



South Yarra Siding Reserve

Road Safety Audit

Audit Stage: Pre-opening



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## Information Page

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## List of Abbreviations

AGRD – Austroads Guide to Road Design

RDN – Road Design Note

RSA – Road Safety Audit



# 1. Introduction

Safe System Solutions Pty Ltd has been engaged by City of Stonnington to undertake a Pre-opening Road Safety Audit (herein referred to as either RSA or audit) for South Yarra Siding Reserve.

The location of the RSA is shown in Figure 1.

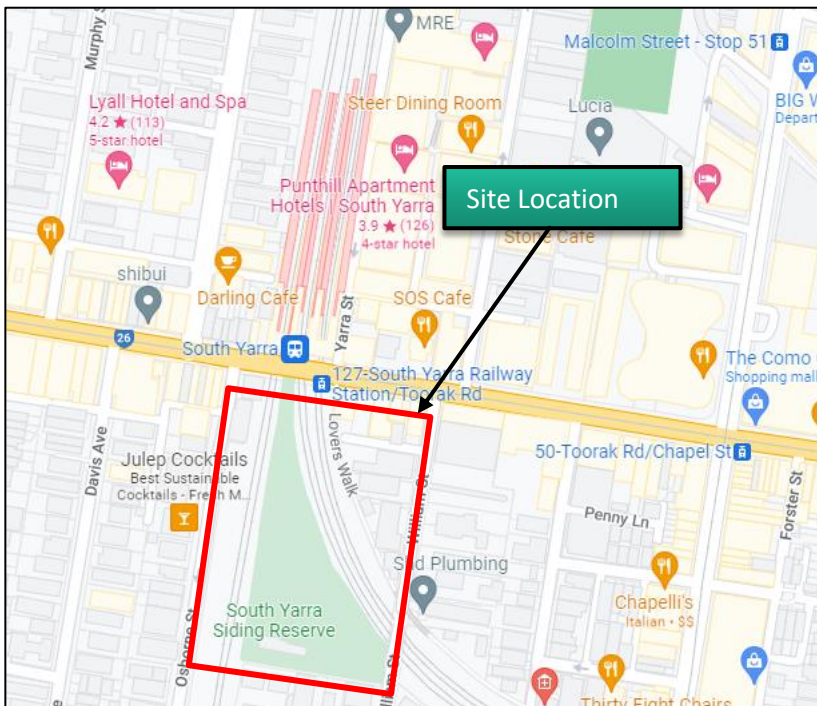


Figure 1: Locality plan (source: Google Maps)

## 1.1 Purpose of this report

The purpose of this report is to document the findings of the completed RSA and offer recommended mitigations to identified road safety risks and hazards.

## 1.2 Scope and limitations

This report has been prepared by Safe System Solutions Pty Ltd for the client and may only be used and relied on by the client for the purpose agreed between Safe System Solutions Pty Ltd and the client as set out in Section 1.1 of this report.

## 2. Guidance for RSA

RSA is a term used internationally to describe a recognised process which identifies road safety related risks and hazards. The primary objective of the RSA is to reduce road trauma at the RSA location. The Guide to Road Safety Part 6: Road Safety Audit (Austroads, 2022) is the primary guidance for undertaking RSAs in Australia and New Zealand.

An RSA is not a review or check of compliance with standards and/or guidelines for design projects or existing roads and it is possible that not every risk or hazard that affects road user safety has been identified.

Although the adoption of the audit recommendations will improve the level of safety of the audit location it will not, however, eliminate all the road user safety risks.

RSA is a formal process and responses to audit findings and recommendations should be documented by the client in writing. If recommendations are not accepted by the client then reasons should be included within the written response. A client is under no obligation to accept all the audit findings and recommendations and should consider these in conjunction with all other project considerations. It is not the role of the auditor to approve the client's response to an audit.

### 2.1 RSA within the Safe System

The RSA pre-dates the emergence of the Safe System approach. Within the Safe System, an RSA is relevant as it is recognised that full compliance with road standards alone may not result in a road system that eliminates fatal and serious injury road crashes.

The Guide to Road Safety Part 6: Road Safety Audit states:

*Safe System principles must be given due consideration in all activities within the road safety management of a road network, including RSA.*

*In basic terms this is to be achieved during the RSA process by:*

- *Identifying and considering key crash types that result in fatal and serious injury*
- *Relating possible crash forces to tolerable levels, regardless of the likelihood, when identifying and assessing risks/hazards*
- *Consideration of audit findings and mitigation measures by their alignment with the Safe System e.g. in terms of operating speed, impact angles etc.*

While RSAs are intended to identify risks and hazards associated with all crash types, increased focus is required to identify risks and hazards that may result in fatal and serious injury crashes. For this reason, sound knowledge in the Safe System is essential for all participants in the RSA process.

VicRoads Safe System Assessment Guidelines (2019) states that a Safe System assessment *must* be undertaken for any Victorian Government project greater than \$5M in value, is *desirable* for where the project value is greater than \$2M and *optional* for projects under \$2M. Where A Safe System Assessment is not undertaken, the project team should document how the project has considered Safe System alignment. Safe System assessments are most valuable when conducted during the early stages of a project.

## 2.2 The RSA process

The simplified process to undertake an RSA is shown by Figure 8.1 (Austroads, 2022), reproduced as Figure 2.



Figure 2: Simplified RSA process (source: Austroads, 2022)

## 3. Conducting the RSA

### 3.1 Selection of the RSA team

It is a requirement in Victoria that audits are undertaken in teams of two or more, with at least one Senior Road Safety Auditor. Each auditor must be accredited and registered on VicRoads Register of Road Safety Auditors ([www.vrsa.com.au](http://www.vrsa.com.au)). Table 1 provides details of the RSA team.

Table 1: RSA team

Name	Accreditation	Employer
Max McCardel	Senior Road Safety Auditor	Safe System Solutions Pty Ltd
Nathan Louey	Road Safety Auditor	Safe System Solutions Pty Ltd
Martin Habgood	Road Safety Auditor	Safe System Solutions Pty Ltd

### 3.2 Existing conditions

South Yarra Siding Reserve was formerly a little used park to the south of Toorak Road, with a single point of entry on the south eastern corner from William St. The site was otherwise landlocked by railway corridors on the east/north side and west side together with a boundary to residential land on the south side.

The park was previously designated as fully off-leash for dogs. The lack of through traffic meant that there was little conflict with active transport.

The park was closed by the state government in 2018 to allow for construction of the new Metro Tunnel eastern portal and the original park was completely removed. The park has now been fully reconstructed and is due to open to the public in mid-2023.

The new park will feature a shared use path linking William St on the east side to Osbourne St on the west side, following completion of a new bridge over the South Yarra – Sandringham railway line. Picnic tables and shelters have been provided in the northern part of the new park but there are no barbeques or any formal play areas.

The area to the south of the SUP has been provisionally designated as a dog off-leash area, with the area to the north being on-leash.

This audit addresses the potential for conflicts between pedestrians, cyclists and off-leash dogs.

The surrounding land use is primarily a mix of residential/commercial.

As the reserve area has been completely reconstructed, any previous conflict issues or crashes in this area are not considered to be relevant.



### 3.3 Undertaking the RSA

#### 3.3.1 Meetings and site inspection

Table 2 lists site inspections completed for the audit.

Table 2: Site inspections

Activity	Location	Date	Time
Inception meeting	Online via MS Teams	9 January 2023	13.30
Day site inspection	South Yarra Siding Reserve	17 January 2023	10.30

Photos taken during the site inspection are included at Appendix A.

#### 3.3.2 Supplied information

Name	Author / Assessor / Designer	Document Number
Metro Tunnel Rail Infrastructure Alliance – Eastern Portal Urban Design and Landscape – South Yarra to Chapel St	Rail Projects Victoria	RIA-MGA-EPZ-ZWD-DRG-AUD-SYR-A0001 Rev02

\* Only the section relevant to the RSA of this document has been audited. Refer to Section 1 for scope.

#### 3.3.3 Risk assessment

Risk and hazards identified by the audit have been assigned a risk rating based on the **likelihood** and **severity** of the crash type associated with the risk or hazard.

The Austroads risk assessment matrix (Figure 10.2, Austroads, 2022) is reproduced as Figure 3.

			Severity*				
			Insignificant	Minor	Moderate	Serious	Fatal
			Property damage	Minor first aid	Major first aid and/or presents to hospital (not admitted)	Admitted to hospital	Death within 30 days of the crash
Likelihood (includes exposure)	Almost Certain	One per quarter	Medium	High	High	Extreme (FSI)	Extreme (FSI)
	Likely	Quarter to 1-year	Medium	Medium	High	Extreme (FSI)	Extreme (FSI)
	Possible	1 to 3 Years	Low	Medium	High	High (FSI)	Extreme (FSI)
	Unlikely	3 to 7 Years	Negligible	Low	Medium	High (FSI)	Extreme (FSI)
	Rare	7 years+	Negligible	Negligible	Low	Medium (FSI)	High (FSI)

\*see Severity Guidance Sheet


Safe System crash outcome threshold

Figure 3: Risk assessment matrix (source: Austroads, 2022)

Corresponding to the assessed level of risk, Austroads provides the priorities for mitigation:

- Negligible – no action required
- Low – should be corrected or the risk reduced if the treatment cost is low
- Medium – should be corrected or the risk significantly reduced, if the treatment cost is moderate, but not high
- High – should be corrected or the risk significantly reduced, even if the treatment cost is high
- Extreme – must be corrected regardless of cost

The risk matrix is intended to be used in conjunction with the severity guidance sheet (Figure 10.3, Austroads 2022), reproduced as Figure 4. The severity guidance sheet provides an indication of crash severity outcomes for a range of crash types and crash speeds. Professional engineering judgement is required to confirm the severity outcomes indicated by the guidance sheet, as research into Safe System tolerance speeds continues to evolve.

		Crash Speed (km/h)										
		< 10	10	20	30	40	50	60	70	80	90	100
Crash Type	Pedestrian (vs HV)											
	Cyclist (vs HV)											
	Motorcyclists (vs HV)											
	Pedestrian (vs car)											
	Cyclist (vs car)											
	Pole/Tree Impact (car)											
	Motorcyclists (vs car)											
	Side Impact (HV vs car)											
	Side Impact (car vs car)											
	Head On (HV vs car)											
	Head On (car vs car)											

General indication only – professional judgement required

Figure 4: Severity guidance sheet (source: Austroads, 2022)

### 3.3.4 Making recommendations

Recommendations are provided for all identified risks and hazards. Recommendations are categorised into one of the Safe System treatment categories described in Table .

Table 3: Safe System treatment categories (source: Austroads, 2018)

Treatment category	Description
Primary	Road planning, design and management considerations that practically eliminate the potential of fatal and serious injuries occurring in association with the foreseeable crash types.
Supporting (step towards)	Road planning, design and management considerations that improve the overall level of safety associated with foreseeable crash types, but not expected to virtually eliminate the potential of fatal and serious injury occurring. Improves the ability for a Primary Treatment to be implemented in the future.
Supporting	Road planning, design and management considerations that improve the overall level of safety associated with foreseeable crash types, but not expected to virtually eliminate the potential of fatal and serious injury occurring. Does not change the ability for a Primary Treatment to be implemented in the future.
Non-Safe System Other Elements	Road planning, design and management considerations that are not expected to achieve an overall improvement in the level of safety associated with foreseeable crash types occurring. Reduces the ability for a primary treatment to be implemented in the future.

## 4. RSA findings and recommendations

A table containing audit findings and recommendations table is included as Appendix B.

## 5. Conclusion

This RSA has been conducted in accordance with the Guide to Road Safety Part 6: Road Safety Audit (Austroads, 2022).

The findings and recommendations of the RSA are provided for consideration and response by the client.

Auditors:



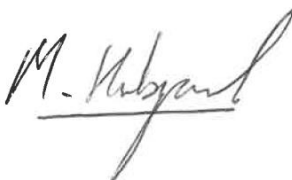
**Max McCardel**  
Senior Road Safety Auditor

30 January 2023



**Nathan Louey**  
Road Safety Auditor

30 January 2023



**Martin Habgood**  
Road Safety Auditor

30 January 2023

## Appendix A: Site photos





**Photo 1:** William Street entry to the park, facing north west



**Photo 2:** Looking towards off-leash area, facing west





**Photo 3:** Looking along the shared use path towards Osborne Street bridge, facing west.  
The off-leash area is on the left.



**Photo 4:** Looking towards off-leash area from shared use path, facing south west





**Photo 5:** Looking east from the Osborne St railway bridge. The off-leash area is on the right hand side.



**Photo 6:** Osborne Street railway bridge, facing west.



**Photo 7:** Looking towards north section of park from the shared use path



**Photo 8:** Looking towards off-leash area and shared use path from northern section, facing south





**Photo 9:** Looking towards the off-leash area access, facing south. Note unsealed entry to off-leash area.



**Photo 10:** Looking towards William Street from northern section of park, facing south





**Photo 11:** Off-leash area, facing east



**Photo 12:** Off-leash area, facing north west





## Appendix B: RSA findings and recommendation



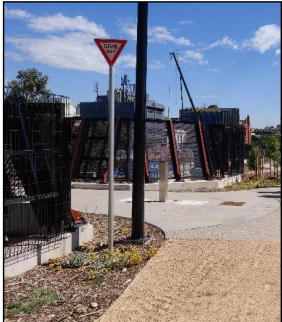
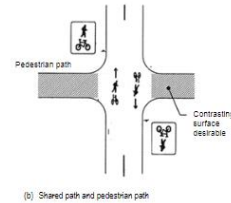
## Audit findings and recommendations

Audit Findings	Risk Assessment			Recommendations P – Primary    ST – Step Towards S – Supporting    N – Non-Safe System	Responsible Officer	
	Likelihood	Severity	Level of Risk		Accept Yes/No	Comments
1. The link to both Osbourne St and William St will ensure that the shared use path is used extensively by cyclists. Travel in the eastbound direction is downhill, which will result in higher cycle speeds. There are also sight restrictions at the exit from the bridge over the railway and at the eastern end of the off-leash area. Uncontrolled dogs have the potential to collide with cyclists on this route, which could result in injuries.	Unlikely	Moderate	Medium Safe System energy within tolerable levels	Consider fully fencing the off-leash area, to include a latched gate at the entry point. However, if that is considered to be unfeasible or undesirable, then:  Consider providing a fence to restrict the movement of dogs. The fence could be installed between the north side seating area and the south east corner. (P)		
2. On the northern side of the proposed dog off-leash area there are 3 tiers, with drops of approximately 600mm (top level), 500mm (middle level) and 550mm (lower level) respectively.  Once dogs have moved off the grassed area and onto the lower levels, it may be difficult for owners to maintain eye contact with their pet. This can lead to loss of control of the dog, resulting in a collision risk between dogs and cyclists, skateboarders or scooter riders.	Unlikely	Moderate	Medium Safe System energy within tolerable levels	Consider providing a fence to restrict the movement of off-leash dogs from the designated area. As above, the fence should be installed between the north side seating area and the south east corner. (S)		












Audit Findings	Risk Assessment			Recommendations  P – Primary S – Supporting      ST – Step Towards N – Non-Safe System	Responsible Officer	
	Likelihood	Severity	Level of Risk		Accept Yes/No	Comments
<p>3. There are no steps providing formal access to these areas. These unguarded drops could be a hazard to younger children, or those with a disability.</p> 	Unlikely	Minor	Low  Safe System energy within tolerable levels	<p>Consider providing a fence to restrict the movement of younger or less able children. As above, the fence should be installed between the north side seating area and the south east corner. (P)</p> <p>To note: The provision of fencing as suggested above would not have an adverse impact on universal access as wheelchair and prams can only access the site via the unsealed track on the west side, adjacent to the new rail overpass footbridge.</p>		
<p>4. Cyclists will have a downhill grade from the Osbourne St entry when heading towards William St. This increases the risk of conflict with pedestrians at the east side of the rail overpass, where pedestrians might be hidden from the cyclists view by the bridge parapets.</p> 	Unlikely	Minor	Low  Safe System energy within tolerable levels	<p>Consider installing “Look for Pedestrians” pavement markings on the east and west approaches of the Shared Use Path (SUP), as pedestrians have priority in accordance with Road Rule 250 (Section 2b). (S)</p> <p>Consider installing “Look for cyclists” pavement markings on the SUP, facing pedestrians and cyclists approaching from the north and south sides of the park. (S)</p>  		

Audit Findings	Risk Assessment			Recommendations	Responsible Officer	
	Likelihood	Severity	Level of Risk		Accept Yes/No	Comments
<p>5. Cyclists heading towards William St have a sharp right turn on a downhill grade as they pass the off-leash area. This could result in loss of control crashes.</p> 	Rare	Minor	Negligible Safe System energy within tolerable levels	<p>Consider installing “Slow” and/or “right hand bend ahead” pavement markings for cyclists heading east towards the right hand bend. (S)</p> <p>Consider adding lane markings (centre and edge) to help cyclists identify the line they need to take through the bend. (S)</p> <p>Consider adding “Look for cyclists” pavement for southbound pedestrians entering the SUP on the east side. (S)</p> 		
<p>6. The Give Way signage placed at the entry point to the off-leash area is very small and difficult to read. They also conflict with Road Rule 250 (2b) which gives priority to pedestrians on shared use paths.</p> <p>Regulatory signage is unlikely to be enforceable within a mixed use park.</p> <p>This could lead to conflicting user expectations and movement conflicts, resulting in collisions between pedestrian cyclists or electric scooters.</p> 	Unlikely	Minor	Low Safe System energy within tolerable levels	<p>Consider removing regulatory signage and replacing with informative pavement markings as suggested in findings 2 and 3 above. (S)</p> <p>Consider installing symbolic bicycle sign with arrows on the pavement. . (S)</p>  <p>(b) Shared path and pedestrian path</p> <p>Austrorads AGRD06A – Paths for Walking and Cycling</p>		



Audit Findings	Risk Assessment			Recommendations P – Primary S – Supporting ST – Step Towards N – Non-Safe System	Responsible Officer	
	Likelihood	Severity	Level of Risk		Accept Yes/No	Comments
<p>7. A steel bollard has been installed on the bridge entry point, presumably to divide bicycle flows and prevent vehicular access. These bollards can be a hazard to cyclists, particularly younger or less experienced cyclists. They can also be a hazard to pedestrians with visual impairments, which seems to have been noted by the inclusion of small areas of tactile paving either side of the bollard.</p> <p>It is also noted there is a lack of retro reflective tape installed on the bollard, although it is noted there is a light installed above this location.</p> 	Unlikely	Minor	Low Safe System energy within tolerable levels	<p>Consider installing reflective tape on the bollard to increase its conspicuity at low light conditions. (S)</p> <p>Consider removing the bollard and instead use pavement arrows (together with a centre dividing line) to indicate the preferred direction of flow. (S)</p>		
<p>8. All paths in the park are concrete, except the area that provides access to the off-leash area which is unsealed. This could limit access for the less able bodied in poor weather conditions, particularly wheelchair users, and therefore adversely impacts on universal access.</p> 	N/A	N/A	To Note	<p>Consider sealing a short section of the unsealed area, to ensure the off-leash area can be accessed by all users in all weather conditions.</p>		

Audit Findings	Risk Assessment			Recommendations  P – Primary S – Supporting      ST – Step Towards N – Non-Safe System	Responsible Officer	
	Likelihood	Severity	Level of Risk		Accept Yes/No	Comments
<p>9. Steel bollards have been installed at the William Street entrance to the park – they do not appear to have any retroreflective tape installed and there are no lights installed at this location, increasing the potential for cyclists to collide with them at low light conditions.</p> 	Unlikely	Minor	Low  Safe System energy within tolerable levels	Consider installing reflective tape on the bollards to increase its conspicuity at low light conditions. (S)		
<p>10. There is a service vehicle roadway on the north side of the park around the William Street entrance to provide access to the railway – railway workers may be unaware of cyclists passing through this location, increasing the potential for a collision. Noted that this gate is to be closed off and use of this access point is expected to be minimal.</p> 	Unlikely	Moderate	Medium  Safe System energy within tolerable levels	<p>Consider creating a shared zone between William St and the railway access track to remind railway staff that cyclists and pedestrians have priority (S).</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>R4-4A 450 x 750</p> </div> <div style="text-align: center;">  <p>R4-5A 450 x 750</p> </div> </div> <p>Consider requesting that Metro Trains Melbourne includes an item in the site Safe Working Method Statement (or similar) that advises its workers to be aware that pedestrians and cyclists have priority in this area (S).</p>		

Audit Findings	Risk Assessment			Recommendations P – Primary S – Supporting ST – Step Towards N – Non-Safe System	Responsible Officer	
	Likelihood	Severity	Level of Risk		Accept Yes/No	Comments
<p>11. Signage is installed on the south side of the path for users exiting the park towards Williams Street – there is the concern that path users may not see this signage, increasing the potential for a collision.</p> 	Unlikely	Minor	Low Safe System energy within tolerable levels	Consider installing additional signage on the north side of the path and supporting with pavement markings. (S)		