit of 50km/h. It is assumed the rural default applies to the gravel section.

Great Ocean Road Service Road runs along the west side the Great Ocean Road between Hawdon Avenue and Kennett River. The service road is unmarked providing a narrow seal with concrete edge strip. Unmarked sealed parking areas are provided at the north and south ends of the service road. The northern cul-de-sac provides a turning area for small vehicles.

### 3.2 Land Use

The surrounding land use is predominantly Township Zone west of the Great Ocean Road and Public Conservation and Resource Zone adjacent to Kennett River and the ocean with a pocket of Public Use – Other Public Use Zone which is the caravan park.

### 3.3 Active and Public Transport

#### 3.3.1 Active Transport Facilities

Within the subject area there no formalised pedestrian paths. The Great Ocean Road provides sealed shoulders which are used as on-road bicycle lanes.

#### 3.3.2 Public Transport Facilities

The V/Line service Apollo Bay - Geelong operates along Great Ocean Road through the subject area with bus stop flags located approximately 110m south of Hawdon Avenue. The Apollo Bay bound stop provides a flag only with the Melbourne bound stop providing a flag, concrete hardstand and shelter. Beach access and a beach carpark are found on the east side of Great Ocean Road. There are no footpaths to connect these facilities to the Kennett River town centre (Kafe Koala).

## 4 Road Safety Audit Details

### 4.1 Road Safety Audit

This Road Safety Audit has been conducted in accordance with the Austroads Guide to Road Safety, Part 6A: Implementing Road Safety Audits. Road Safety Audit is a formalised procedure, which can be applied to all phases of a road project or to an existing road system. The auditor and audit team must be independent of the designer so that the design is viewed with “fresh eyes”.

In reviewing the safety aspects of a road, the reporting procedure is not intended as a redesign process. It is instead intended to outline potential or existing road safety issues and establish a basis upon which ongoing designs may produce an acceptable solution to the design intent.

In accordance with the Austroads guide, this audit seeks to identify potential safety hazards, however, auditors cannot guarantee that every deficiency has been identified and if all the recommendations in this report were to be followed, this would not guarantee that this section of road is “safe”. Rather, adoption of the recommendations should improve the level of safety for this road.

### 4.2 Auditors and Audit Process

The independent audit team for this audit consisted of Bishoy Abdelmesseh and Andrew Backman. Andrew is a DoT accredited Senior Road Safety Auditor. All auditors have been independent of the design process.

A Corrective Action Schedule summarising the findings of this Road Safety Audit is provided in Section 5 of this report. The Project Manager/Designer shall indicate in this schedule whether the finding is accepted, and if not accepted, shall provide a reason for non-acceptance.

### 4.3 Previous Audits

The audit team is not aware of any previous Road Safety Audits in the vicinity of Kennett River project site.

### 4.4 Design Drawings

No design drawings were consulted for the existing conditions road safety audit.

### 4.5 Site Visit

The audit team inspected the site on Thursday, 15<sup>th</sup> July 2021. The daytime inspection was conducted between 4:00pm and 5:00pm and the weather was partly cloudy but dry, and windy. The night time inspection was conducted between 7:30pm and 8:00pm and the weather conditions included light rain, partly cloudy and the moon in its first quarter (waxing moon).

### 4.6 Engineering References

The following references were used to conduct this audit:

- Austroads Guide to Road Safety, Part 6A: Implementing Road Safety Audits;
- Austroads Guide to Road Design Series;
- Austroads Guide to Traffic Management Series;
- Australian Standards AS1158 Series;
- Australian Standards AS1428 Series;
- Australian Standards AS1742 Series;
- Australian Standards AS2890 Series;
- VicRoads Traffic Engineering Manuals;



- VicRoads Supplements to the Austroads Guide to Road Design; and
- VicRoads Supplements to Australian Standards.

## 4.7 Responding to the Audit Report

This formal Road Safety Audit should be responded to in writing including reasons for rejecting an audit recommendation. Where a finding is accepted, the action undertaken should be identified in the Response column.

To assist the Project team, for any safety-related deficiencies identified during the audit, the Likelihood (refer to Table 1) and Severity (refer Table 2) of each risk factor was determined and a risk rating (refer Table 3) was assigned to that risk factor (refer Table 4), in accordance with the Austroads guidelines. Recommendation to mitigate the risk are given in Section 5.

Table 1. How often is the problem likely to lead to a crash? (Source: AGRS – Part 6a, Table 4.1)

LIKELIHOOD	DESCRIPTION
Frequent	Once or more per week
Probable	Once or more per year (but less than once a week)
Occasional	Once every five or ten years
Improbable	Less often than once every ten years

Table 2. What is the likely severity of the resulting crash type? (Source: AGRS – Part 6a, Table 4.2)

SEVERITY	DESCRIPTION	EXAMPLES
Catastrophic	Likely multiple deaths	High-speed, multi-vehicle crash on a freeway. Car runs into crowded bus stop. Bus and petrol tanker collide. Collapse of a bridge or tunnel.
Serious	Likely death or serious injury	High or medium-speed vehicle/vehicle collision. High or medium-speed collision with a fixed roadside object. Pedestrian or cyclist struck by a car.
Minor	Likely minor injury	Some low-speed vehicle collisions. Cyclist falls from bicycle at low speed. Left turn rear-end crash in a slip lane.
Limited	Likely trivial injury or property damage only	Some low-speed vehicle collisions. Pedestrian walks into object (no head injury). Car reverses into post.

Table 3. The resulting level of risk (Source: AGRS – Part 6a, Table 4.3)

	FREQUENT	PROBABLE	OCCASIONAL	IMPROBABLE
Catastrophic	Intolerable	Intolerable	Intolerable	High
Serious	Intolerable	Intolerable	High	Medium
Minor	Intolerable	High	Medium	Low
Limited	High	Medium	Low	Low

Table 4. Treatment Approach (Source: AGRS – Part 6a, Table 4.4)

RISK LEVEL	RESPONSE TIME
Intolerable	Must be corrected.
High	Requiring immediate attention as it presents a hazard likely to result in an accident.
Medium	Presents an accident promoting situation but is not urgent. Should be corrected or the risk significantly reduced.
Low	Should be corrected or the risk reduced.

## 5 Road Safety Audit Findings

The Road Safety Audit Findings are listed in the following Corrective Action Schedule in Table 5.

Table 5. Corrective Action Schedule.

ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
1	<p><u>Sight Distance:</u></p> <p>It has been observed that two beach accesses for pedestrians are located opposite Hawdon Avenue. These accesses are surrounded by dense vegetation and require pedestrians to be near the shoulder to determine a safe gap to cross the Great Ocean Road.</p> <p>The horizontal road alignment places the accesses on the inside of the curve impacting sight distance. The southern of the two accesses is most impacted by the dense vegetation with less than 100m of sight distance available.</p> <p>Refer to Photograph 3.</p>	<p>Likelihood – Occasional</p> <p>Severity – Serious</p> <p><b>High</b></p>	Trim vegetation to the north of the pedestrian beach accesses to approach sight distance in accordance with AGRD4A and VicRoads Supplement to AGRD4A.		

ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
2	<p><u>Pavement Condition:</u></p> <p>The pavement on Hawdon Avenue (and associated parking area) and Great Ocean Road service road were observed to be exhibiting signs of distress which included alligator cracking and numerous potholes.</p> <p>deteriorated including several potholes that currently existed. Generally, the entire extent of the road has issues of cracking and depressions.</p> <p>As there are no formal paths for pedestrians, they will elect to walk on the road area. This could lead to trips and/falls.</p> <p>Potholes are a hazard for cyclists and vehicles as they can lead to punctures and/or wheel damage.</p> <p>Refer to Photograph 4 &amp; 5.</p>	<p>Likelihood – Occasional</p> <p>Severity – Minor</p> <p>Medium</p>	<p>Rehabilitate the pavement on Hawdon Avenue and Great Ocean Road service road.</p> <p>Consider improving base, sub-base and/or subgrade strength.</p> <p>Consider asphalt wearing course.</p> <p>Consider improving pavement drainage.</p>		
3	<p><u>Table Drains:</u></p> <p>The site inspection followed a recent rain event. It was observed that the table drains did not drain effectively with a number of driveway partial block.</p> <p>Poor drainage can lead to early pavement distress and result in pavement failures such as potholes and edge cracking/breaking. These failures will narrow the pavement width further and impact on driver safety (eg vehicle damage, crossing of centre of road, etc).</p> <p>Refer to Photograph 6.</p>	<p>Likelihood – Improbable</p> <p>Severity – Minor</p> <p>Low</p>	<p>Ensure drainage infrastructure is adequately designed and suits the design rain event.</p>		



ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
4	<p><u>Culvert Endwalls:</u></p> <p>Property accesses/driveway provide culvert crossings. The standard (non-traversable) head wall presents an unprotected leading edge likely to snag an errant vehicle. Guide posts have been used as a method to delineate the hazard however many were observed to be missing.</p> <p>Refer to Photograph 6.</p>	<p><i>Likelihood – Occasional</i></p> <p><i>Severity – Minor</i></p> <p>Medium</p>	<p>Reinstate guideposts to improve delineation.</p> <p>Consider driveable endwalls to reduce severity of run off road crash.</p>		
5	<p><u>Site Crossfall/Water Ponding:</u></p> <p>During the site visit, it was observed that there were drainage issues on Hawdon Avenue (and associate parking area) and Great Ocean Road service road with water ponding at various locations.</p> <p>The ponding water will influence how roads interact with the road space with users electing to avoid puddles and potentially leading to an increase of conflict situation.</p> <p>The ponding water is likely to have contributed to the pavement failures referenced in Item 2.</p> <p>Refer to Photograph 7 &amp; 8.</p>	<p><i>Likelihood – Occasional</i></p> <p><i>Severity – Minor</i></p> <p>Medium</p>	<p>Ensure the site is adequately graded and drainage infrastructure is adequately designed and suits the design rain event.</p>		

ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
6	<p><u>Timber Posts:</u></p> <p>During the site visit it has been observed that a series of wooden posts are provided on the south side of Hawdon Avenue, each side of Grey River Road, for a length of approximately 20m and on the west side of Grey River Road for approximately 30m south of Hawdon Avenue.</p> <p>The posts are located less than 1m from the edge of seal. Although the posts are considered frangible with a diameter less than 300mm, they will result in vehicles 'shying' away from the edge of road. With the narrow pavements, this may result in vehicles crossing into the opposing direction of travel.</p> <p>Although a streetlight is provided over the intersection, it is a low output luminaire. During the night time inspection the bollards lack of reflectors on the post made it difficult to sight.</p> <p>Refer to Photograph 9.</p>	<p>Likelihood – Probable</p> <p>Severity – Limited</p> <p>Medium</p>	<p>Review need for bollard treatment / installation.</p> <p>If deemed necessary, consider:</p> <ul style="list-style-type: none"> <li>increasing offset to edge of road to improve driver comfort.</li> <li>providing reflective delineator discs night time conspicuity.</li> </ul>		

ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
7	<p><u>Footpath Network:</u></p> <p>The caravan park, river, river nature walk, and foreshore area are key walking destinations for Kennett River. It was observed that there is limit formal pedestrian infrastructure with the paths limited to:</p> <ul style="list-style-type: none"> <li>select paths through vegetation to the foreshore; and</li> <li>path on the west side of Kennett River Bridge.</li> </ul> <p>Pedestrians are required to share the road space without any formalised shared zone. This increases the risk of pedestrians being struck by a vehicle.</p> <p>The absence of a formal connection between the town centre and the V/Line bus stops is of concern. The bus time table indicates pickups and drop offs do occur in early morning / early evening. There is potential for pedestrian / vehicle conflicts in these low light conditions.</p>	<p>Likelihood – Improbable</p> <p>Severity – Serious</p> <p>Medium</p>	Consider the provision of a footpath network and provide separation between road user groups.		
8	<p><u>Kennett River Bridge Access:</u></p> <p>The access ramp from the Great Ocean Road service road to the bridge path is overground with only a narrow section of visible path remaining.</p> <p>The grades of the access ramp are outside those outlined in VicRoads Accessibility DDA Guidelines. It is noted that a stepped path is being constructed on north side of the bridge to provide a connection to the residential area off Cassidy Drive.</p> <p>Refer to Photograph 10.</p>	Noted	Ensure maintenance activities provides path surface clearing and table drain clearing		

ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
9	<p><u>Grey River Road Widening:</u></p> <p>Grey River Road provides a narrow sealed pavement with 'no stopping' restrictions for approximately 150m south of Hawdon Avenue. A 3m pavement widening is provided for approximately 30m.</p> <p>It is assumed this widening is to act as an overflow parking area. The exit movement from this area would require a u-turn and return north to Hawdon Avenue.</p> <p>The sight distance to the south is impacted by the horizontal and vertical geometry resulting in sight distance of approximately 120m.</p> <p>Vehicles approaching from the south are within a rural default speed limit zone and are only required to slow to 50km/h approximately 40m prior to the widening.</p> <p>Refer to Photograph 11.</p>	<p><i>Likelihood – Improbable</i></p> <p><i>Severity – Serious</i></p> <p>Medium</p>	<p>Consider re-positioning the 50km/h signage further to the south to ensure approaching traffic has sufficient time to slow prior to the widening.</p>		
10	<p><u>Public Lighting:</u></p> <p>During the night-time inspection, it was observed that the investigation area provides limited lighting with only a low output luminaire at the intersection of Hawdon Avenue and Grey River Road.</p> <p>The objective of street lighting is to provide an illuminated environment that is conducive to the safe and comfortable movement of vehicles and pedestrian/cyclist traffic at night. The limited provision of lighting may result in conflicts between road user types and potential trip/slip/fall/destabilisation injuries for pedestrians/cyclists.</p>	<p><i>Likelihood – Occasional</i></p> <p><i>Severity – Minor</i></p> <p>Medium</p>	<p>Review public lighting to ensure lighting is suitable for intended road users.</p> <p>Public lighting to comply with AS1158 series, VicRoads Supplement to AS1158 series and VicRoads Guidelines for Street Lighting Design.</p>		



ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
11	<p><u>Stop Linemarking:</u></p> <p>A stop line is a continuous line marked across a traffic lane where traffic is required to stop. A stop line is to extend from the left-hand edge of pavement to a dividing line (median or right hand edge if one way). A stop line shall be a minimum of 300mm wide and located parallel to a stop sign.</p> <p>The stop line marking on Grey River Rd is at most 100mm wide and has deteriorated due to being applied across loose material. A dividing line is not present. The layout impacts how an approaching motorist will interact with the requirement to stop. It is likely they will misjudge where to stop or ignore the stop requirement all together.</p> <p>Refer to Photograph 12.</p>	<p><i>Likelihood</i> – Improbable</p> <p><i>Severity</i> – Serious</p> <p>Medium</p>	<p>Providing linemarking in accordance with AS1742.2 and VicRoads Supplement to AS1742.2</p>		
12	<p><u>Intersection Alignment:</u></p> <p>The intersection of Grey River Road/Hawdon Avenue forms a 'Y' shape. The layout leads to potential high angle impacts and provides poor sight lines / observation angles to the north.</p> <p>The intersection geometry results in manoeuvring issues for vehicles performing west to/from south movements.</p>	<p><i>Likelihood</i> – Improbable</p> <p><i>Severity</i> – Serious</p> <p>Medium</p>	<p>Review intersection layout to improve deficiencies. Consider realigning to provide a T-intersection.</p>		

ITEM	AUDIT FINDING	RISK	RECOMMENDATION	ACCEPT / REJECT WITH REASON	ACTION / COMMENTS
13	<p><u>Intersection Layout/Configuration:</u></p> <p>The intersection of Great Ocean Road / Hawdon Avenue provides a complex layout with access/egress to the Kennett River Caravan Park, Kafe Koala parking area and Great Ocean Road service lane converging within 10m of the hold line at Great Ocean Road. Pavement marking and signage is limited leading to limited delineation of the complex layout.</p> <p>The number of possible movement choices at this location is likely to result in vehicle conflict as motorist determine who has priority.</p>	<p>Likelihood – Occasional</p> <p>Severity – Minor</p> <p>Medium</p>	<p>Review intersection layout to improve movement and priority definition.</p>		

## 6 Concluding Statement

Kennett River as outlined in Section 2 has been audited to Austroads guidelines. The audit has been carried out for the sole purpose of identifying any features on site that could be altered or removed to promote safety of the project for all users. The findings are included in Section 5 of this report.



\_\_\_\_\_ 13/08/2021

Bishoy Abdelmesseh (Graduate Transport Engineer, Transport Planning, Logistics & Analytics, SMEC)

ROAD SAFETY AUDITOR



\_\_\_\_\_ 13/08/2021

Andrew Backman (Associate Engineer - Transport Planning, Logistics & Analytics, SMEC)

SENIOR ROAD SAFETY AUDITOR/AUDIT TEAM LEADER

## Appendix A Site Photographs



Photograph 1: Great Ocean Road – north of Kennett River view to south.



Photograph 2: Great Ocean Road – south of Hawdon Avenue view to south.





Photograph 3: Great Ocean Road – opposite Hawdon Avenue view to north.



Photograph 4: Great Ocean Road service road – north of Hawdon Avenue view to south.





Photograph 5: Hawdon Avenue – at Great Ocean Road view to south.



Photograph 6: Hawdon Avenue – west of Grey River Road view to east.





Photograph 7: Kafe Koala Parking Area – view to east.



Photograph 8: Great Ocean Road service road – view to north.





Photograph 9: Hawdon Avenue – west of Grey River Road view to east.



Photograph 10: Great Ocean Road service road – view to Kennett River Bridge.





Photograph 11: Grey River Road – view to south adjacent to widening.



Photograph 11: Grey River Road – view north Hawdon Avenue intersection.

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