

**Annexure I Road Safety Audit (Pedestrian and Cyclist
Detour Routes)**



VRE Pedestrian and Cyclist Routes Pre-Construction Strategic Design Road Safety Audit

Client: JHCPB

Version: V02

Date: 18 December 2019



Quality Record

Version	Date	Prepared by	Reviewed by	Approved by	Signature
V01	18/12/19	[Redacted]	[Redacted]	[Redacted]	[Redacted]
V02	18/12/19	[Redacted]	[Redacted]	[Redacted]	[Redacted]



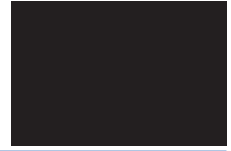


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APPENDICES

A. DESIGN DRAWINGS



1 Road Safety Audit Summary

Audited project:	VRE Pedestrian and Cyclist Routes
Client:	JHCPB
Project manager:	[REDACTED]
Email address:	[REDACTED]
Telephone:	[REDACTED]
Audit Team:	[REDACTED] (level 3 lead road safety auditor) [REDACTED] (level 3 road safety auditor) [REDACTED] (level 2 road safety auditor)
Audit type:	Strategic Design (Pre-Construction)
Commencement meeting:	N/A
Audit date:	17/12/2019
Completion meeting:	Not required



2 Introduction

2.1 Background

This report has been prepared on behalf of John Holland to present road safety audit findings that have been identified for the pedestrian and cyclist detour routes to be implemented during the construction of the Rozelle Interchange and Western Harbour Tunnel.

During construction, the pedestrian bridge over Victoria Road and the 'horse shoe' bridge over The Crescent will be removed across multiple stages. Temporary diversions of pedestrian paths will be in place making use of existing paths. The plan also includes relocation of the bus stop south of Robert Street to near Loughlin Street.

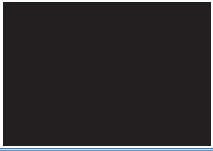
2.2 Audit Objective

The objective of this Audit is to assess the road safety issues associated with detour routes proposed for pedestrians and cyclists during the different stages of construction.

2.3 Procedures and Reference Material

The procedures used are those described in the Roads and Maritime Services' 2011 Guidelines for Road Safety Audit Practices. The Austroads Guide to Road Safety: Part 6 Roads Safety Audit checklist was used by the audit team as a reference in this strategic design audit. Key elements examined included:

- proposed detour routes for pedestrians and cyclists
- footpaths and shared paths
- intersections
- lighting
- physical objects
- environmental constraints
- other matters.



2.4 Audit Team

The RSA was carried out by the following team:

- [REDACTED] – level 3 road safety auditor (lead auditor)
- [REDACTED] – level 3 road safety auditor (team member)
- [REDACTED] – level 2 road safety auditor (team member).

[REDACTED] are registered road safety auditors with the NSW Centre for Road Safety and are experienced in traffic engineering and design/ inspection of traffic management schemes.



3 Road Safety Audit Program

3.1 Commencement Meeting

A formal meeting was not held.

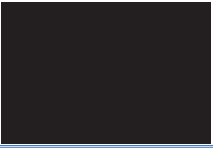
3.2 Site and Field Audit

A site inspection was carried out on Tuesday 17 December 2019 in fine weather conditions during both morning and evening commuter peak periods.

The detour routes walked over to identify possible road safety concerns. Photographs and video footage were taken during the site inspection and are referenced in Table 4.2 Road Safety Audit Findings.

3.3 Completion Meeting

Not required.



4 Road Safety Audit Findings

4.1 Introduction

Table 4.1 provides specific details of the audit findings and a risk rating as high, medium or low. The risk ratings have been based on the risk matrix presented in Table 4.1, which has been adopted from the standard Austroads Risk Matrix.

Table 4.1: Risk Matrix

Severity \ Likelihood	Highly probable	Occasional	Improbable
Major	High	High	Medium
Moderate	High	Medium	Low
Minor	Medium	Low	Low

The terms in Table 4.1 are described below.

Likelihood:

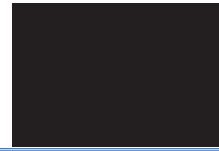
- Highly probable: It is likely that more than one crash of this type could occur within a five-year period.
- Occasional: It is likely that less than one crash of this type could occur within a five-year period.
- Improbable: Less than one crash of this type could occur within a 10-year period.

Severity:

- Major: The crash is likely to result in a fatality or serious injuries
For example, high/medium speed vehicle collision, high/medium speed collision with a fixed object, pedestrian struck at high speed, and cyclist hit by car.
- Moderate: The crash is likely to result in minor injuries or large scale of property damage
For example, some slow speed vehicle collisions, cyclist falls, and rear end crashes.
- Minor: The crash is likely to result in minor property damage or many near miss crash events
For example, some slow speed collisions, pedestrian walks into object (no head injury), and car reverses into post.

Priority:

- High: Very important, and needs to be addressed urgently.
- Medium: Important, and needs to be addressed as soon as possible.
- Low: Needs to be considered as part of regular maintenance/planning program.



4.2 Responding to the Audit Report

As set out in the road safety audit guidelines, the responsibility for the road rests with the project manager, not with the auditor. The project manager is under no obligation to accept the audit findings. Neither is it the role of the auditor to agree to, or approve the project manager's responses to the audit.

The audit provides the opportunity to highlight potential road safety problems and have them formally considered by the project manager in conjunction with all other project considerations.

4.3 Road Safety Audit Findings

The audit findings are documented in Table 4.2 which provides:




- specific details of the road safety issues identified during the audit
- a risk level rating for each of the road safety audit findings.

It should be acknowledged that positive attributes of the audited road section have not been discussed. Deficiencies that do not cause a safety problem are also not listed.




In-line with Roads and Maritime Services' best practice recommendations have not been included in the road safety audit findings.





Table 4.2: Road Safety Audit Findings

Item No.	Location / Time Period	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
1.	Victoria Road south of Robert Street March 2020 – March 2023	Once the bridge is removed the cyclist desire line will still be to cross Victoria Road south of Robert Street. There is a risk of a cyclist being struck by a vehicle if they attempt to cross at this location due to the width of the road and traffic volumes. This would result in serious injuries to cyclists. The proposed detour route on Gordon Street has unfavourable gradient and additional delays crossing Victoria Road as well as the additional distance.		Occasional	Serious	High	Agreed. Temporary pedestrian fencing will be installed in those locations where existing fencing / barriers are not present to prevent any mid-block attempts for crossing Victoria Road
2	Shared path junction on western approach to Anzac Bridge August 2020 – March 2023	The raised garden bed may obstruct sight distance between cyclists and pedestrians approaching from the detour and the route parallel to the Anzac Bridge approach. The vegetation has died back at the moment but could grow to obstruct sight distance. The number of conflicting movements at this junction will increase significantly when detours are in place. This may lead to a collision between cyclists and pedestrians causing injury. As observed in the commuter peak periods, cyclists travel on Anzac Bridge with speed which heightens the severity of potential collisions when there is most pedestrian movement.	 	Occasional	Moderate	Medium	Noted. The company will monitor this vegetation to ensure it does not impede sight distance between pedestrians and cyclists.




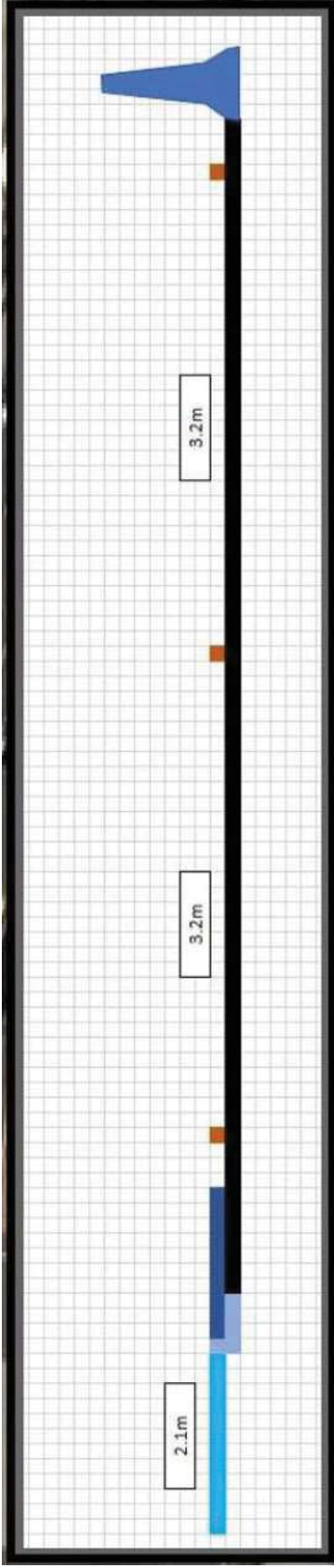
Item No.	Location / Time Period	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
3	Shared path junction on western approach to Anzac Bridge. March 2020 – March 2023	The entrance of the shared path that leads under the bridge approach is narrow due to the garden bed encroaching on the path. There is a risk that with the higher cyclist traffic volumes using this path that there will be collisions between cyclists or pedestrians and cyclists. This may result in minor injury.		Occasional	Minor	Low	Agreed. The company will monitor this issue with feedback being sought from pedestrian and cyclist user group organisations.
4	Shared path beneath the western approach to Anzac Bridge. March 2020 – March 2023	A tight 'hairpin' bend on the shared path may result in collisions between cyclists or pedestrians and cyclists. The volume of cyclists using this path will increase significantly in the future, therefore, increasing the likelihood of a collision.		Highly Probable	Moderate	High	Agreed. "Slow" zone cross hatched markings to be installed in both directions to the hair pin bend to mitigate this issue.
5	Gordon Street August 2020 – March 2023	Cyclist detour on Gordon Street has not been defined. Footpaths are unsuitable for cycling and the road appears too narrow for cycling lanes. Mixed traffic appears to be the most likely option. The steep road will lead to a large speed differential between cars and cyclists that may lead to a cyclist being struck by a car and causing serious injury. Further, this route replaces on-road bike lanes on Lilyfield road.		Improbable	Serious	Medium	Agreed. This section of Gordon Street has limited width, so an on-road cycleway is proposed. Appropriate signposting and pavement markings will be installed to assist advising all road users of the change in conditions.

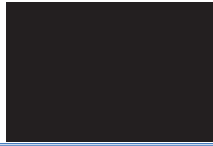


Item No.	Location / Time Period	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
6	Pedestrian crossing of Victoria Road at Gordon Street August 2020 – March 2023	Existing pedestrian crossing is unsuitable for shared use of pedestrians and cyclists with narrow kerb ramps. There is a risk of pedestrians being struck by cyclists on the crossing. This may cause minor injury.		Improbable	Minor	Low	Noted. "Cyclists Dismount" signs to be installed at either side of the crossing to avoid pedestrian / cyclist conflict. The crossing has been measured in width to be 3.6m which is consistent with current signalised crossing standards.
7	Pedestrian crossing of Victoria Road at Gordon Street March 2020 – March 2023	During peak periods, the signal phasing favours the traffic flow on Victoria Road. Pedestrians may cross Victoria Road south of the relocated bus stop to avoid waiting at traffic signals. This may result in a pedestrian being struck by a vehicle and causing a severe injury.	-	Occasional	Major	High	Agreed. Temporary pedestrian fencing will be installed in those locations where existing fencing / barriers are not present to prevent any mid-block attempts for crossing Victoria Road
8	Relocated bus stop Victoria Road near Loughlin Street March 2020 – March 2023	Bus shelters will narrow the shared path at this location. Width of shared path likely to be reduced to 2.5m with increased pedestrian activity and cyclist activity due to the detours. There is an increased risk of pedestrians being struck by a cyclist near the proposed bus stop. This would probably result in minor injury.		Occasional	Minor	Low	Agreed. "Slow" zone cross hatched markings to be installed in both directions behind the newly installed bus shelter consistent with similar treatments at the Evans Street bus stop on the same corridor.



Item No.	Location / Time Period	Descriptions of Findings	Design/ Photo	Likelihood	Severity	Risk Rating	Designer Response
9	Sommerville Road	<p>It is proposed to convert the existing footpath to a 2.1m-wide share path by narrowing the traffic lanes and widening the pathway. A 2.1m wide path would be less than the recommended width for a commuter shared path according to Austroads guidelines which stipulates a desirable minimum of 3.0m. A narrow shared path could result in conflicts and collisions between cyclists and pedestrians.</p>		Occasional	Moderate	Medium	Agreed. The company has a concept design to widen the existing SUP to the greatest width possible without compromising the remaining lane widths and 0.5m shy line offset shoulders on the outbound lane. See proposed cross section below. It is not physically possible to achieve any further width in the SUP. It is noted that following August 2020, and the opening of the ETAR SUP, pedestrians and cyclist movements will be minor.





5 Concluding Statement

The findings and opinions in the report are based on the examination of the specific road and environs, and might not address all concerns existing at the time of the audit.

The auditors have endeavoured to identify features of the road that could be modified in order to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as absolutely safe.

While every effort has been made to ensure the accuracy of this report, it is made available strictly on the basis that anyone relying on it does so at their own risk without any liability to the Auditors.

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