



Pinnacle Road Risk Assessment

Risk Assessment Report

Department of State Growth

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➔ The Power of Commitment



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Executive summary

The Pinnacle Road Risk Assessment, commissioned by the Department of State Growth and prepared by GHD, provides a contemporary evaluation of the safety and access challenges associated with Pinnacle Road, the vehicular and also bike rider route to the summit of Kunanyi/Mount Wellington. This report provides a summary of the understanding developed of the existing conditions of Pinnacle Road based on:

- An updated Infrastructure Risk Rating with additional consideration to road safety operations, quality of curves, skid resistance and crossing visibility.
- Review of crash trends based on recent five-year crash history on Pinnacle Road between October 2020 to October 2025.
- Review of vehicular traffic trends based on automated traffic count (ATC) data on Pinnacle Road between December 2023 and May 2025 (excluding 24 May 2024 – 12 August 2024).

The assessment aims to inform strategic planning and investment decisions by drawing on the insights from the review to:

- Compare future operational scenarios
- Identify and prioritise mitigation opportunities

The reviews were limited to providing a contemporary update based on available data, and to provide further insight and understanding into the safety and access considerations for the corridor. This report is subject to, and must be read in conjunction with, the limitations set out in Section 1 and the assumptions and qualifications contained throughout the report.

Existing conditions and risks

This corridor is a critical road asset for Hobart, serving tourists, residents, and service providers, and is characterised by its narrow, winding alignment, steep gradients, and exposure to challenging environmental conditions.

- Pinnacle Road is inherently challenging from a safety and access perspective due to its geometry, limited passing opportunities, and exposure to snow, ice, and debris.
- Recent upgrades, including new barriers and speed limit reductions, have improved safety, reflected in a reduction of the average Infrastructure Risk Rating (IRR) from 1.98 (2019) to 1.83 (2025).
- The IRR indicates higher remaining risk levels, in particular on bends and where these also correlated with severe roadside hazards and narrow pavements.
- Crash analysis (2020–2025) shows a decline in crash frequency and severity, with most incidents resulting in property damage only. Targeted infrastructure improvements have reduced incidents at previously high-risk locations.
- Several correlations between infrastructure condition and recorded crash patterns were identified, in particular pavement condition and skid resistance, curve geometry and driver expectancy, and crossing visibility and pedestrian safety.
- Traffic volumes peak in summer and during snow events; the data available indicated a potential trend of higher volumes across summer periods, but shorter sections of peak demand (i.e. hourly / daily / weekly) follow snow events.
- Other key observations in relation to traffic operation and access include:
 - A correlation between lower volumes and higher speeds was observed
 - Car parking at the summit is identified as the predominant constraint during peak periods

Scenario analysis

Eight operational scenarios were assessed:

- Scenarios that significantly reduce private vehicle traffic, namely *full road closure* (Scenario 1), *bus-only operation* (Scenario 5), and *restricted-direction travel* with scheduled shuttle (Scenario 7), deliver the most substantial improvements in road safety. These approaches minimise vehicle-to-vehicle conflicts, reduce passing risks on narrow sections, and lower exposure of vulnerable users (pedestrians, bike riders) to unpredictable traffic. They also reduce driver workload and the likelihood of head-on or run-off-road crashes.
- Selective vehicle restrictions (e.g. excluding campervans or large buses) offer modest safety improvements with limited impact on overall access or environmental outcomes.
- Scenario 8 (*targeted road widening*) is the only option that directly improves road geometry. However, these benefits may be offset if better road standards encourage higher speeds or more traffic. It is also noted this option entails high implementation costs and potential environmental impacts.

Scenarios that reduce private vehicle access deliver the greatest safety and environmental benefits but require careful management to maintain equitable access. Road widening improves safety but carries high environmental and operational costs. All options require ongoing attention to maintenance, emergency access, and stakeholder communication.

Opportunities and constraints

A multi-criteria analysis was undertaken to identify and prioritise mitigation measures for Pinnacle Road, with the goal of improving safety, operational efficiency, and access while considering environmental and implementation factors. The prioritisation process weighted operationalisation and implementation (cost and timeframe) most heavily, followed by safety benefit, with access, environmental impact, scenario applicability, and redundancy considered at lower weightings.

Top-ranked interventions:

- Operating Speed Management emerged as the highest priority due to its significant safety benefit, relatively low cost, short implementation timeframe, and positive environmental impact.
- Emergency, weather, and incident detection/response measures also ranked highly. These include intelligent transport system (ITS) solutions such as real-time hazard detection and response, which offer substantial safety and operational benefits with minimal construction and cost.
- Physical interventions such as highlighting pedestrian crossing points, improved signage, and line marking at narrow points are also prioritised. These are low-cost, quickly implemented measures that can deliver meaningful safety and access improvements.

Recommendations

This report reviewed current safety and access conditions, crash and traffic data, corridor constraints, future operational scenarios, and prioritised mitigation opportunities for Pinnacle Road.

- Safety remains a core challenge due to the road's geometry, narrow width, and weather conditions, especially if high private vehicle access is maintained. Recent upgrades (barriers, speed limits) have improved safety, reducing risk ratings and incidents at high-risk locations.
- Access demand is highly influenced by weather, with peak and snow events driving surges in visitation.

When considering future operational scenarios, *bus-only operation* and *restricted-direction* shuttle scenarios offer the greatest safety improvements while maintaining access for diverse users. These can be combined with managed access systems for a balanced approach.

- A combination of targeted safety upgrades, ITS improvements, and operational management interventions, provide opportunity for low-cost, quick to implement interventions that align best with Safe System principles and deliver broader safety, access, and overall benefits.

Contents

1.	Introduction	1
1.1	Purpose of this report	1
1.2	Scope and limitations	1
1.3	Assumptions	2
2.	Existing conditions assessments	3
2.1	IRR	4
2.2	Crash analysis	10
2.3	Traffic analysis	15
2.4	Corridor constraints	21
3.	Scenario analysis	24
3.1	Full road closure	26
3.2	Light vehicles only	28
3.3	Exclusion of campervans	30
3.4	Limitations on bus sizes	32
3.5	Bus-only operation	34
3.6	Traffic volume and safe access management	36
3.7	Restricted direction of travel	39
3.8	Road widening along the corridor, either at selected key points or continuously	42
3.9	Summary	45
4.	Corridor opportunities and constraints	49
5.	Recommendations	52

Table index

Table 1	Road widths	4
Table 2	Roadsides hazard severity	5
Table 3	Risk bands for rural road	5
Table 4	Scoring categories for quality of curves, skid resistance and crossing visibility	6
Table 5	Skid resistance results	6
Table 6	Comparison of IRR score in 2019 and 2022	8
Table 7	Constraint section of Pinnacle Road for car and car passing	22
Table 8	Criteria impact	45
Table 9	Scenario impact summary	45
Table 10	Corridor opportunities and constraints	50
Table 11	IRR result	56
Table 12	Site inspection notes	63
Table 13	Scenario impact summary	76

Figure index

Figure 1	Location of study area	3
Figure 2	IRR map for Pinnacle road	9
Figure 3	Location of crashes on Pinnacle Road 2015-2020 and 2020-2025	11
Figure 4	Heatmap for crashes on Pinnacle Road between October 2020 and October 2025	12
Figure 5	Last five years crash history by day of week and type on Pinnacle Road (between October 2020 and October 2025)	13
Figure 6	Last five years crash history by day of week and lighting conditions on Pinnacle Road (between October 2020 and October 2025)	13
Figure 7	Last five years crash history by crash type and crash severity on Pinnacle Road (between October 2020 and October 2025)	14
Figure 8	Last five years crash history by crash type and lighting conditions on Pinnacle Road (between October 2020 and October 2025)	14
Figure 9	Overall vehicle types	15
Figure 10	Average monthly traffic volume by weekend/weekday	16
Figure 11	January average hourly traffic volume by direction	16
Figure 12	Hourly traffic volume on busiest survey day – Friday 5 January 2024	17
Figure 13	Hourly traffic volume on 85 th percentile traffic volume day – Friday 10 January 2025	17
Figure 14	Median speed by time of day	18
Figure 15	Average 15-minute volume by vehicle type	18
Figure 16	Average daily traffic volumes 2018 (Source: Pinnacle Road, Road Safety Risk Assessment, GHD 2019)	19
Figure 17	2018 daily traffic profile and snow days	20
Figure 18	2019 daily traffic profile and snow days	20

Appendices

Appendix A	Infrastructure Risk Rating result
Appendix B	Site inspection notes
Appendix C	Scenario analysis summary table

1. Introduction

GHD was engaged by Department of State Growth (4100-6-C-2) to undertake an assessment of the current performance of Pinnacle Road in relation to safety and access requirements, and to develop a scenario analysis and prioritisation framework for future decision making. This assessment will support the Department of State Growth's (State Growth) strategic planning with targeted safety and accessibility interventions and inform an investment framework.

Pinnacle Road is a unique and highly valued corridor that provides access to the summit of Kunanyi/Mount Wellington. The route extends approximately 10.5 km from the intersection of Pinnacle Road and Bracken Lane to the Wellington Pinnacle car park. The summit serves a wide range of users including tourists, residents, and service providers. Its importance is both functional and symbolic, offering access to critical infrastructure such as telecommunications assets and popular recreational areas, as well as providing a key visitor experience for the City of Hobart.

However, the driving task along Pinnacle Road is inherently challenging. The narrow, winding alignment limits opportunities for safe overtaking and passing, particularly between larger vehicles such as buses and service vehicles. The road is flanked by steep cuttings on the uphill side and significant drop-offs on the downhill side, with varying levels of roadside barrier protection. These physical constraints are compounded by environmental factors such as snow, ice, and debris which regularly impact accessibility and safety, often leading to temporary road closures multiple times each year.

Previous investigations have provided a strong foundation for understanding the corridor's risk and performance. These include the Road Safety Risk Review for Pinnacle Road (Pitt & Sherry 2016) and Road Safety Risk Assessment for Pinnacle Road (GHD 2019). This project aims to leverage the previous assessments and newly available data to provide an updated understanding of the current performance of Pinnacle Road.

1.1 Purpose of this report

The purpose of this assessment is to review the safety and access considerations for Pinnacle Road to enable the identification of practical recommendations and review of potential road operational scenarios.

1.2 Scope and limitations

This report has been prepared by GHD for Department of State Growth and may only be used and relied on by Department of State Growth for the purpose agreed between GHD and Department of State Growth as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Department of State Growth arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 0 of this report). GHD disclaims liability arising from any of the assumptions being incorrect. Given the high-level nature of the road crash data, it cannot be considered conclusive for determining the root causes of crashes and therefore cannot be used as definitive evidence of the effectiveness of any road safety treatments identified.

GHD has prepared this report on the basis of information provided by Department of State Growth and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

1.3 Assumptions

The review undertaken in this report is limited, based on data availability at the time period of the project assessment. It should additionally be noted that:

- The road geometry for Pinnacle Road is based on Pillinger Drive – Pinnacle Road, Road Safety Risk Review, Pitt and Sherry, 2016 and Pinnacle Road, Road Safety Risk Assessment, GHD, October 2019.
- The existing conditions assessment that feeds into the IRR assessment is based on a mix of available information such as Google aerials, recent site inspection, and previous reference data. A detailed pavement conditions assessment has not been completed.
- This assessment is not intended to be a review of geometric requirements and suitability of existing stormwater infrastructure. A culvert conditions assessment has not been completed.
- The scenario analysis and intervention prioritisation are undertaken as high-level qualitative assessments. Detailed assessments may be required to support subsequent phases for the implementation of scenarios and/or interventions.

2. Existing conditions assessments

A location plan detailing Pinnacle Road, stretching from Bracken Lane at the southern boundary of the study area up to the Wellington Pinnacle car park atop Kunanyi/Mount Wellington, is illustrated in Figure 1.

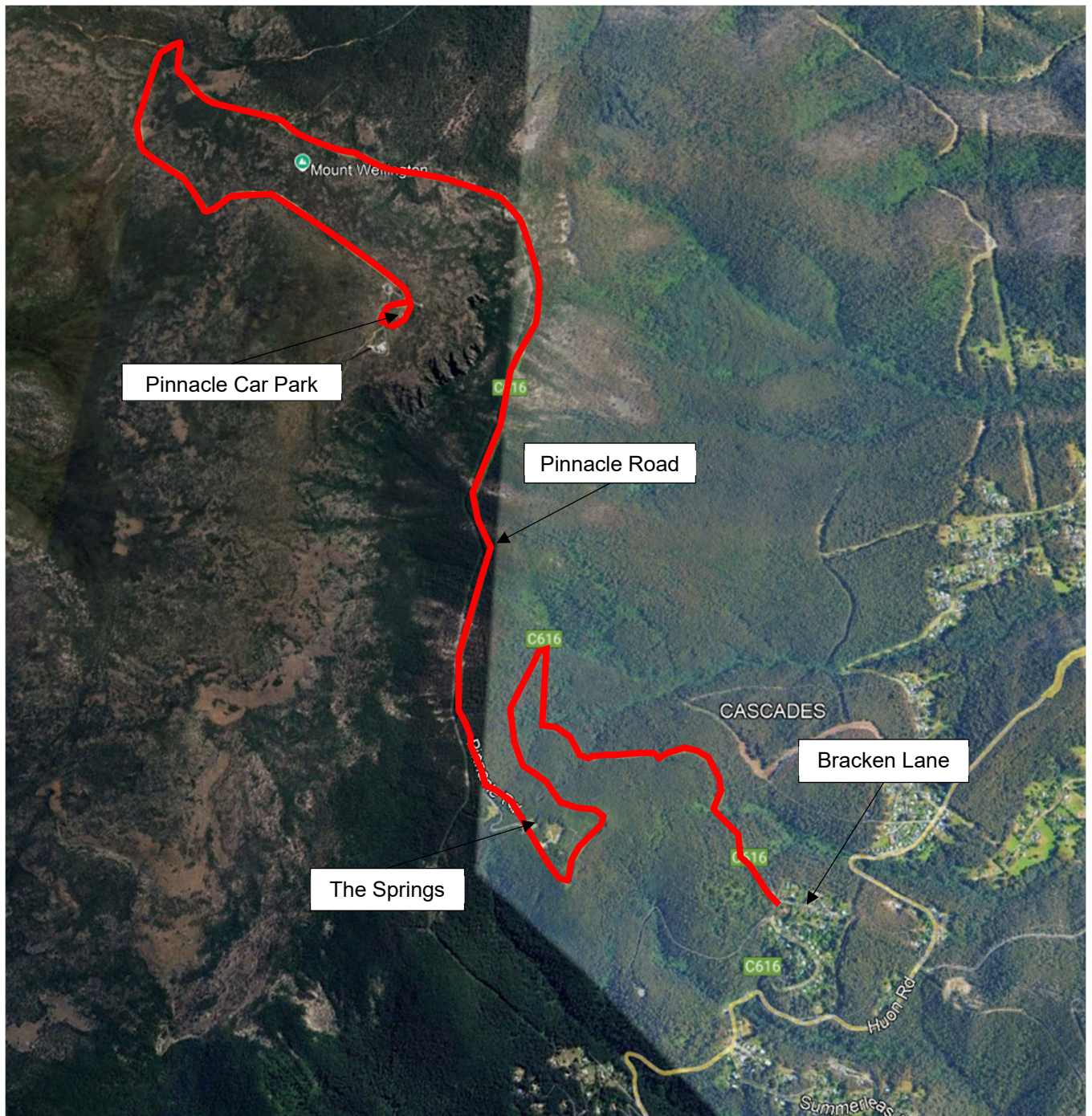


Figure 1 Location of study area
Source: Google Maps, accessed October 2025

Pinnacle Road continues from Pillinger Drive, acting as the principal route into Mount Wellington through Wellington Park. As the sole access road to Kunanyi/Mount Wellington, it predominantly caters to tourist traffic, although maintenance crews and some local residents also use the corridor.

Speed limits commence at 50 km/h at the start of Pinnacle Road, with additional repeater signs posted along its length. Advisory speed signs are positioned at tight corners to alert drivers to changes in road alignment. At The Springs and Pinnacle car park, the speed limits are reduced to 20 km/h.

The alignment of Pinnacle Road is notably winding, featuring a succession of bends and sharp corners; however, some stretches offer a straighter path with gentler curves. Certain segments are particularly challenging, with pronounced twists and turns.

Drainage is managed through a mix of formal spoon drains, informal table drains, and natural runoff, with unprotected culverts appearing regularly along the route.

There is no street lighting provided along the corridor. While reflective markers like guideposts and delineators are present, their placement is irregular. Overall, visibility of the road's alignment is generally adequate for the posted speed limits.

The road surface in the lower sections is mostly in poor condition. Potholes are beginning to emerge between Ch. 8200 and 9200. However, the road surface condition improves, especially in the upper sections from Ch. 9700. The edge profile varies, and in some places it is not suitable for vehicles to safely pull over and allow others to pass.

The road corridor mostly rises gradually, though there are portions with moderate to steep gradients. Road width varies significantly, ranging from 3.61 metres up to 11.30 metres, as detailed in Table 1.

Table 1 Road widths

Item	Width (m)
Average Width	5.89
Minimum Width	3.61
Maximum Width	11.3

Source: Pillinger Drive – Pinnacle Road, Road Safety Risk Review, Pitt and Sherry, 2016

A practical minimum sealed width of 5.0 m is recommended for two-way operation on Pinnacle Road, based on Austroads design vehicle dimensions and Safe System principles rather than a fixed standard. A typical light vehicle is approximately 1.9 m wide, and when allowing for reasonable shy distances to barriers or rock faces (around 0.5 m per side) and a minimum clearance between opposing vehicles, the operational envelope for two passing vehicles approaches 4.8 m. A 5.0 m width therefore provides an appropriate safety margin for driver variability, particularly on a steep, winding mountain road with limited sight distance. Additional road width is required to negotiate curves and bends, to allow vehicles to track along the pavement. Given the variability of the corridor, each curve would need to be assessed independently to determine the required road width for these sections.

Previous assessments have noted that 4.7 m, which is achieved by 90% of the corridor, is the narrowest tolerable width for car–car passing on straight a section, but it is noted that this provides almost no allowance for heavy vehicles or lateral wandering. Increasing the width to 5.0 m is consistent with Austroads guidance on providing forgiving road environments and aligns with international practice for mountainous tourist routes, where constrained geometry and roadside hazards elevate the need for additional clearance.

2.1 IRR

A daytime (1 pm to 4 pm) weekday site inspection was conducted October 2025. During the inspection, it was observed that the traffic conditions were typical with clear visibility, which later transitioned to a light shower.

Infrastructure Risk Rating (IRR) assessment was based on Austroads Infrastructure Risk Rating Manual for Australian Roads, 2019. IRR was conducted in 100 m segments on Pinnacle Road from intersection of Bracken Lane to Kunanyi/Mount Wellington Pinnacle car park, with a total length of approximately 10.5 km. The following roadside features have been assessed:

- Land use
- Road stereotype

- Lane and shoulder width
- Horizontal alignment
- Roadside hazards
- Traffic volume
- Speed limit

Along the study area, the land use is controlled access and road stereotype is two-lane undivided. IRR was updated based on the previous assessment conducted by GHD in 2019 (GHD Pinnacle Road, Road Safety Risk Assessment, 2019). The following were deviated from Austroads IRR guideline based on the previous assessment:

- Intersection density and access density were excluded from the IRR assessment.
- A factor of 0.8 was applied to the roadside hazard score for IRR assessment to provide a balance of influence, maintaining a relative weighting of the remaining IRR factors.
- An average score for the left side roadside hazards while ascending and descending via Pinnacle Road was conducted and scored based on a custom scoring as shown in Table 2.

Table 2 *Roadsides hazard severity*

Example of roadsides hazard	Category	Score
Steep cliff drop off	Very severe	10
Cliff drop off	Severe	6
Jagged cliff face	High	5
Frequent point hazards (large rocks, trees, culverts)	Moderate	4
Poor edge profile	Minor	2
Small, infrequent point hazards	Low	1

The resulting IRR score based on the rural road land use is classified into risk band based on the standard Austroads guideline as shown in Table 3.

Table 3 *Risk bands for rural road*

IRR score (Threshold)	Risk band
0 to <1.4	Low
1.4 to <1.6	Low medium
1.6 to <1.8	Medium
1.8 to <2.0	Medium
2.0 to <2.2	Medium High
≥2.2	High

Additional iRAP (International Road Assessment Programme) factors have been considered to support the IRR assessment of Pinnacle Road. iRAP uses a global "Star Rating" system (one to five stars) to evaluate road safety, aiming to reduce road trauma. While IRR is a streamlined version suitable for measuring relative safety along the corridor, certain iRAP factors warrant specific attention.

Items of high impact to road safety operations, quality of curves, skid resistance and crossing visibility were assessed along the study area during the site inspection.

- Assessment of quality of curve is based on the driver judgment of a curvature, sight distance before and around the curve. It is scored as "Poor" or "Adequate" based on iRAP Coding Manual version 5.5, 2024.
- Skid resistance is assessed based on the road pavement skidding resistance and texture depth. It is scored as "Poor", "Medium" or "Adequate" based on iRAP Coding Manual version 5.5, 2024.
- Crossing visibility is assessed based on driver perspective of any formal or informal pedestrian crossing point. It is scored as "Poor" or "Good".

A summary of the scoring criteria for the three additional features is shown in Table 4.

Table 4 Scoring categories for quality of curves, skid resistance and crossing visibility

Features	Scoring category	Comment
Quality of curve (based on iRAP)	Poor	A curve where rapid or unexpected speed adjustments are needed to negotiate the curve, and there is a lack of advanced signing and/or missing or poorly maintained road markings.
	Adequate	Signing, marking and sight distance enable a driver to judge curvature. Curves of adequate quality may incorporate chevron alignment markers (CAMs) or other reflective hazard markers.
Skid resistance (based on iRAP)	Poor	The road surface is sealed but has a low grip surface. For example: More than 20 percent of road surface looks smooth or shiny or containing loose gravel and other material.
	Medium	The road surface is sealed and has a medium grip surface. For example: Less than 20 percent of road surface looks smooth or shiny or containing loose gravel and other material.
	Adequate	The road surface is sealed and is expected to have adequate skid resistance performance. There are no visible smooth and shiny sections in the preferred vehicle path.
Crossing visibility	Poor	Safe crossing sight distance and stopping distance cannot be achieved at the crossing location. Drivers are unable to perceive that there is any formal or informal crossing location.
	Good	Safe crossing sight distance and stopping distance can be achieved at the crossing location. Drivers are able to recognise that there is formal or informal crossing location.

After the site inspection, IRR scores and site visit findings are provided in Appendix A and Appendix B.

Appendix A contains the IRR score as well as additional iRAP observations for the corridor. Appendix B provides commentary on key hazards identified during the site visit; however, it is important to note that Appendix B does not constitute a formal road safety audit, but highlights significant risks present along the corridor.

Quality of curve

It is identified that there are substandard curves along Pinnacle Road based on iRAP assessment for quality of curve. It is recommended that there should be sufficient Curve Alignment Markers (CAM) installed for both direction of traffic and advance curve advisory speed warning signs. Some curve sections of Pinnacle Road are recommended to be installed with a barrier system for protection of errant vehicles. This would improve the driver judgement of curve.

The assessment has identified 22 curves that require attention. A full list of comments is provided in Appendix A, with descriptions provided in Appendix B.

Skid resistance

Based on the site inspection, most of Pinnacle Road sections within the study area exhibit medium to low skid resistance due to pavement aging and delamination identified in certain areas. As a result, vehicles may experience reduced traction, increasing the potential for accidents especially in wet or snowy conditions.

Table 5 below presents a summary of skid resistance results by location. It is important to note that prioritising improvements at curve locations may provide enhanced road safety outcomes.

Table 5 Skid resistance results

Skid resistance	Adequate	Medium	Poor
Total	20	57	32

A full list of comments is provided in Appendix A, with descriptions provided in Appendix B.

Crossing visibility

Crossing visibility at sections of Pinnacle Road is limited, particularly near the entrances or intersection of tracks. This is due to road geometry which limits the sight distance. Advance warning signs and crossing location markers (e.g. wayfinding or trail marker signs) are recommended to be installed to help drivers' awareness of any informal crossings. There were 14 crossing locations that were determined to have substandard conspicuity to drivers, potentially reducing drivers' ability to take any necessary evasive action should a trail user step onto the roadway.

Some trails that cross Pinnacle Road are misaligned, forcing pedestrians to walk on the road. Pedestrian exposure to traffic should be reduced by providing direct, perpendicular crossings without requiring walking along the roadway.

A full list of comments is provided in Appendix A, with descriptions provided in Appendix B.

Additional site observations

The team have made some general observations following the site drive-through conducted in October 2025. These observations reflect both road users and the physical condition of the corridor. It should be noted that these observations are supporting in nature, and do not form a complete asset assessment. See site observations below:

- The road is mostly at a one-way crossfall.
- The existing wire safety barrier does not appear compliant to standards and may not offer protection for motorists and pedestrians.
- Pedestrians who cross the road to access the track on the other side, or pedestrians who access parking areas, were observed to walk along the narrow roads. This could be attributed to some tracks not being located across each other or parking areas located away from the track entry/exit point.
- Pedestrians along the Wellington Pinnacle car park area coming from the tracks / viewing platforms were observed to walk along the middle of the road.
- Bike riders were observed travelling along Pinnacle Road.
- On the lower part of the project extents, an unsealed shallow drain was observed on one side of the road. On the higher part of the project extents, a mix of shallow and deep U-channels were observed. The deep U-channel may pose a risk to vehicles travelling close to the channel.
- Pavement issues observed include potholes, surface deterioration (stripping and flushing), edge defects, edge drop-off, cracking, and a few areas where the asphalt pavement does not connect seamlessly to the newly constructed safety barrier concrete slab.
- A few trees were observed to lean towards the road. This could pose a risk to drivers during poor weather conditions.
- A few hollow trees were observed adjacent the road. This could pose a risk to drivers during poor weather conditions.
- A few posts of the newly constructed safety barrier do not appear to be upright.
- Insufficient signage and sight distance to warn motorists of the windy roads, substandard curves, and upcoming tracks and pedestrian crossings.
- Guideposts were installed to warn motorists of the steep embankments. Some of the guideposts do not appear to be reflectorised. Suitability of guideposts for night-time driving will need to be investigated.
- A few pavement markings are fading (i.e. yellow 'No Stopping' marking along Pinnacle Road, disabled parking).
- There are a few unmarked sealed and unsealed parking areas located throughout the site. Extent of bus bays unclear.
- The existing signage is generally hard to read for drivers due to being dated and small in size.
- Existing culverts do not appear to have driveable endwalls.

Summary of IRR result

The IRR score for the study area is shown in Appendix A. Overall, there are some improvements to the IRR score based on the upgrade of barrier systems along the Pinnacle Road and speed limit change for areas with high pedestrian activity such as The Springs and Kunanyi/Mount Wellington Pinnacle Car Park.

A summary of the IRR score is shown in the Table 6 below.

Table 6 Comparison of IRR score in 2019 and 2022

Items	2025	2019
High	16	22
Medium high	21	29
Medium	23	42
Medium	23	12
Low medium	22	3
Low	4	1
Average	1.83 (medium)	1.98 (medium)

The risk ratings along the corridor are mapped in Figure 2 indicating high road safety risks on bends, which often have severe roadside hazards and narrow pavements. Lower risk scores are found on less challenging sections of road sections closer to The Springs. See Appendix A for the complete assessment.

Due to new barriers and speed limit reductions, 47 sections had improved results and 62 stayed the same. The average score dropped from 1.98 to 1.83. Notably, sections with improvements saw scores decline from 1.92 to 1.57 (low medium), which is favourable.

These results indicate that the implementation of new barriers and speed limit reductions had a tangible impact on safety or performance across multiple areas. A decrease in average scores suggests that conditions became safer. For example, the scores reflect accident risk levels, this drop points toward enhanced safety for drivers, pedestrians, or bike riders. Furthermore, the greater decline in scores specifically among improved sections, highlights that targeted interventions have led to significant positive outcomes. This trend is an encouraging result, showing that the interventions have a favourable outcome for road user risk ratings, and measures for other areas could be considered.

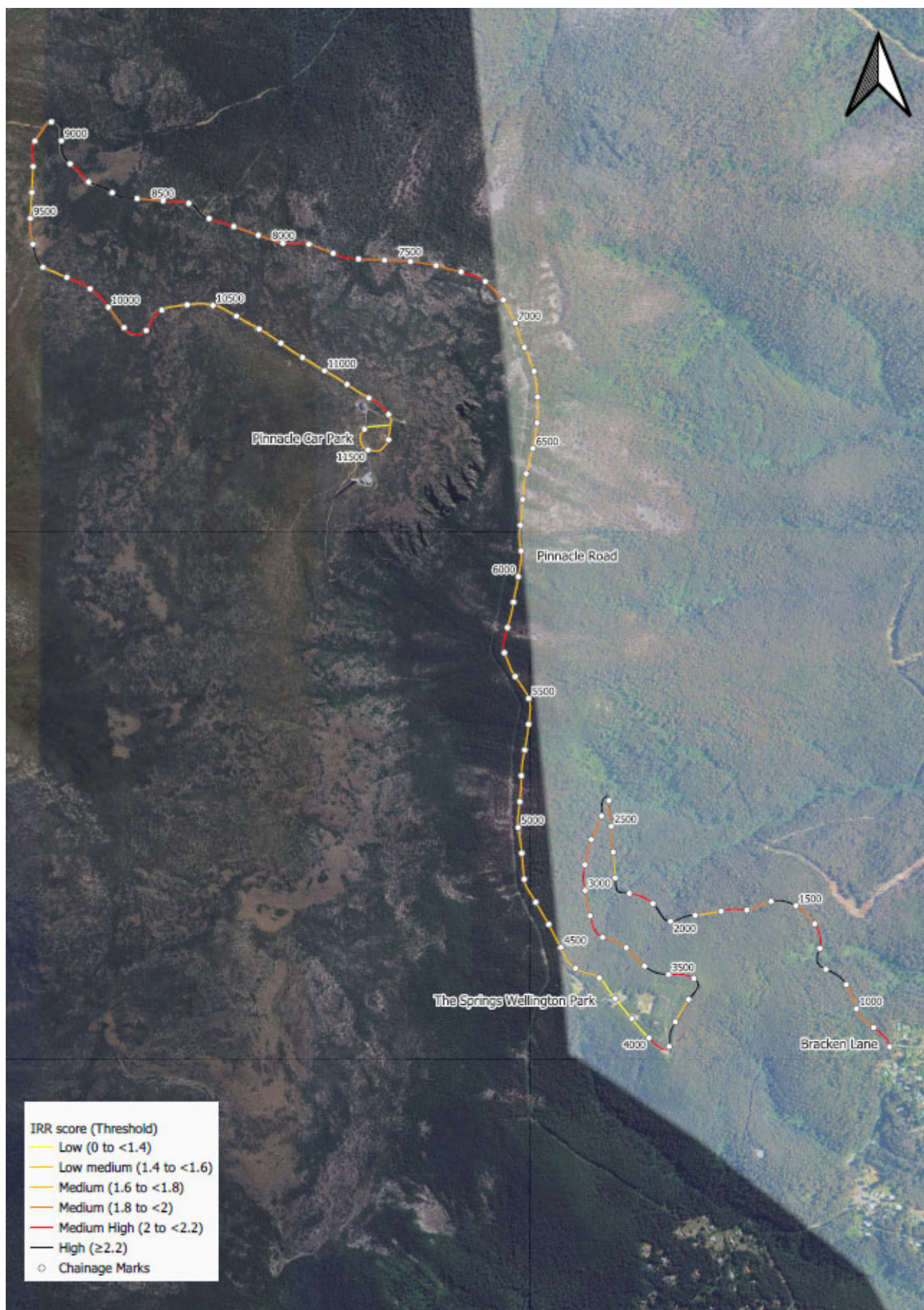


Figure 2 IRR map for Pinnacle road

2.2 Crash analysis

Crash history on Pinnacle Road was obtained from Department of State Growth between April 2015 and October 2025. Five-year crash history has been reviewed on Pinnacle Road between October 2020 to October 2025.

On reviewing the recent crash history data, it should be noted that of the 23 recorded crashes, nine of the most 11 recent crashes were recorded as unspecified crash code. This code has not been used on Pinnacle Road in the previous crash history, suggesting that there is a gap in recording of crash data. This will have implication on the crash data analysis, and the findings that can be drawn.

A total of 23 crashes were recorded during the last five years on Pinnacle Road. Most resulted in property damaged only without any serious or fatal severity. The sections of Pinnacle Road detailed below have been identified as recurring locations for traffic incidents (Figure 3):

- The Springs from ch.4200 to ch.4300
- Ch.5900 to ch.6100
- Around ch.8100
- Pinnacle car park from ch.11300 to ch.11695

When compared with the previous five-year period (2015–2020), several locations that previously experienced crashes no longer feature in the current crash record. For example:

- Chainage 6500–7000: No recent crashes recorded, likely reflecting the positive influence of the new crash barrier installed along this section.
- Chainage 8600–11000: Previously recorded crashes no longer evident, possibly due to the addition of orange guideposts, which may assist driver navigation and lane discipline during periods of low visibility.

Overall, the recent crash history indicates a reduction in crash frequency at several historically higher-risk sections, coinciding with targeted infrastructure improvements.

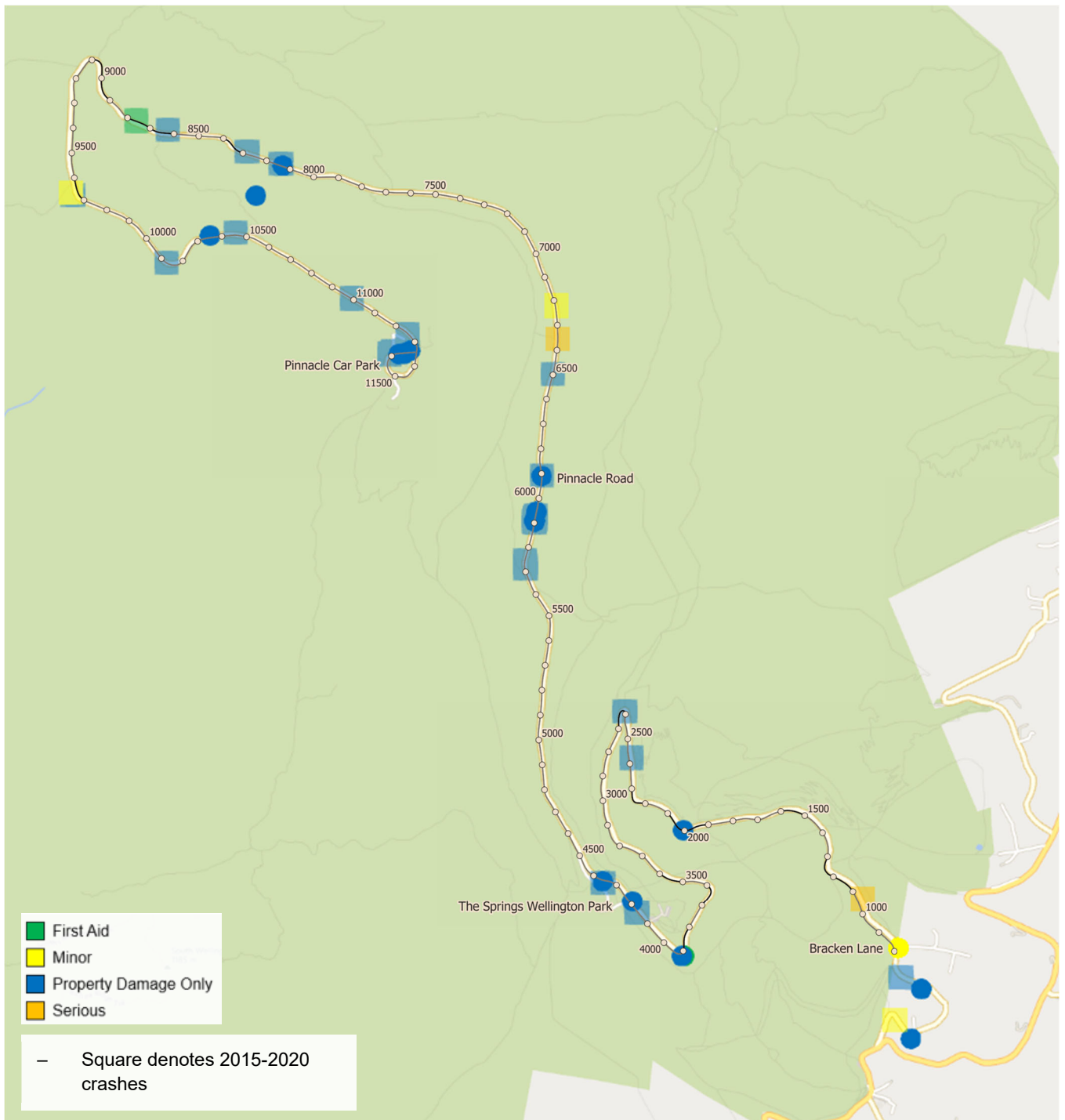


Figure 3 Location of crashes on Pinnacle Road 2015-2020 and 2020-2025

Please note that a crash cluster has been identified off the road between chainage 8000 and 10500. Although there appears to be an error in the recorded crash locations, it has been confirmed that these incidents did take place. It is currently assumed that the crashes are situated on the lower road. This is seen on Figure 3 and Figure 4 as the same data source was used.

Figure 3 presents a crash heat map weighted by severity (First Aid = 1, Property Damage = 2, Minor = 4, Serious = 8). No fatal crashes were recorded during this period (which would carry a weighting of 10). The crash concentration areas shown align closely with the locations listed above and also highlight the Pinnacle Road/Bracken Lane intersection (Ch. 800) as a recurring site of incidents.

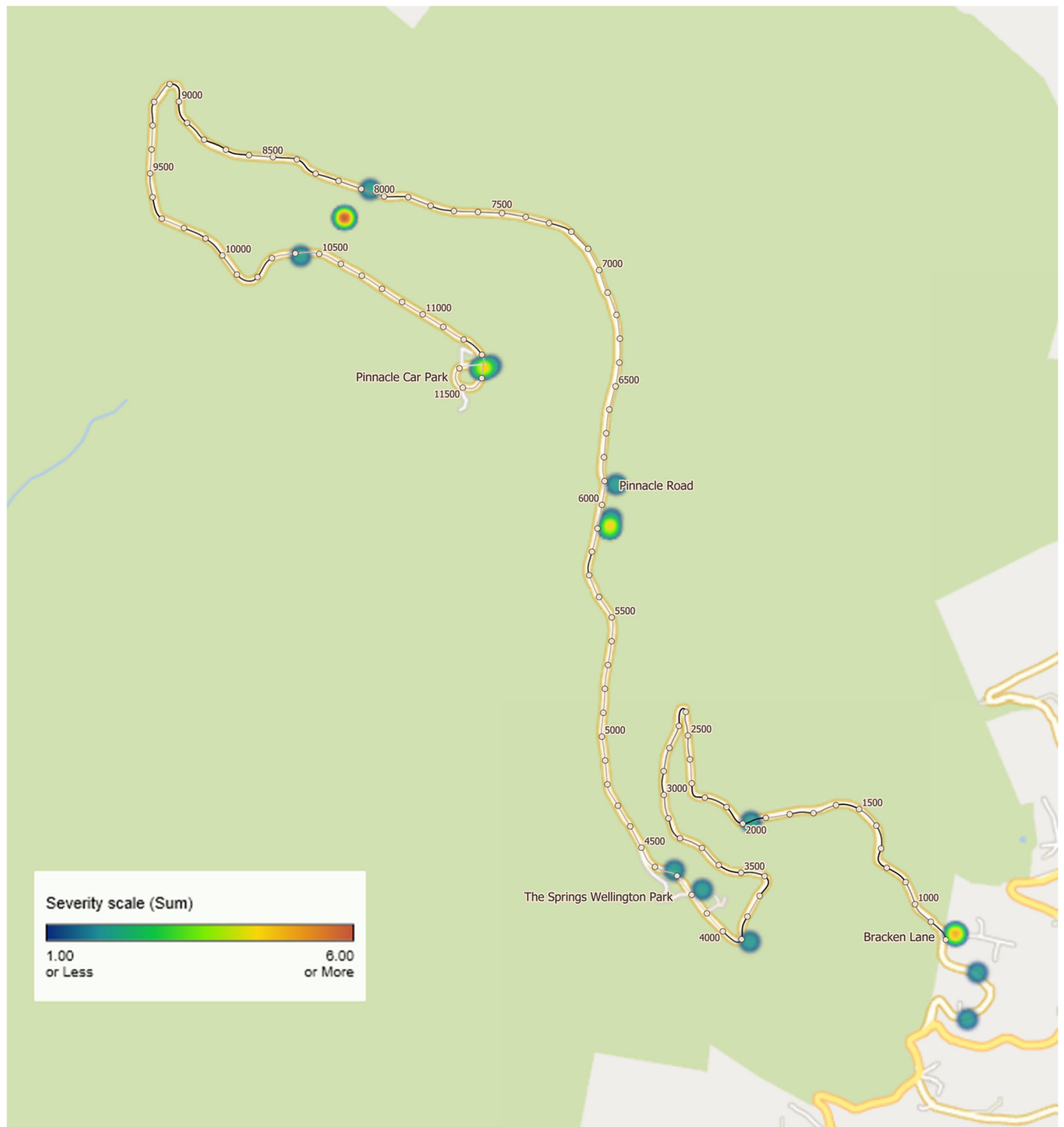


Figure 4 Heatmap for crashes on Pinnacle Road between October 2020 and October 2025

Crash day of week

Notably, no crash was recorded on Thursday during the last five years as shown in Figure 5. The highest number of total crashes, five (5), was recorded on Wednesday, Friday and Sunday. In comparison to the previous five-year period from 2015 to 2020, there is a significant drop in total amount of crashes recorded from 32 to 23 crashes. Moreover, there is significant decrease in crashes during the weekend.

Two-thirds of all recorded crashes which occurred on Monday, happened in poor lighting conditions as shown in Figure 6. Compared to the previous five-year period, there are significant reductions in crashes during poor lighting conditions, which may reflect the positive influence of improved guidepost delineation, road surface reflectivity, or enhanced visibility treatments introduced in recent years.

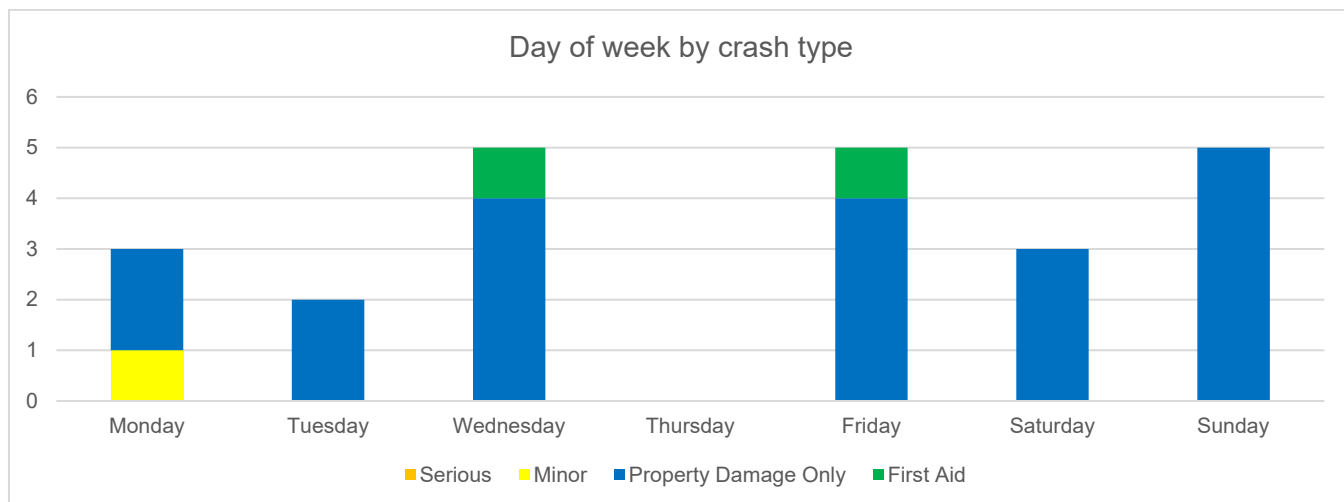


Figure 5 Last five years crash history by day of week and type on Pinnacle Road (between October 2020 and October 2025)

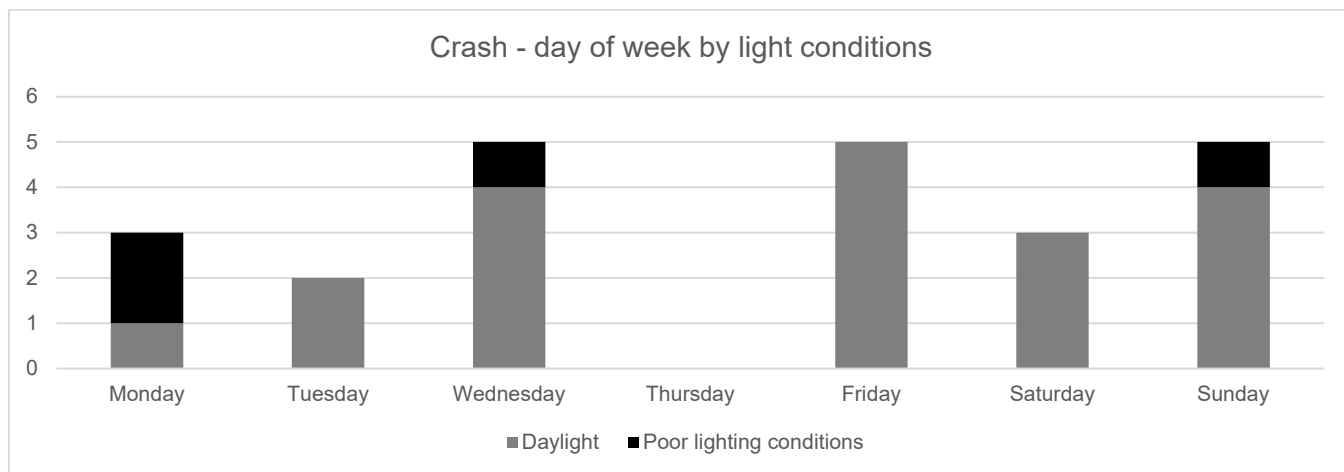


Figure 6 Last five years crash history by day of week and lighting conditions on Pinnacle Road (between October 2020 and October 2025)

Crash severity and lighting conditions

The main crash types over the past five years were off-path on curves, manoeuvring, and impacts with opposing vehicles. Unspecified crashes accounted for more than twice as many incidents (9) as other leading types (Figure 7). Excluding the unspecified crash type, the dominant crash types have remained consistent with data from 2015–2020 and 2009–2019 analysis (GHD, 2019), indicating persistent risk factors associated with the road’s alignment and driving conditions.

When comparing the current and previous crash histories, it is likely that many of the unspecified crashes correspond to off-path on curve, off-path on straight, or opposing-direction impacts, given their locations and outcomes. Notably, the unspecified crash type has been applied only to crashes of property-damage-only severity, suggesting under-reporting or misclassification of minor incidents rather than a shift in crash nature.

Half of off-path at curve crashes occurred in poor lighting conditions (see Figure 8), resulting in minor injuries. This pattern suggests that driver visibility and delineation remain critical safety considerations, particularly during dusk, dawn, and low-light weather conditions where the combination of tight curves, steep gradients, and limited recovery space may increase the likelihood of loss-of-control incidents.

In terms of crash severity, there has been a reduction in property-damage-only crashes and no recorded serious or fatal crashes in the current five-year period. By contrast, the previous crash history included two serious injury crashes and no fatalities, suggesting a positive overall safety trend on Pinnacle Road in recent years.

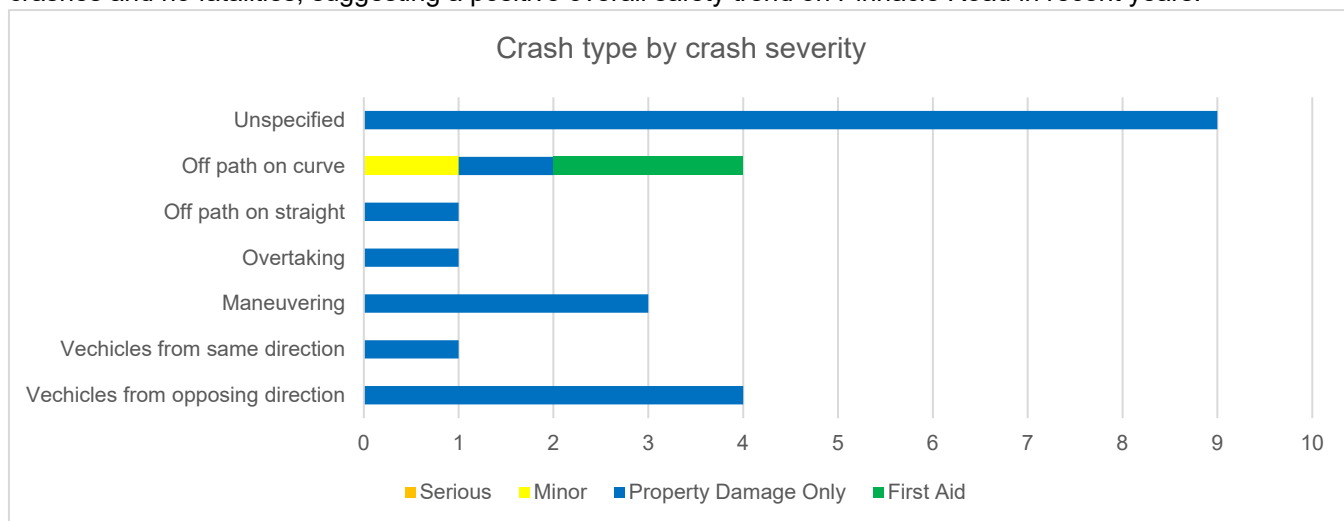


Figure 7 Last five years crash history by crash type and crash severity on Pinnacle Road (between October 2020 and October 2025)

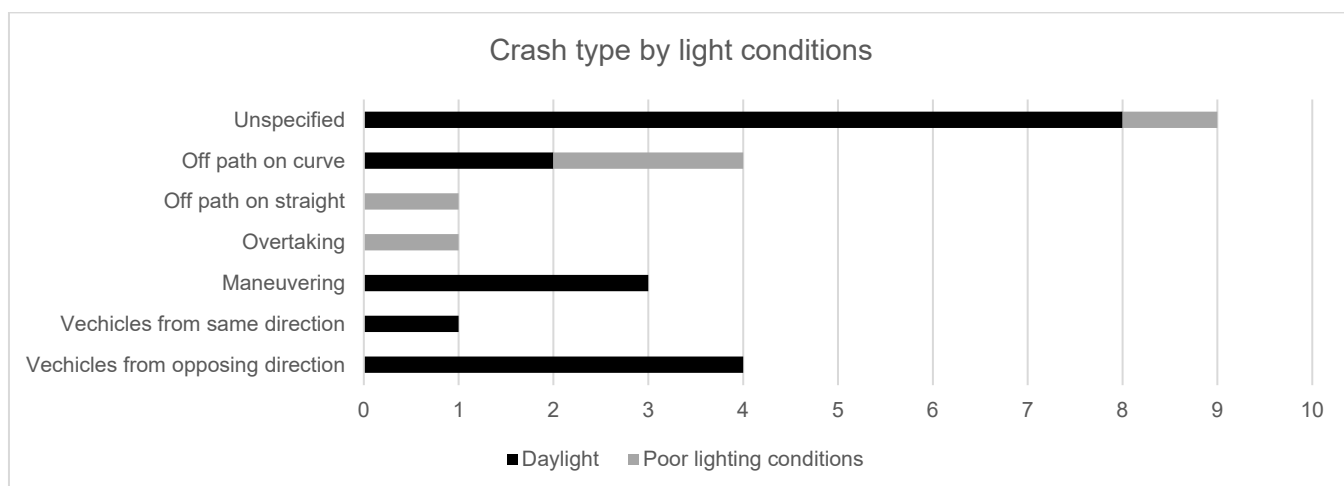


Figure 8 Last five years crash history by crash type and lighting conditions on Pinnacle Road (between October 2020 and October 2025)

Site observations

Review of the site observations and iRAP assessment data identified several correlations between infrastructure condition and recorded crash patterns.

Pavement condition and skid resistance: There is a clear relationship between pavement quality and crash occurrence. Sections of Pinnacle Road with adequate skid resistance show no recorded crashes, suggesting that loss-of-control incidents are likely linked to reduced pavement friction. This highlights the importance of maintaining surface condition to minimise traction-related crash risk.

Curve geometry and driver expectancy: In the lower sections of the road, curve quality and associated warning treatments appear to influence crash outcomes. Where advance warning signs and delineation devices are present, drivers are better prepared for the upcoming curve severity. Conversely, in the upper sections (around chainage 9000 and beyond), drivers appear to have adjusted their behaviour, demonstrating increased caution and speed adaptation as they become more aware of the challenging alignment and steep gradients.

Crossing visibility and pedestrian safety: Although no pedestrian-related crashes have been recorded along Pinnacle Road, several trail crossing points intersect the corridor. Enhancing visibility and highlighting these

crossings through appropriate signage and surface markings would improve driver awareness and reduce potential risk to pedestrians and trail users.

2.3 Traffic analysis

City of Hobart collected automated traffic count (ATC) data on Pinnacle Road between December 2023 and May 2025 (excluding 24 May 2024 – 12 August 2024). The gap in data was a result of the traffic counter equipment being unavailable due to the counter being stolen and requiring replacement. The data collection point was located on Pinnacle Road approximately 60 meters north of Bracken Lane, which is beyond the 'point of no return' for vehicles travelling up to the Pinnacle. Vehicles could stop at various locations before reaching the summit, with the most frequented location The Springs. This section of road is in a 'medium high' IRR zone, with a winding alignment and narrow and undivided lanes. The operating speed is 50 km/h; other more tortuous sections have operating speeds of 20 km/h.

Note that this most recent data does not contain traffic volumes for winter months where snow days are most likely to occur. Historical traffic data from 2018 is shown in the Pinnacle Road, Road Safety Risk Assessment (GHD 2019). This report shows that on average, the busiest months are January and December, however the busiest week occurred in July. As such, the maximum daily or weekly traffic volumes between December 2023 and May 2025 may not be captured in this analysis.

Vehicle classification

Figure 9 presents the overall vehicle types observed at this location. As can be seen from the chart the majority of vehicles observed were cars (94 percent).

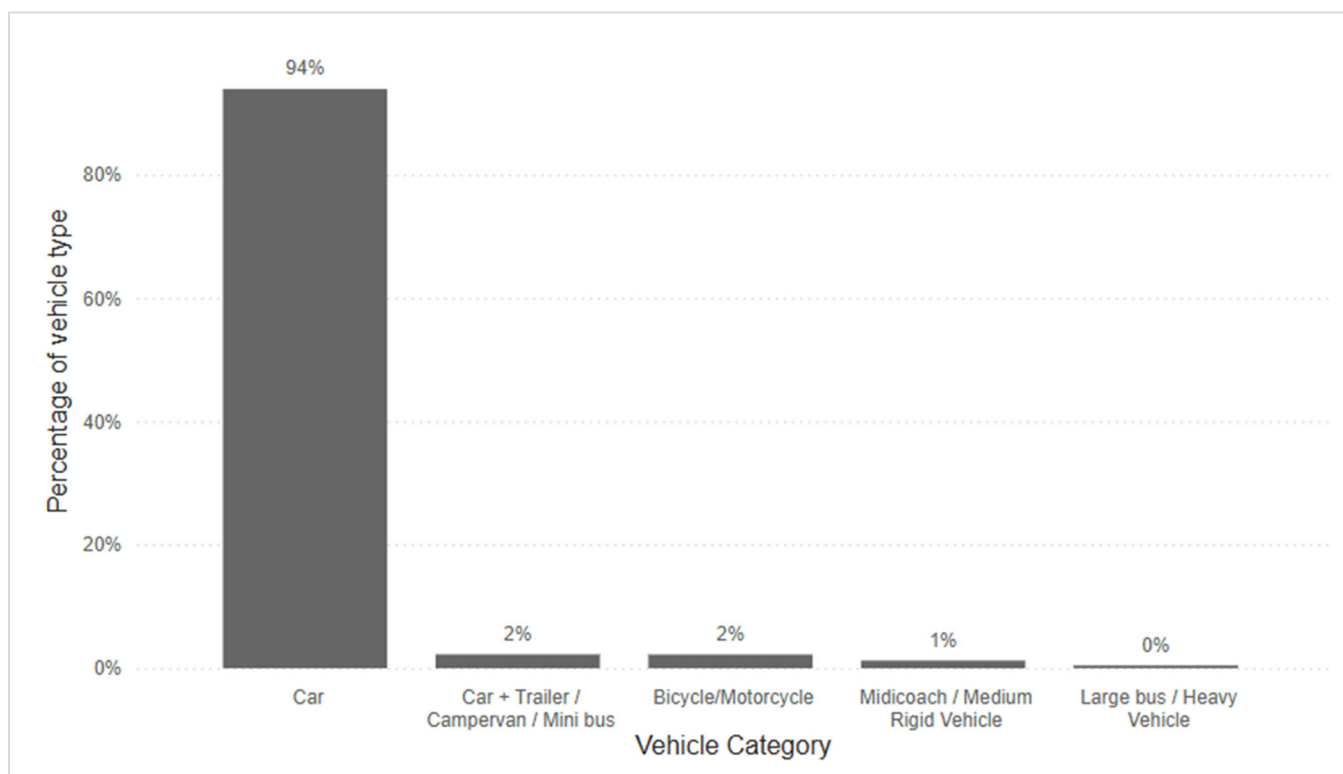


Figure 9 Overall vehicle types

Vehicle volumes

Figure 10 presents the average daily traffic volumes by month. The summer holiday periods are consistently the busiest periods, with over 2,000 vehicles per day observed on average during weekend periods. Note that no data was captured in June and July 2024 and the graph lines for these months have been interpolated. Historical data from 2018 was reviewed and aligned with the finding that summer holiday periods represented the busiest periods.

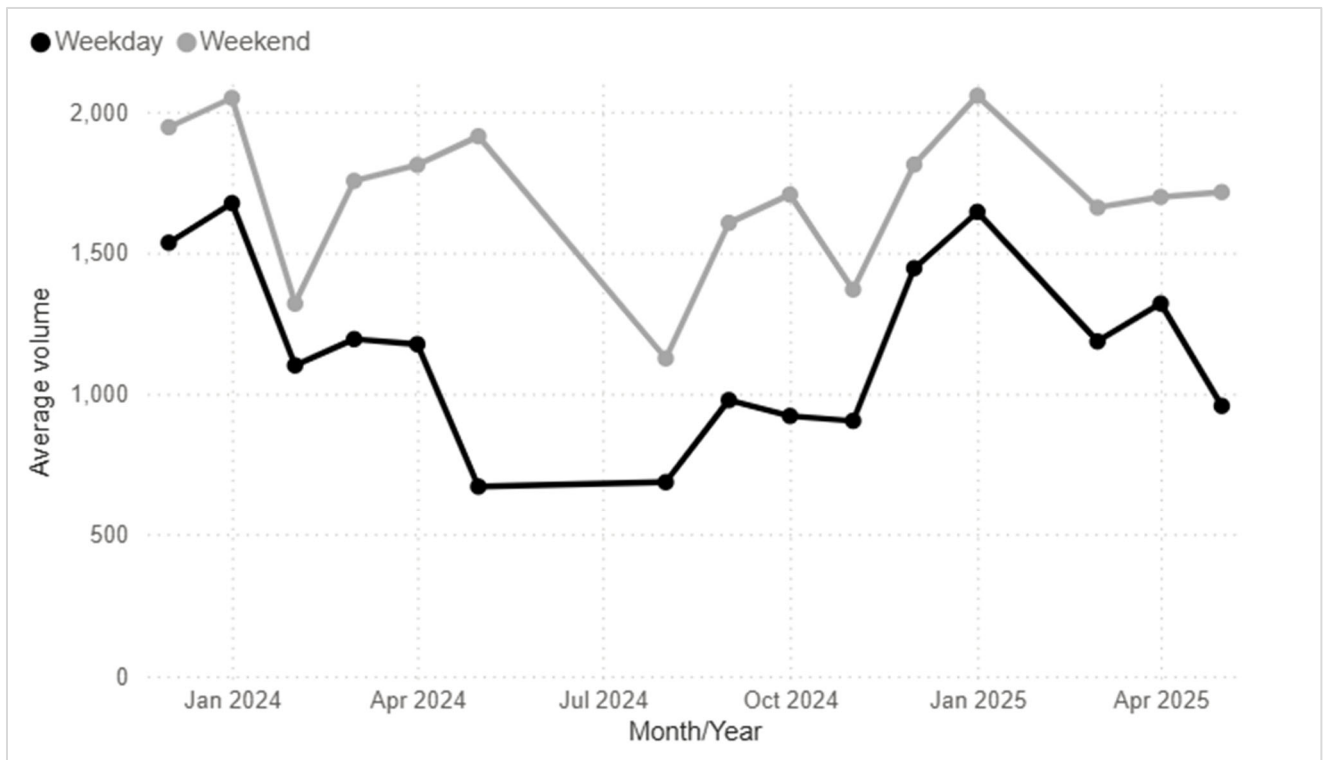


Figure 10 Average monthly traffic volume by weekend/weekday

Figure 11 presents inbound and outbound traffic volumes by hour for the average January, which is the busiest month. Peak inbound volumes tend to occur at 10 am with over 100 vehicles entering the site. Peak outbound volumes tend to occur at 12 pm. Both inbound and outbound volumes tend to peak rapidly in the morning, and then gradually decrease throughout the afternoon.

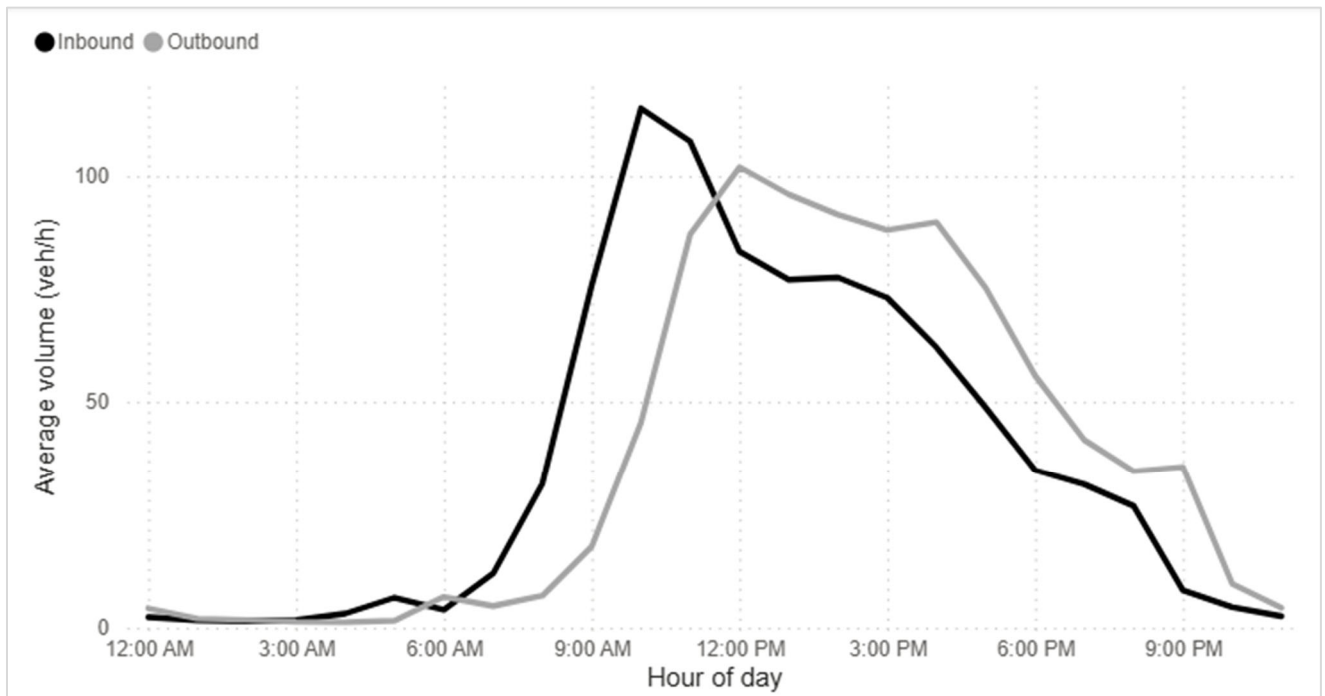


Figure 11 January average hourly traffic volume by direction

The hourly traffic profiles are shown in Figure 12 and Figure 13 for the busiest day recorded at the site and 85th percentile busiest day across the entire data period. Both days occur in January – Friday 5 January 2024 for the busiest day and Friday 10 January 2025 for the 85th percentile busiest day. In the busiest survey day, there were periods where over 200 vehicles per hour were recorded travelling in a particular direction and a daily two-way

volume of 3,075 vehicles. This compares to around 150 vehicles per hour during the busiest hours and a total two-way volume of 1,953 vehicles for the 85th percentile busiest day.

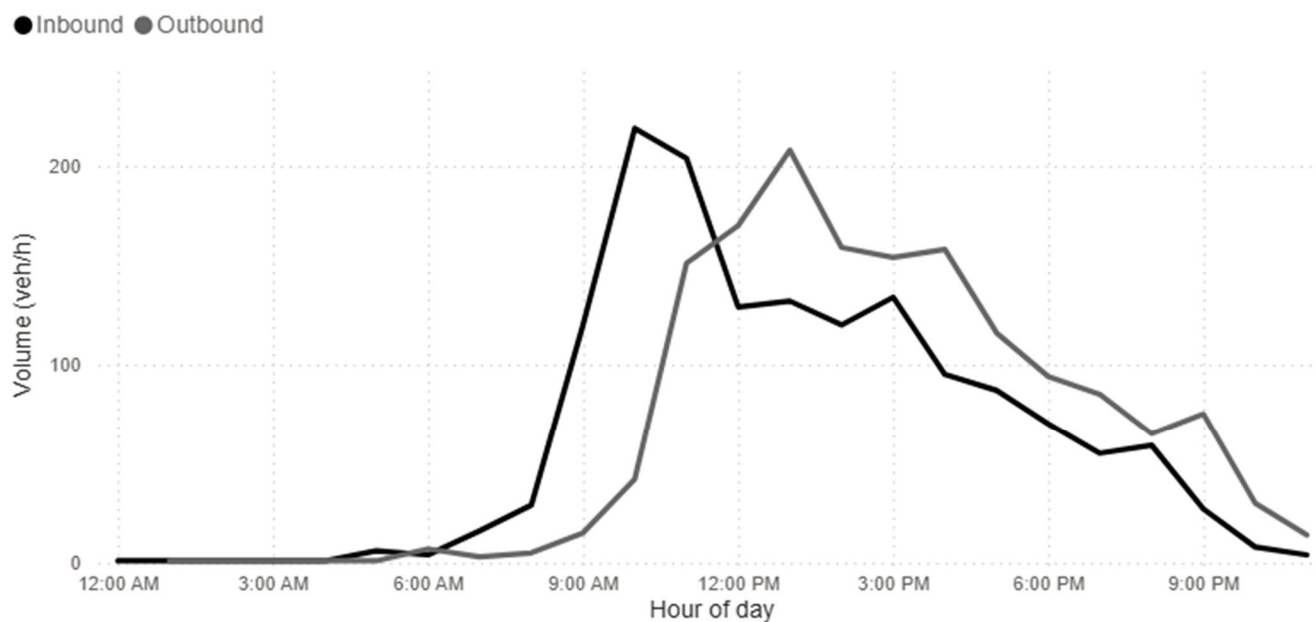


Figure 12 Hourly traffic volume on busiest survey day – Friday 5 January 2024

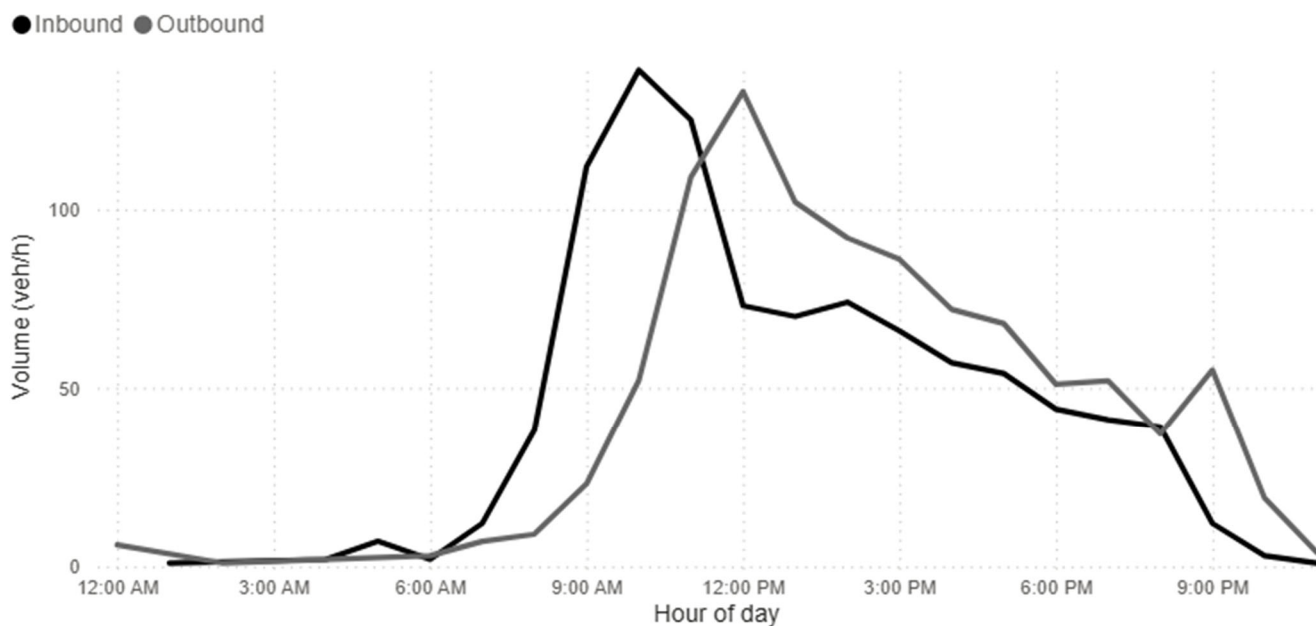


Figure 13 Hourly traffic volume on 85th percentile traffic volume day – Friday 10 January 2025

Vehicle speed

Figure 14 shows average speed recorded in both directions across the day. Average speeds are within the 45 km/h to 55 km/h range. Higher speeds are observed outside of the busiest periods, indicating that drivers may choose to drive over the speed limit when they have free speed selection.

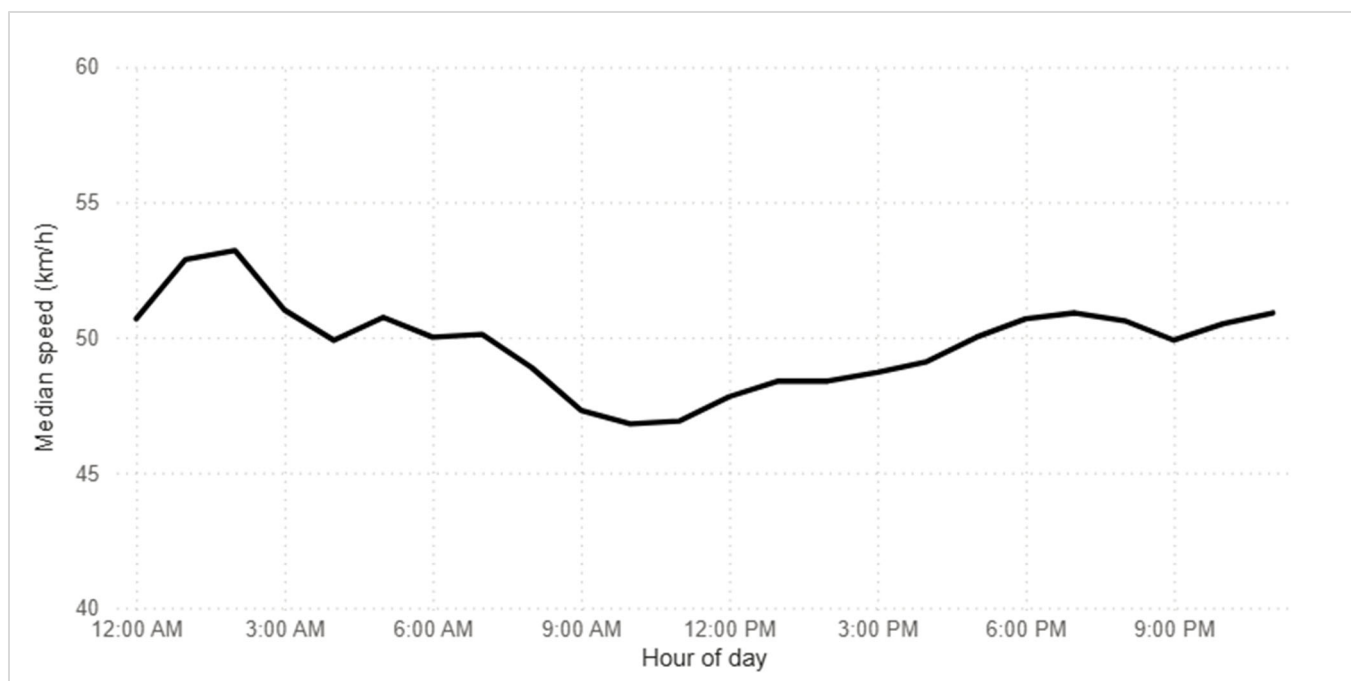


Figure 14 Median speed by time of day

Figure 15 shows the average 15-minute traffic volume by vehicle type, across the entire data collection period. As shown in the graph, cars are the most observed vehicle types using Pinnacle Road, particularly during the busiest periods of the day.

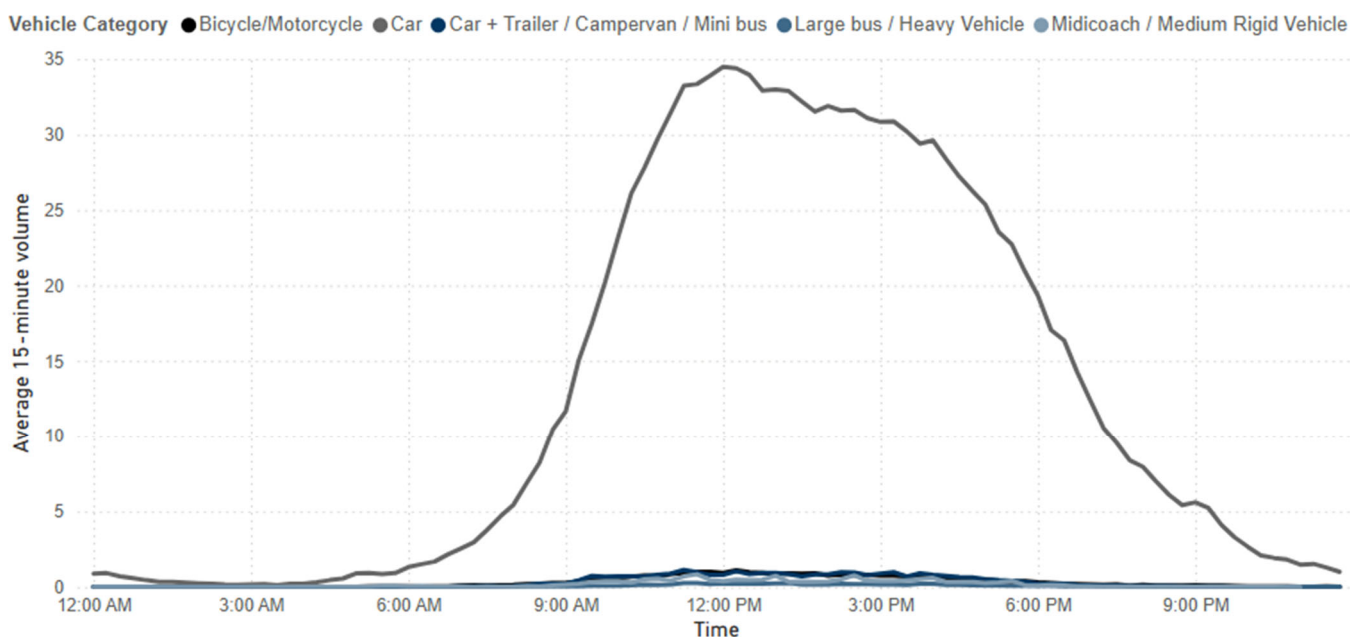


Figure 15 Average 15-minute volume by vehicle type

Historical data and winter traffic analysis

Given the lack of more recent traffic data during winter months, an analysis of traffic data from 2018 and 2019 has been undertaken to understand seasonal trends and weekly spikes in traffic volumes throughout all months of the year.

Historical traffic data from 2018 is shown in the Pinnacle Road, Road Safety Risk Assessment (GHD 2019). The average number of vehicles on Pinnacle Road per day each month shown in this report is presented in Figure 16.

As shown in this figure, December and January are the most popular months on average. July also appears to be a popular time to visit, likely due to school holidays and snow days occurring in this month. Total average traffic volumes in 2018 are generally lower compared to more recent years (2023 – 2025).

In 2018, the average daily traffic volume in January was approximately 1,450 vehicles per day, whereas in 2024 the average daily traffic volume in January was 1,772 vehicles per day. This equates to a total growth of 21 percent, or approximately 3.5% per year. Reviewing change in volume across other months where data was available for both 2018 and 2024:

- September traffic volumes have grown by approximately 4% per year
- December volumes have grown by approximately 1% per year
- Average October and November traffic volumes have not increased since 2018

On average there is a general trend of increased visitation observed in some months since 2018, however without a full year of data, the average annual increase across all months cannot be measured. It is noted that the 2017 Visitor Data Report (Natural Acumen) indicates expected growth in average annual traffic is 5.5% per year. Noting this data availability limitation, more detailed review of daily or peak hour growth has not been undertaken.

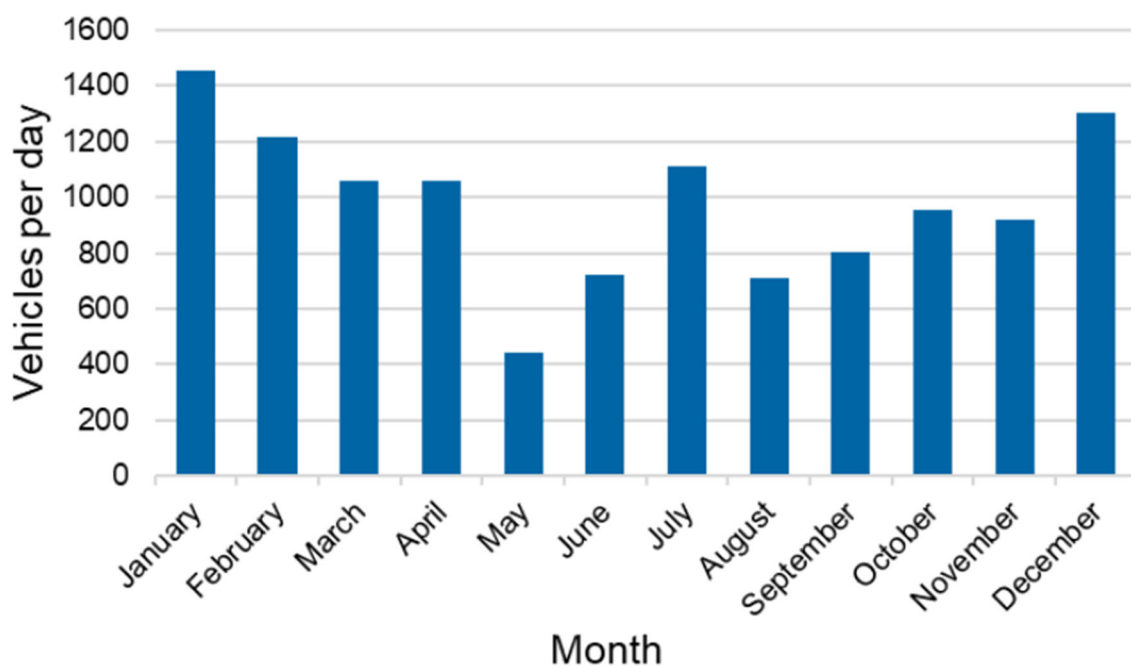


Figure 16 Average daily traffic volumes 2018 (Source: Pinnacle Road, Road Safety Risk Assessment, GHD 2019)

The recent 2023-2025 traffic data does not contain any vehicle counts for the winter months so the influence of snow on visitation has not been investigated for recent years. As such, historical traffic data from 2018 and 2019 has been analysed to understand if there may be a relationship between snow days and traffic volumes.

Figure 17 and Figure 18 provide an indication of the relationship between daily traffic volumes and potential snow days during 2018 and 2019 respectively. Potential snow days were determined through analysing historical temperature and precipitation data from the Bureau of Meteorology. Potential snow days have been determined based on the following assumptions:

- High likelihood of snow: Any recorded precipitation with temperatures equal to or below 0°C
- Medium likelihood of snow: Any recorded precipitation with temperatures greater than 0°C and less than or equal to 1.5 °C
- Low likelihood of snow: Any recorded precipitation with temperatures greater than 1.5°C and less than or equal to 3 °C

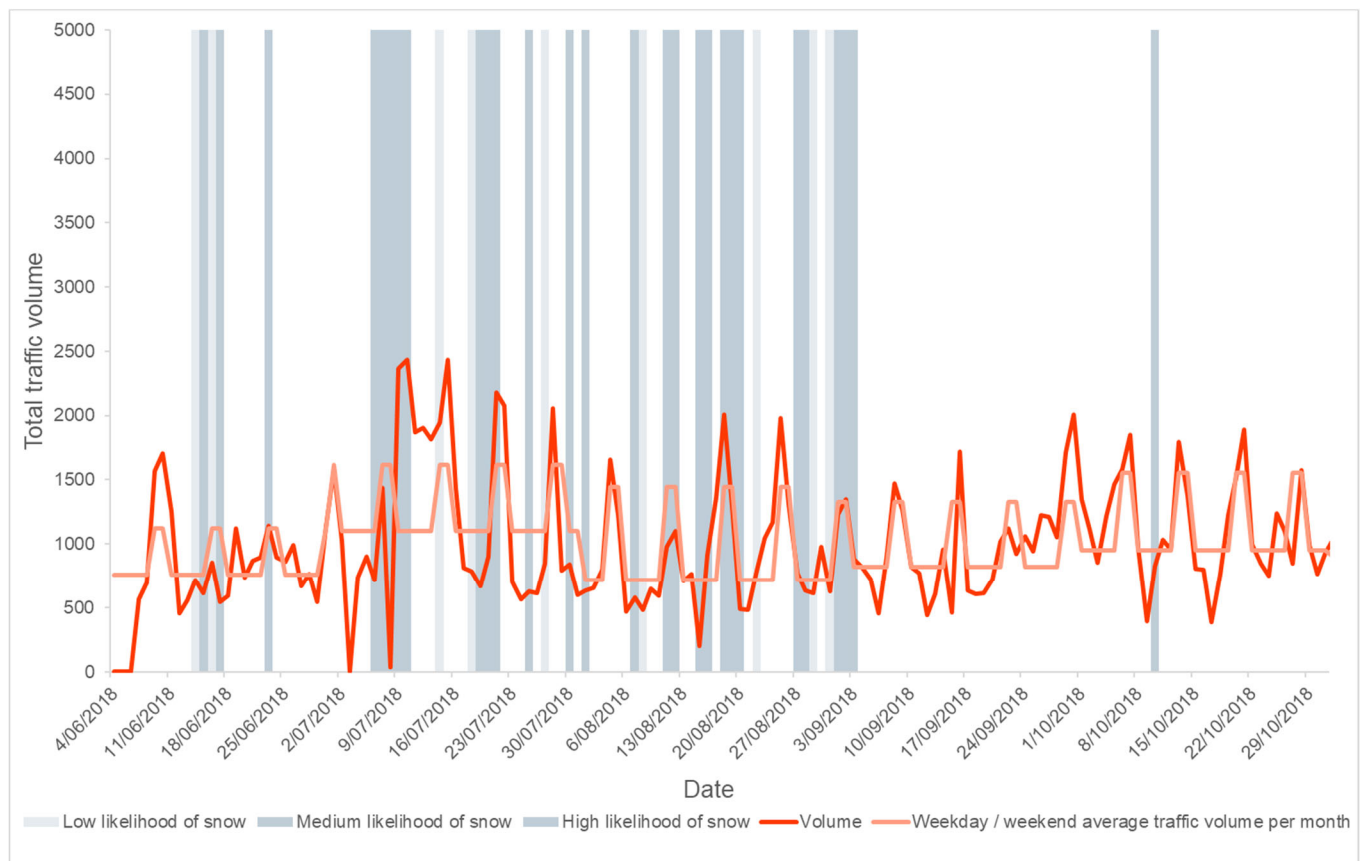


Figure 17 2018 daily traffic profile and snow days

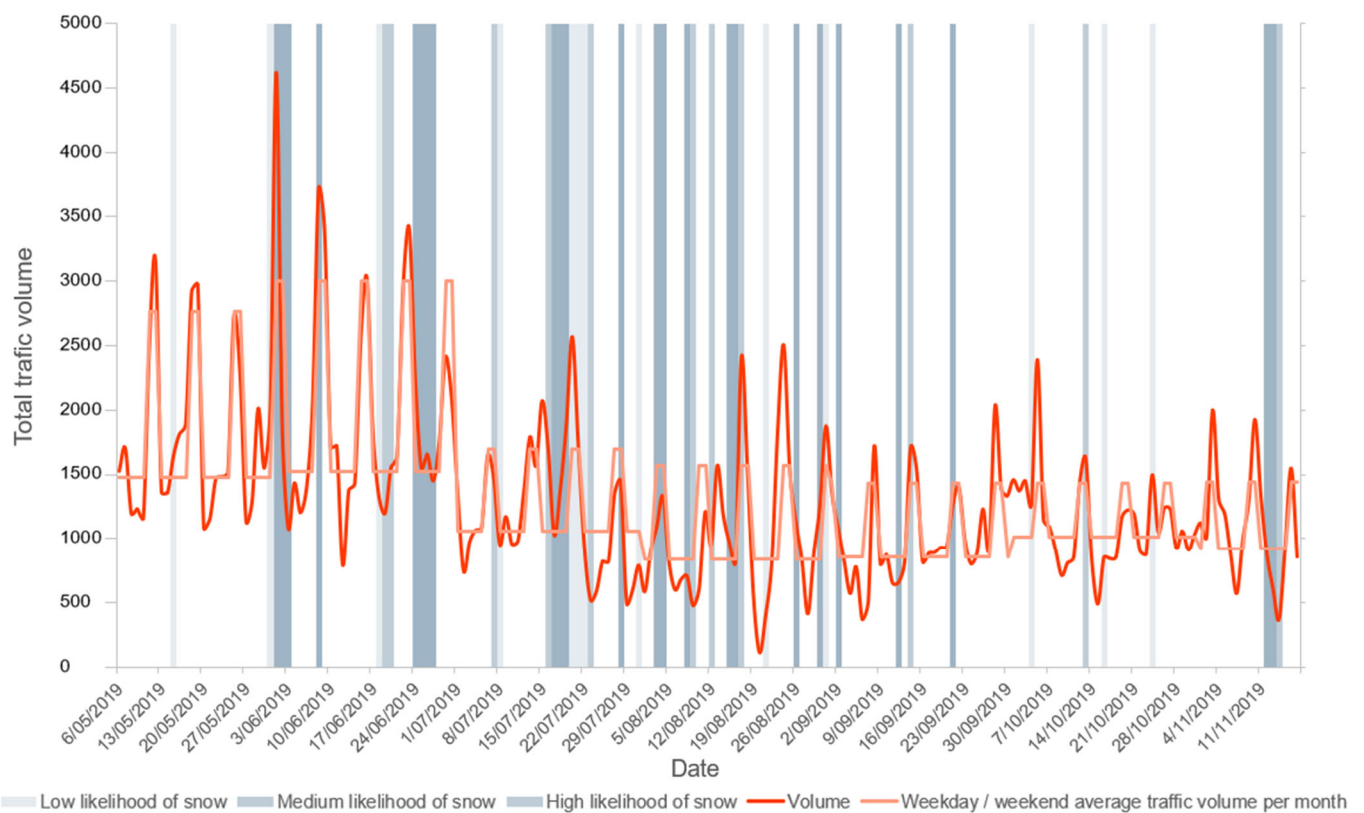


Figure 18 2019 daily traffic profile and snow days

As shown in Figure 17 and Figure 18, there are some periods (particularly on weekends) where spikes in daily traffic volumes coincide with periods where there is a likelihood of snow. This is especially evident on the first

weekend of June 2019 (Figure 18) where traffic volumes peaked at 4,622 vehicles on the Saturday. This coincides with a three-day period when there was a high likelihood of snowfall.

In 2018 (Figure 17), peak traffic volumes occurred during the week of 9 July which coincided with the school holiday period and followed a five-day period where snowfall was likely. Traffic volumes on Sunday 8 July were very low (34 vehicles recorded) and there was a high likelihood of snow that day, indicating that the road was likely closed. Peak daily traffic volumes occurred the following week, reaching 2,437 vehicles on Tuesday 10 July and Sunday 15 July.

Generally, when there is likelihood of snow falling just prior to or on a weekend, there is often a spike in traffic volume that is higher than the weekend average for that month. In 2019, this is observed on the weekends of 8 June, 20 July, 17 August and 5 October. In 2018, this is observed on the weekends of 15 July, 21 July, 28 July and 18 August.

This analysis indicates that snowfall is likely to be a key draw for higher visitation, particularly on weekends and during school holidays.

Summary

- Traffic analysis for the warmer months of 2023-2025 indicate that on average, January sees the highest daily traffic volumes.
- Analysis of 2018 and 2019 daily volumes indicate that significant daily peaking in traffic volumes tends to occur on weekends and during school holidays, and there tends to be higher visitation around periods of potential snowfall
 - This suggests that the analysis of 2023-2025 data may not include a true representation of peak daily traffic volumes, as historically, these can occur during winter months (which are not included in the most recent data set)
- In 2019, daily traffic volumes reached over 4,500 vehicles on 6 June 2019. This is significantly higher than the busiest day recorded in the more recent data set, which recorded 3,075 on 5 January 2024. This indicates that while January may be the busiest month for average daily traffic volumes, peak daily traffic volumes may have occurred in July or July in 2024 and 2025. Further detailed analysis of existing demand, visitor profiles (local vs interstate/overseas visitors), and trip purpose may be beneficial to both understand any potential latent demand and to more accurately forecast peak demand periods – particularly in relation to snow events.
- As discussed further in Section 2.4, car parking is likely to be a capacity constraint during peak visitation periods. In the analysis of 2023-2025 traffic data, peak visitation days may not be presented accurately since data was not available during June and July, which have historically shown to experience the busiest day of the year.

2.4 Corridor constraints

Historical and Geological Character of Pinnacle Road

Pinnacle Road is an important cultural and landscape feature of Kunanyi/Mount Wellington and holds significant historical, aesthetic, and geological value for the region. Built during the Depression period, the road is widely recognised as a rare surviving example of early 20th-century mountain roadway engineering in Tasmania. Its construction reflects the social history of the time and has become deeply connected to Hobart's identity and the community's experience of the mountain. Any consideration of safety upgrades or changes in traffic composition needs to respect this heritage context while also delivering a safer and more reliable access corridor.

In approaching future modifications, it will be important to acknowledge the various physical elements that contribute to the road's character. These include the characteristic drystone retaining walls that trace the outer edge of the alignment, the interfaces with long-established walking tracks, and sections of historic post-and-cable barriers that reference early engineering practices on the mountain. The narrow, winding form of the carriageway remains one of its defining features. Likewise, existing parking areas, stopping points, and lookouts hold value as part of the visitor experience and should be adapted with sensitivity rather than replaced outright.

The surrounding landscape also plays a major role in shaping the road's significance. Views across the Derwent estuary and the city of Hobart are integral to the journey, and any modifications should seek to maintain these

long-distance view lines. Vegetation patterns, natural regeneration following historical bushfires, and the relationship between the road and its setting all contribute to the mountain's visual harmony. Care is needed to avoid interventions that could make the road appear visually intrusive within the broader geological and ecological environment.

Alongside its physical and landscape qualities, Pinnacle Road carries important intangible values. There is a strong opportunity to strengthen public understanding of the road's origins, its engineering story, and its role in shaping recreational access to Kunanyi/Mount Wellington. Should upgrades progress, incorporating interpretation, whether through signage, small installations, or digital media, would help preserve and communicate these heritage themes for future users.

Corridor width

The width constraints of Pinnacle Road are most pronounced along the lower sections of the 10.5 km alignment, where the effective traversable pavement is often significantly narrower than what is required for safe two-way operation. Using Austroads B85 design envelopes, a typical car-to-car passing manoeuvre on straight sections requires close to 5.0 m of clear pavement (based on vehicle widths of approximately 1.87 m and 0.5 m lateral clearance), and bus interactions and curves require even more. However, much of the corridor is bounded by open roadside drains, exposed cut rock faces, steep drop-offs, vegetation encroachment and barrier systems, leaving substantially less than this width available.

Within the first 3 km there are repeated locations where two cars cannot pass safely, a constraint that occurs on both bends and at localised pinch points on straights and gentle curves. Table 7 shows sections of Pinnacle Road in the study area with narrow traffic lanes that would not allow for safely passing opposing cars. While passing opportunities become more frequent beyond around the 3.5 km mark, the challenges increase significantly when considering bus-versus-car interactions, particularly in the lower half of the route. Encounters between buses travelling in opposite directions would be extremely difficult along nearly the entire corridor, with few sections offering sufficient width for safe simultaneous passing in the first 5 to 6 km. These observations are consistent with the findings of the Pitt & Sherry *Pillinger Drive – Pinnacle Road, Road Safety Risk Review* (2016) and reflect conditions observed during our site inspections. Note that the 14.5 m buses currently comprise less than 0.5 percent of annual traffic, with smaller midcoaches, still 2.5 m wide but shorter in length, being more common.

Table 7 Constraint section of Pinnacle Road for car and car passing

Chainage	Comments
1400-1500	Very narrow traffic lane
1700-1900	Very narrow traffic lane
2100-2200	Very narrow traffic lane with open drain
2900-3100	Narrow traffic lane
3300-3400	Very narrow traffic lane
4300-4500	Narrow traffic lane constraint by barrier and culverts
4600-5400	Very narrow traffic lane
5500-5800	Pinch point and narrow traffic lane constraint by culverts
7000-7700	Narrow traffic lane
8000-8500	Pinch points and narrow traffic lane constraint by old wire barrier and open drain and culverts
8600-8800	Narrow traffic lane constraint by old wire barrier and open drain

Visitation capacity

Under existing conditions, the total person trips able to visit the Mountain using Pinnacle Road is considered theoretically to only be constrained by available car parking, the roadway capacity and bus service capacity. It is noted that this does not comprehensively reflect the relationship between realised demand and latent demand for trips as there are a number of factors that influence realised demand including the transport mode options available, weather conditions, trip duration, safety and the accessibility of options to various user groups.

To understand the impact of traffic management options for Pinnacle Road, the current theoretical capacity and latent demand should be considered as a basis for comparison. The following is noted:

- The roadway capacity is expected to be impacted by passing opportunities, other road users and parked vehicles, however with consideration to terrain conditions, grade, horizontal geometry and cross-section, hourly peak volumes (~350vph) are anticipated to be well within the theoretical capacity of the roadway.
- The total car parking capacity is estimated as 285-295, with 95 passenger car parks and accommodation for 3-4 buses at the Pinnacle Summit car park. Length of stay estimates that peak vehicle numbers correlate with car parking exceeding capacity and as such, car parking is likely restrictive to peak visitation demands such as times on summer days and demand peaks when the road is opened after snow. This supports results from the Department of State Growth, *Our Mountain's Future – Consultation Summary* such as:
 - “No parking available” was cited by 23 percent of respondents as a reason they were unable to visit the park at some point
 - Feedback that “car parking at the Pinnacle is often at capacity during peak times”
 - 20 percent of respondents reported they are unsatisfied with car parking at the Pinnacle
- A detailed review of existing bus capacity has not been undertaken noting that potential scenarios that rely on bus transport would require future service scaling and detailed analysis. However, anecdotal evidence suggests that bus services may be underutilised, filling at peak/snow events, with potential desire for better services at peak times and higher frequency services.
- Further, with respect to capacity for access, the Consultation summary notes
 - 10 percent of respondents cited “no suitable transport available” as a reason they were planning to visit the park but unable to do so
 - “Occasional/passive and disability respondents expressed a desire to visit more often but faced barriers, such as lack of private transport, vehicle accessibility needs, transport affordability and safety concerns.”

3. Scenario analysis

Building on the crash, traffic and infrastructure risk assessments, a scenario analysis has been undertaken to evaluate the relative safety, operational, and environmental performance of the following traffic management options for Pinnacle Road:

1. Full road closure
2. Light vehicles only
3. Exclusion of campervans
4. Limitations on bus sizes
5. Bus-only operation
6. Traffic volume and safe access management (e.g. timed booking or permit system)
7. Restricted direction of travel (e.g. uphill-only, similar to the Cradle Mountain model)
8. Road widening along the corridor, either at selected key points or continuously

A description of how each of the scenarios have been defined for the purpose of the analysis is provided in the following sections. It is noted that a number of scenarios could be implemented for the full length of Pinnacle Road, or a section (i.e. between the Pinnacle and the Springs). For the purposes of the scenario analysis each is reviewed under the assumption that it is applied to the full length of Pinnacle Road. Similarly, there are different variations of how some scenarios (such as bus-only operation) could be applied.

Criteria

The following qualitative criteria have been identified to undertake the multi-criteria analysis (MCA) of the traffic management scenarios. The criteria have been developed with reference to the long-term Vision for Kunanyi/ Mount Wellington and Wellington Park, *Our Mountains Future* centring on the key outcomes of Access, Safety and Environmental Impact.

Safety

Changes to safety outcomes compared to existing conditions will be classified based on the relative magnitude of improvement. This will include consideration of:

- Key factors identified from the IRR assessment including volume, consideration of vehicle passing frequency and road width, safety upgrades that address significant hazards particular steep cliff drop offs
- Key trends from the crash history review including risks associated to curves, pavement quality, atmospheric conditions, intensity of property only crashes and intensity of crash occurrence lower down the mountain
- Any significant safety impacts expected based on similar practical applications and relevant literature

These scenarios will be compared to existing conditions based on the relative scale of expected safety benefit:

- **Major improvement:** Substantial reduction in key safety risks across multiple high-risk locations; expected to materially lower the likelihood or severity of crashes. Addresses significant constraints such as narrow width, poor sight distance, or passing risk.
- **Moderate improvement:** Clear and meaningful safety benefit in several locations or for specific movement types (e.g. bus–car conflicts, curve-related risks). Risks are reduced but not eliminated.
- **Minor improvement:** Localised or incremental improvements to safety (e.g. minor width gains, signage, low-cost treatments). Benefits are real but limited in scope or geographic extent.
- **Minimal/neutral change:** No appreciable difference from existing safety conditions. May provide operational or experiential benefits without altering crash risk.

Access

Changes to access outcomes compared to existing conditions will be classified in terms of user experience and magnitude. Changes in access levels facilitated by Pinnacle Road will be considered with respect to:

- Transport mode options available

- For varying mobility and accessibility needs
- For key trip purposes
- Across different times of day
- Journey time and access reliability
- Total person trips
- Person trips with respect to all-weather access (excluding dangerous weather) accommodating:
 - Access to snow
 - Peak demand periods (i.e. January)
- Person trips across key visitor profiles

It is noted that in all scenarios where access is restricted, access will be maintained for service vehicles, emergency services vehicles, authorised vehicles as well as bicycle and pedestrian access.

These scenarios will be compared to existing conditions based on the expected:

- **General increase:** Relative to the sub-criterion, an expected net increase in volume, capacity or user access experience.
- **Minimal / neutral change:** No appreciable difference in access conditions. May provide an increase in access for some use cases and reduction in others.
- **General reduction:** Relative to the sub-criterion, an expected net decrease in volume, capacity or user access experience.

Environmental Impact

Changes to environmental impacts directly to the site compared to existing conditions will be qualitatively discussed. This will include consideration of:

- Operation impacts: a qualitative assessment in terms of noise, flora, fauna and geological during operation including visitor impact and access operations
- Construction impacts: a qualitative assessment in terms of level of infrastructure constructed and likely intrusiveness of the construction

These scenarios will be compared to existing conditions based on the expected:

- **General improvement:** An expected net positive effect on environmental conditions. This may include reductions in emissions, noise, or ecological disturbance, and/or enhancements to sustainability outcomes.
- **Minimal to neutral change:** No appreciable difference in environmental conditions. May provide localised improvements in some aspects while causing minor impacts in others, resulting in an overall neutral effect.
- **General impact:** An expected net negative effect on environmental conditions. This may include increased emissions, noise, ecological disturbance, or other adverse sustainability outcomes.

Other considerations

Additionally, a brief qualitative description of costs and requirements for implementation, operations and maintenance of each scenario will be provided including:

- Qualitative description of ongoing maintenance and operational efforts required
- Qualitative description of implementation challenges or considerations
- The magnitude order of cost associated with ongoing maintenance
- The magnitude order of cost associated with construction and implementation. Cost magnitude will be defined as:
 - Low: < \$0.1m
 - Medium: ≥\$ 0.1 m to <\$ 1 m
 - High: ≥\$ 1 m

These scenarios will be compared to existing conditions based on the expected:

- **General improvement / low cost:** Relative to the sub-criteria (maintenance cost, operating cost, implementation cost, ease of implementation, geological and heritage impact), an expected net positive outcome. This may include lower costs, simpler implementation, and minimal heritage or geological constraints.
- **Minimal to neutral change / medium cost:** No appreciable difference across the sub-criteria. May provide improvements in some aspects (e.g. ease of implementation) while introducing minor drawbacks in others (e.g. slightly higher operating cost), resulting in an overall neutral effect.
- **General impact / high cost:** Relative to the sub-criteria, an expected net negative outcome. This may include higher costs, complex implementation requirements, or significant geological or heritage impacts.

3.1 Full road closure

Scenario description

Under this scenario, Pinnacle Road will be closed to all vehicles for the approximately 10.5 km extent between Bracken Lane to the Wellington Pinnacle Carpark. Vehicle access will be maintained for emergency services and maintenance/parks vehicles only. Visitor access to Mount Wellington via Pinnacle Road would be limited to bike rider and pedestrian access.

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Most significantly, the full road closure of Pinnacle Road provides significant reduction in safety risk and improves the environmental outcomes associated with access. It is noted that the most significant safety improvements are due to the reduction in exposure to safety risks with a small number only authorised trips anticipated on Pinnacle Road.

This improvement does come at a cost of access, significantly changing the type, duration and likely volume of people accessing Pinnacle Road and the areas it provides access to. Most notably:

- Existing vehicles trips on Pinnacle Road would not be serviced, with an impact to users undertaking shorter trips. Existing shorter trips would likely not be undertaken (~34 percent) which have a high representation of interstate and overseas visitors.
- Options are significantly reduced, and access equity declines, with only visitors with the ability hike or bike ride on Pinnacle Road, noting e-bikes offer increased accessibility
- With increased journey time to the Pinnacle as well as other sites accessed from Pinnacle Road, visiting Mount Wellington will likely become an all-day activity, requiring bigger commitment from visitors
- Access is more consistent and, in that respect, reliable as visitation is not linked to the status of gate closures or a timetabled service
- Potential to create a unique car-free experience, enhancing natural and recreational appeal
- Many visitors are likely to drive and park their vehicles at the base of Pinnacle Road (near Bracken Lane) and further consideration of car parking provision or transport connections such as bus access to the base of Pinnacle Road will be required for this scenario. Note that car parking provision is not included in the analysis, which focuses solely on the impacts of full road closure on Pinnacle Road itself.
- It is noted that this analysis considered the scenario described where the full 10.5 km extent between Bracken Lane to the Wellington Pinnacle Carpark is closed. Alternatives include partial closures, such as those implemented through the current gate system during unsafe access conditions due to snow. If a partial closure was implemented vehicle parking would be a key capacity constraint and is expected to require access management. Comparing different locations of partial closures, relative benefits would be best determined based on visitor access with safety risks present both close to Bracken Lane and the Pinnacle. A partial road closure could also be considered in conjunction with a bus-only operation (Scenario 5).

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	IRR expected to improve – Due to reduced traffic volumes and removal of parked vehicles on the road shoulder – No changes to other IRR factors are proposed in this scenario	Major improvement
Road Safety	Road safety outcomes are expected to improve significantly for all road users due to elimination of most vehicles on Pinnacle Road – Conflict points between vehicles bike riders and vehicles/pedestrians will be eliminated (aside from emergency service vehicles) – Potential Conflict points between bike riders/road furniture and bike riders/pedestrians will still exist as per existing conditions – Consideration will be required to encourage bike riders to ride at safe speeds on descents, particularly on bends.	Major improvement
Further safety considerations	– For vehicles with authorised access drivers will have free selection of speed with reduced traffic volumes, and cliff drop-offs still posing a risk. It is noted that as authorised vehicles are likely to be limited to employees or contractors of the park, instruction/driving procedures can be applied to mitigate careless or risky driving behaviour. – There is a risk that the reduction in traffic volumes may lower perception of maintenance requirements. Pavement conditions will need to be maintained for bike riders, emergency access and authorised vehicles (this includes clearing debris)	
Access		
Transport mode options available	Transport access experience will be reduced – Visitors will not have the choice to drive or catch a bus; they will be limited to hiking or cycling access. There are approximately 2,000 vehicles per day in peak seasons that would be affected. – Restricting vehicle access on Pinnacle Road may limit activities in Wellington Park, including downhill mountain biking, rock climbing, cultural or spiritual activities, nature observation and wildlife viewing.	General reduction in access
Journey time and access reliability	Experience reliability expected to improve – In snow conditions, pedestrians and bike riders will still have access to Pinnacle Road. – Access is more consistent throughout all weather conditions (as opposed to vehicle gated varying access currently), however hikers and bike riders will need to be prepared.	General increase in access
Total person trips	Access capacity expected to improve – The only limitation to capacity will be willingness and physical ability. The total number of person trips undertaken on Pinnacle Road is anticipated to reduce: – Based on TVS 2024-2025 <5 percent of visitors (interstate/overseas) access the Mountain by bike or on-foot currently it is expected that a number of existing car or bus trips would convert to these modes, but others would no longer visit the mountain without more mode options available. – According to the 2023 Visitor Segmentation report, approximately 34 percent of visitors to the park almost exclusively use Pinnacle Road and don't explore other areas of the park, spending on average 60 minutes in the park. A majority of these trips would be expected to not be undertaken. – The Consultation Summary indicates that road or trail closures were cited as a reason for not visiting by 51 percent of respondents. – Expect to see more variability in visitor volumes during adverse weather compared to existing conditions, as walking and bike riding is more weather contingent than driving.	General reduction in access

Criteria	Assessment	Ranking
Person trips with respect to all-weather access	- Access to Pinnacle Road Springs will vary and be highly weather dependent and linked to visitors' ability and preparedness to hike in all weather conditions in particular ability to experience snow. - Access may be unpredictable and may vary throughout the day noting the Consultation Summary indicates weather conditions were cited as a reason for not visiting by 65 percent of respondents. - Access by bike or on-foot during peak weather demand periods would be unlikely to be subject to capacity constraints, however this may influence the areas that are most accessed (i.e. lower down the Mountain).	General reduction in access
Person trips across key visitor profiles	Access equity will be reduced - Access to the Pinnacle and The Springs is limited to those who are able-bodied and fit to hike or cycle. - Access to the Pinnacle would require a longer duration trip and be limited in accessibility. - Interstate and overseas visitors are overrepresented in shorter stay trips that are less likely to be undertaken with a road closure.	General reduction in access
Environmental Impact		
Environmental impacts in operation	Positive environmental impacts compared to existing conditions due to removal of vehicles on Pinnacle Road - Reduced disturbance from traffic volumes and infrastructure to flora and fauna. - Reduced pollution from exhaust fumes and reduced noise pollution within Mount Wellington compared to existing conditions.	General improvement
Environmental impacts during construction	Very limited construction-related environmental impacts Construction activities would likely be limited to updating road signage, constructing/updating a fence/gate to enforce the vehicle ban on Pinnacle Road.	Minimal to neutral change
Other considerations		
Relative maintenance cost	Lower maintenance cost compared to existing conditions - Pinnacle Road will experience less pavement degradation compared to existing conditions due to the vehicle ban. - Roads should be maintained for bike riders and authorised access. There will be less pavement degradation expected due to reduction of traffic volumes.	General improvement/ low cost
Relative operating cost	No significant change relative to existing conditions.	Minimal to neutral change/ medium cost
Relative implementation cost	Low implementation cost Cost of constructing gate/fence and updating road signage for advanced warning of road closure is low.	General improvement/ low cost
Ease of implementation	Limited implementation activities required - Implementation activities are limited to constructing gate/fence and updating road signage for advanced warning of road closure. - Stakeholder engagement will be a key requirement to facilitate and support the change in access. - Community notices, tourism websites and the Wellington Park website should inform visitors of access changes.	General improvement/ low cost

3.2 Light vehicles only

Scenario description

Pinnacle Road will be closed to Class 2 vehicles and above for the approximately 10.5 km extent between Bracken Lane to the Wellington Pinnacle Carpark. This includes trailers, campervans and buses. Private cars will

be the primary mode of access for visitors, with taxi and motorcycle access still available. Access will be maintained for service vehicles and emergency services vehicles, vehicles required for maintenance and parks operations, as well as bike rider and pedestrian access.

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Generally, the restricting of Pinnacle Road access to light vehicles only provides very limited safety and other improvements with a significant impact to access, particularly all-weather access and general accessibility for visitors.

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	IRR not expected to change - Change in traffic volumes not anticipated to be significant enough to warrant change in traffic volume factor for IRR scoring. - No changes to other IRR factors are proposed in this scenario.	Minor improvement
Road Safety	Road safety outcomes are expected to be modest - Drivers may experience reduced traffic stress, as they no longer need to worry about passing large vehicles (with the exception of authorised vehicles). - Light-vehicle drivers no longer encounter buses or long vehicles at pinch points. - Reduced vehicle widths make opposing-traffic passing marginally easier. - No substantive change in crash likelihood or severity is anticipated.	Minor improvement
Further safety considerations	Road width may pose less of a risk for opposing vehicles to pass safely due to reduced vehicle widths.	
Access		
Transport mode options available	Transport access options on Pinnacle Road will be reduced - Vehicle access will be limited to private cars only. The traffic data shows that the majority of vehicle trips (94 percent) are by private vehicle. - Visitors will no longer be able to access Pinnacle Road via bus or in a private campervan or caravan. - Based on the TVS 2024-2025 10 percent of interstate visitors and 12 percent of overseas visitors currently access by bus, and 3 percent of interstate and 2 percent of overseas visitors currently access by campervan/motorhome.	General reduction in access
Journey time and access reliability	Experience reliability not expected to change Journey time and time of day of access will not change.	Minimal/neutral change
Total person trips	Access capacity expected to reduce or be limited - Review suggests that existing access is constrained at peak times due to car parking. Limiting access to light vehicles only would further increase demand for this already limited supply at peak times. The total number of person trips undertaken on Pinnacle Road is not expected to significantly change, however: - Capacity will be reduced due to removal of buses, campervans and caravans which may result in less people able to access. - Access will be limited to those that have access to a private car or those able travel by bike or on-foot.	General reduction in access

Criteria	Assessment	Ranking
Person trips with respect to all-weather access	Access to snow will be reduced - Existing bus services provide increased all-weather access which would no longer be available. - Private vehicle access to Pinnacle Road will be weather dependent as per existing conditions. Access in peak periods will be limited - Restricting access to private vehicles is not conducive to peak hour demands with car parking limiting the number of private vehicle users that can access the site at any particular time.	General reduction in access
Person trips across key visitor profiles	Access equity will be reduced - Access to Pinnacle Road will largely rely on private car ownership and ability to drive or be driven. - This may deter interstate or international visitors who do not have access to private cars and would rely on buses.	General reduction in access
Environmental Impact		
Environmental impacts in operation	No significant change to environmental impact is expected. It is noted that buses emit more noise and exhaust per vehicle, but less per passenger when well-utilised.	Minimal to neutral change
Environmental impacts during construction	Very limited construction-related environmental impacts Construction activities limited to updating road signage to enforce the heavy vehicle ban on Pinnacle Road.	Minimal to neutral change
Other considerations		
Relative maintenance cost	Similar maintenance cost compared to existing conditions - Road maintenance required as per existing conditions. - Road pavement degradation may be reduced due to removal of heavy vehicles.	Minimal to neutral change/medium cost
Relative operating cost	No significant change compared to existing conditions.	Minimal to neutral change/medium cost
Relative implementation cost	Low implementation cost - Cost of updating road signage to inform heavy vehicle ban is very low. - Enforcement may be required if issues with compliance.	General improvement/low cost
Ease of implementation	Limited implementation activities required - Implementation activities are limited to updating road signage for advanced warning of heavy vehicle ban. - Stakeholder engagement will be a key requirement to facilitate and support the change in access . - Community notices, tourism websites and the Wellington Park website should inform visitors of access changes.	General improvement/low cost

3.3 Exclusion of campervans

Scenario description

Pinnacle Road restricts access to campervans, caravans, and motorhomes by limiting vehicles 5.5 meters in length, with exception to allowing authorised vehicles including authorised buses. This restriction is intended to address concerns regarding the manoeuvrability and size of these vehicles on the narrow, winding sections of Pinnacle Road, where passing opportunities are limited and the risk of congestion or incidents is heightened.

Under this scenario, access to Pinnacle Road will remain open to light vehicles (such as standard passenger cars, SUVs, and small vans) and to buses that meet the operational requirements for the route. These vehicles will continue to serve as the primary means of transport for visitors wishing to reach the summit and associated

recreational areas. The restriction is designed to maintain safe and efficient passage for all road users, reduce the likelihood of traffic blockages, and preserve the visitor experience for the broader community.

Clear signage will be installed at key entry points to inform drivers of the new restrictions, and alternative parking or turn-around facilities will be provided for vehicles exceeding the permitted length.

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Most significantly, the exclusions of campervans on Pinnacle Road provides very limited improvement or change to safety, access or other areas. Although there is limited impact or cost in implementation and operation, there is limited benefit identified. If compliance was low with an implemented ban, enforcement measures may increase cost which would not be favourable noting the limited change expected under this scenario.

As per the traffic assessment in Section 2.3, campervans and trailers account for two percent of traffic travelling along Pinnacle Road.

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	IRR not expected to change - Change in traffic volumes not anticipated to be significant enough to warrant change in traffic volume factor for IRR scoring. - No changes to other IRR factors are proposed in this scenario.	Minimal change
Road Safety	Road safety outcomes are expected to improve Drivers may experience reduced traffic stress, as they no longer need to worry about overtaking slower campervans and passing wide campervans in opposing directions.	Minimal change
Further safety considerations	Road width may pose less of a risk for opposing vehicles to pass safely due to reduced vehicle widths with the removal of campervans.	
Access		
Transport mode options available	Transport access options to Pinnacle Road will be reduced marginally - Vehicle access will be limited to private cars and buses only. - However, the numbers of campervans accessing Pinnacle Road are relatively low (less than 2 percent) and the overall impact is expected to be low.	General reduction in access
Journey time and access reliability	Experience reliability not expected to change Journey time and time of day of access will not change.	Minimal/neutral change
Total person trips	Access capacity not expected to change - Banning campervans or caravans is not likely to have a significant impact on capacity as the number of caravans using Pinnacle Road currently is very low. - These visitors could still access Pinnacle Road via alternative transport modes such as buses.	Minimal/neutral change
Person trips with respect to all-weather access	All weather access not expected to change Access to Pinnacle Road will be weather dependent as per existing conditions.	Minimal/neutral change
Person trips across key visitor profiles	Access equity not expected to change significantly Caravan or campervan owners can still access Pinnacle Road via bus or private car.	Minimal/neutral change

Criteria	Assessment	Ranking
	Interstate and overseas visitors are more significantly represented as users of caravans or similar, however this still is a relative low proportion of trips within these populations (2-3 percent).	
Environmental Impact		
Environmental impacts in operation	Environmental impacts in operation not expected to change Traffic analysis indicates campervans are a very small portion of vehicle types using Pinnacle Road.	Minimal to neutral change/medium cost
Environmental impacts during construction	Very limited construction-related environmental impacts Construction activities limited to updating road signage to enforce the campervan ban on Pinnacle Road.	Minimal to neutral change/medium cost
Other considerations		
Relative maintenance cost	Similar maintenance cost compared to existing conditions - Road maintenance required as per existing conditions. - Road pavement degradation may be reduced marginally due to removal of campervans.	Minimal to neutral change/medium cost
Relative operating cost	No significant change compared to existing conditions.	Minimal to neutral change/medium cost
Relative implementation cost	Low implementation cost - Cost of updating road signage to inform campervan ban is low. - Enforcement may be required if issues with compliance.	General improvement/low cost
Ease of implementation	Limited implementation activities required - Implementation activities are limited to updating road signage for advanced warning of campervan ban. - Community notices, tourism websites and the Wellington Park website should inform visitors of access changes.	General improvement/low cost

3.4 Limitations on bus sizes

Scenario description

Buses using Pinnacle Road will be limited to minibuses and midicoaches. 12.5m rigid buses (and larger) will be banned. The Mount Wellington Explorer Bus service (midicoach) will be maintained, however larger tourist buses will be banned. All other vehicles can still travel on the full extent of Pinnacle Road.

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Most significantly, the limitation of bus sizes on Pinnacle Road provides very limited improvement or change to safety, access or other areas. Although there is limited impact or cost in implementation and operation, there is limited benefit identified with larger vehicles making up around 1 percent of total vehicles observed.

A more restrictive size limit would increase the number of vehicles and hence the magnitude of change expected by the scenario. The light vehicles only scenario (Scenario 2) represents the most extreme form of this scenario and still demonstrates limited safety improvements however introduces significant impacts to access. Other restrictions to bus sizes would likely be required to be supplemented with increased volumes of smaller bus services to negate any access impacts.

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	IRR not expected to change - Change in traffic volumes not anticipated to be significant enough to warrant change in traffic volume factor for IRR scoring. - No changes to other IRR factors are proposed in this scenario.	Minimal change
Road Safety	Road safety outcomes are not expected to change significantly Drivers may experience reduced traffic stress, as they no longer need to worry about passing larger buses, however the volume of buses restricted from access is very low.	Minimal change
Further safety considerations	Road width may pose less of a risk for opposing vehicles to pass safely due to reduced vehicle widths with bus sizes limited, however this reflects very few vehicles under existing conditions, so impact expected to be negligible.	
Access		
Transport mode options available	Experience options not expected to change significantly - Smaller buses and the Mount Wellington Explorer bus still have access to Pinnacle Road, along with private vehicles. - The majority of vehicles observed on Pinnacle Road are cars or smaller vehicles. Larger vehicles make up around 1 percent of total vehicles observed.	Minimal/neutral change
Journey time and access reliability	Experience reliability not expected to change significantly Journey time and time of day of access will not change.	Minimal/neutral change
Total person trips	Access capacity not expected to change significantly - Banning larger buses on Pinnacle Road is not likely to have a significant impact on capacity as the number of large buses using Pinnacle Road currently is very low. - These visitors could still access Pinnacle Road via minibus, midicoach or other transport modes.	Minimal/neutral change
Person trips with respect to all-weather access	All weather access not expected to change Pinnacle Road access will be weather dependent as per existing conditions.	Minimal/neutral change
Person trips across key visitor profiles	Access equity not expected to change significantly.	Minimal/neutral change
Environmental Impact		
Environmental impacts in operation	Environmental impacts in operation not expected to change / negligible change Traffic analysis indicates larger vehicles (greater than 12.5 m) are a very small portion of vehicle types using Pinnacle Road.	Minimal to neutral change
Environmental impacts during construction	Limited construction-related environmental impacts Construction activities limited to updating road signage for advanced warning of large bus ban.	General improvement
Other considerations		
Relative maintenance cost	Similar maintenance cost compared to existing conditions Road maintenance required as per existing conditions.	Minimal to neutral change/medium cost
Relative operating cost	No significant change compared to existing conditions.	Minimal to neutral change/medium cost
Relative implementation cost	Low implementation cost Cost of updating road signage to inform bus length limitations is low.	General improvement/low cost
Ease of implementation	Limited implementation activities required Tour operators may need to change bus fleet to accommodate the limitations on bus sizes.	General improvement/low cost

3.5 Bus-only operation

Scenario description

Visitors will access Mount Wellington via buses. Bus services may run between Bracken Lane and Wellington Pinnacle car park and/or Hobart city centre and Wellington Pinnacle car park. Private vehicles will be banned on Pinnacle Road. It is assumed that additional bus services will be provided to accommodate visitor demand. The stopping pattern of the Mount Wellington Explorer has been considered the basis of this scenario with stops at The Springs, The Chalet, Big Bend and The Pinnacle. The level of service of bus operations will be a balance between user demand, safe operations and environmental impact. Access will be maintained for service vehicles and emergency services vehicles, as well as bike rider and pedestrian access.

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Most significantly, the restriction of Pinnacle Road access to bus-only provides significant reduction in safety risk and improves the environmental outcomes associated with access. There is significant change in the nature of access which is expected to have varied impacts across user groups and trip purposes:

- Restriction of travel to timetabled periods (noting a higher frequency service can become a headway model rather than a timetabled model in peak periods).
- Increased consistency in snow access on the assumption that bus services would be provided as per the Mount Wellington Explorer which continues access when Pinnacle Road is closed due to snow. It is noted that this is highly weather dependent and still may not reach the Pinnacle, or be provided at all in some cases of extreme weather.
- Increased consistency in journey time with a set scheduled journey time that would only be subject to extreme weather variations. Noting this schedule may vary seasonally or from weekdays to weekends.
- Number and timing of bus services requires more detailed analysis, and capacity to service mountain bike access should be reviewed such that this user group is continued to be serviced.

It is noted that this analysis considered the scenario described where buses services the full 10.5 km extent between Bracken Lane to the Wellington Pinnacle Car park is closed. Alternatives and considerations include:

- Bus-only operation for part of the corridor only (i.e. unrestricted access to The Springs)
- Parking and intermodal connections at the origin of the bus service
- Dedicated off-site interchange facility to enable for Mount Wellington bus connection and allowing users to access a 'shuttle' service by driving, taxi/rideshare, using public transport, riding or walking
- Bus services originating from key existing public transport and visitor locations

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	IRR will improve – IRR to improve due to reduced traffic volumes and removal of parked vehicles on the road shoulder. – No changes to other IRR factors are proposed in this scenario.	Major improvement
Road Safety	Road safety outcomes are expected to improve significantly for all road users due to elimination of most vehicles on Pinnacle Road – Conflict points between vehicles/bike riders and vehicles/pedestrians will be reduced (aside from buses). – Consideration will be required to encourage bike riders to ride at safe speeds on descents, particularly on bends.	Major Improvement

Criteria	Assessment	Ranking
Further safety considerations	– To realise safety benefits: • Bus drivers would operate with driving procedures to ensure safety of bike riders and pedestrians. • Bus access and timetabling will need to be undertaken with respect to passing opportunities. – Pavement conditions will need to be maintained for buses and bike riders.	
Access		
Transport mode options available	Transport access experience will be reduced as visitors will no longer be able to travel via private cars – Visitors will no longer be able to travel via private cars. The majority of vehicles observed on Pinnacle Road are cars (94 percent). – Restricting private vehicle access on Pinnacle Road may limit activities in Wellington Park: • For mountain bike activities noting the Mount Wellington Explorer has a limited bike capacity of 4 bikes per departure • Relative to the capacity and catchment of the bus pick-up location/s • For those with a preference for private vehicle access – The Consultation summary indicates a level of support for improving public transport options such as a shuttle bus service, indicating some existing trips may convert and be supported by a bus-only operation.	General reduction in access
Journey time and access reliability	Experience reliability will be increased – Access is more consistent throughout all weather conditions (as opposed to vehicle gated varying access currently). – Journey time and time of day of access will depend on bus timetables. – Trip times will be consistent and more predictable. – It is noted that visitors will not have free choice of exact departure time and duration of stay as this will be restricted to the timetabled departures.	General increase in access
Total person trips	Access capacity may improve – Access capacity would be constrained by bus capacity considering both the available seats on services and limitations to passing opportunities for buses on Pinnacle Road under existing geometric conditions. Detailed analysis would be required to determine limitation of bus services due to passing opportunities; however, it is assumed that a workable model could be found that exceeds the capacity provided by current car parking limitations. – Ultimately, access capacity, other than for trips by bike or on-foot would be determined by the bus service model implemented, which may balance user demand, safe operations and environmental impacts. The total number of person trips undertaken on Pinnacle Road is subject to the likelihood of current private vehicle trips converting to bus trips. – However, it is noted that Dove Lake shuttle bus service implementation has been effective at supporting the increased visitation to the park over the following years (noting some restricted private vehicle access is still allowed).	General increase in access
Person trips with respect to all-weather access	All weather access is generally expected to improve • Access will be more consistent with bus services able to continue in weather conditions where private vehicle access is required to be stopped under existing conditions. • Existing peak demand challenges following road opening on a snow day will be removed, however consideration will be required to frequency and capacity of services, particularly with weather related demand peaks. • Pinnacle Road access will still be to some levels, weather-dependent as per existing conditions, as access can only be facilitated when it is safe to do so. – Spontaneous trips in response to snow events may not be as well facilitated as they will be subject to trip booking and bus capacity.	General increase in access

Criteria	Assessment	Ranking
Person trips across key visitor profiles	Access equity expected to be reduced based on trip fares. – If bus services carry a fare, aligned to existing provisions, visitors from lower socio-economic backgrounds may be disadvantaged. However, it is noted that this disadvantage currently applies to visitors who don't have access to a private vehicle. – Buses may not service all visitor origins and destinations and will be subject to interchange/intermodal connection quality and provision. – Whilst tourists to the region would be accustomed to pay for ticketing, local visitors, for example hikers and runners, would likely be discouraged from accessing the Pinnacle. Generally, it is expected that a bus service, with appropriate intermodal connection, provides access to key user groups including local, interstate and overseas visitors. – Appropriate provision for bike transport may be key, noting in the Consultation summary 19 percent of all survey respondents reported participating in mountain biking in Wellington Park in the past 12 months.	General reduction in access
Environmental Impact		
Environmental impacts in operation	Positive environmental impacts compared to existing conditions due to removal of most vehicles (excluding buses and authorised vehicles) on Pinnacle Road – Reduced disturbance from traffic volumes and infrastructure to flora and fauna. – Reduced pollution from exhaust fumes and reduced noise pollution within Mount Wellington compared to existing conditions.	General improvement
Environmental impacts during construction	Very limited construction-related environmental impacts – Construction activities limited to updating road signage, constructing/ updating a fence/gate to enforce the private vehicle ban on Pinnacle Road.	Minimal to neutral improvement
Other considerations		
Relative maintenance cost	Similar maintenance cost compared to existing conditions – Road maintenance required as per existing conditions.	Minimal to neutral improvement/ medium cost
Relative operating cost	Operating cost expected to increase – Increased bus services will be required.	General impact/ high cost
Relative implementation cost	Medium implementation cost – Increased bus services will be required. – Cost of updating road signage to inform bus-only operation is low.	Minimal to neutral improvement/ medium cost
Ease of implementation	Limited implementation activities required – Implementation activities are limited to updating road signage for advanced warning of heavy vehicle ban. – Stakeholder engagement will be a key requirement to facilitate and support the change in access. – Community notices, tourism websites and the Wellington Park website should inform visitors of access changes.	General improvement/ low cost

3.6 Traffic volume and safe access management

Scenario description

Traffic volumes on Pinnacle Road between Bracken Lane and Wellington Pinnacle car park will be limited through a timed booking or permit system reflecting the available parking on site. The restrictions will apply to all private vehicles. During peak visitor periods, private vehicles may need to book their visit in advance. There are multiple options for implementing this scenario, including a ticket booth and boom gate, or an Intelligent Transport System (ITS) near Bracken Lane indicating the number of parking spaces available at The Springs and the Pinnacle. Access for tourist buses will be managed through license conditions to allow surety to operators. Access will be maintained for service vehicles and emergency services vehicles, as well as bike rider and pedestrian access.

Traffic volume and safe access management can be implemented through measures that restrict entry based on conditions ,or alternatively, advise users to encourage changes in access. Approaches that do not directly control or restrict access are subject to effectiveness of the individual measures and user groups, as such, for the purposes of this scenario a restriction is considered. Example implementations include:

- Ticket booth with boom gate: where access to Pinnacle Road is controlled on-site by a limited ticket system based on predetermined limits
- Advance booking with boom gate: where access to Pinnacle Road is determined by prior booking based on predetermined limits and controlled on site by boom gate
- ITS could be implemented in several ways to create better flexibility of the system including:
 - Dynamic/variable access limits that consider the number of vehicle departures to determine total number of vehicles on Pinnacle Road at any point
 - Dynamic/variable access limits or information with reference to parking provision
 - Automated access through number plate recognition (rather than requirement to carry a ticket)
 - Enforcement of any required time-limits imposed as part of the approach, or fee-based approaches

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Most significantly, the implementation of traffic volume and safe access management on Pinnacle Road provides the opportunity to improve safety and environmental impacts alongside improvements to access. The extent of safety and environmental improvements is largely tied to the adopted traffic volume restrictions and as such, may be minimal without significantly changing the nature of access. Access management could be implemented in several ways, with the following key access considerations:

- At a minimum, access management should reflect on-site constraints with consideration to parking availability and sites visited from Pinnacle Road in implementing this management, journey reliability and quality of access is improved.
- Access management could be implemented to balance the proportion of vehicle and bus trips overall providing good outcomes for access equity and ability to access and enjoy the site with reduced impacts.
- Access management could be implemented on a seasonal or time basis focusing on high-risk or high-demand periods.
- Restricting private vehicle numbers results in impacts to existing trips as described in Scenario 1 and Scenario 5, however an access management solution can be designed to respond to the visitor profile and understanding of key user needs.

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	– IRR expected to improve due to reduced traffic volumes – No changes to other IRR factors are proposed in this scenario.	Moderate improvement
Road Safety	Road safety outcomes are expected to improve for road users: – During peak times due to restriction of vehicle volumes on Pinnacle Road, reducing the vehicle-to-vehicle incidents and also run-off-road related crashes due to vehicles avoiding a passing vehicle.	Moderate improvement
Further safety considerations	-	
Access		
Transport mode options available	Access experience not expected to change significantly.	Minimal/neutral Change

Criteria	Assessment	Ranking
	- Visitors will have similar opportunities/modes to access Pinnacle Road as per existing conditions. The main difference is that visitors will need to be organised and select a specific time to visit. - Spontaneous visits are likely to be restricted/limited.	
Journey time and access reliability	Experience reliability will be improved - Visitors can book their trip in advance at a specific time and day to ensure they have access to Pinnacle Road and access to a car park. - Experience reliability depends on if visitors pre-book their trip. - Spontaneous visits may not be possible during busy periods. - Visitors will be informed (at time of booking/entry) of access limitations during peak times rather than unknowingly entering a queue on Pinnacle Road.	General increase in access
Total person trips	Access capacity expected to improve with an introduced ability to influence number of trips, and stay duration - For instance, car parking and access to Pinnacle Road may be time-dependent, allowing more visitors to the Pinnacle throughout the day. - Review suggests that existing access is constrained at peak times due to car parking. The total number of person trips undertaken on Pinnacle Road is not expected to change, however - Implementing a booking system allows optimisation of access by mode and time of day.	Minimal/neutral change
Person trips with respect to all-weather access	All weather access is expected to improve - The access management system would provide increased ability to understand number of visitors at the site by vehicle at any given time, which can be favourable for emergency management. - Access to snow will not be increased solely through implementing this scenario, however user experience on snow days will improve. - Access management operational solutions may enable better understanding of demand for access on snow and peak days. - Access in peak periods is able to be managed to optimise access.	General increase in access
Person trips across key visitor profiles	Access equity is not expected to change - Visitors have the same access options as per existing conditions - If a cost is associated with booking / entry visitors from lower socio-economic backgrounds may be disadvantaged. However, it is noted that this disadvantage currently applies to visitors who don't have access to a private vehicle.	Minimal/neutral change
Environmental Impact		
Environmental impacts in operation	- Environmental impacts are not expected to change significantly compared to existing conditions under the assumption that demand management is not used to significantly reduce traffic volumes. - If demand management was implemented to a significant degree, positive environmental impacts compared to existing conditions would be expected to be aligned with the reduction of vehicles on Pinnacle Road.	Minimal to neutral change
Environmental impacts during construction	Limited construction-related environmental impacts Construction activities will likely include construction of a boom gate or ticket kiosk at the Pinnacle Road access point near Bracken Lane.	General improvement
Other considerations		
Relative maintenance cost	Similar maintenance cost compared to existing conditions Road maintenance required as per existing conditions.	Minimal to neutral change/medium cost
Relative operating cost	No significant change compared to existing conditions.	Minimal to neutral change/medium cost

Criteria	Assessment	Ranking
Relative implementation cost	Medium implementation cost, i.e. – Cost of constructing a boom gate and ticket booth. – Create and maintain a website with a live online booking system. – A timing system may need to be developed to ensure visitors exit Pinnacle Road within the allowed window.	Minimal to neutral change/medium cost
Ease of implementation	Implementation activities required may include – Create and maintain a website with a live online booking system. – A timing system will need to be developed to ensure visitors exit Pinnacle Road within the allowed window. – Stakeholder engagement will be a key requirement to facilitate and support the change in access. – Community notices, tourism websites and the Wellington Park website should inform visitors of access changes.	General improvement/low cost

3.7 Restricted direction of travel

Scenario description

Vehicles may be restricted by direction of travel at certain times of the day with access predominantly facilitated by a bus service, as applied for Dove Lake at Cradle Mountain. Private vehicle access would not be permitted during shuttle bus operating times. A boom gate or similar would prevent inbound access after the shuttle service starts, but cars already in the park would be able to leave at any time during the day as long as they exit behind the shuttle bus escort if departing before the end of the daily service. It is assumed that additional bus services will be provided to accommodate visitor demand. The level of service of bus operations will be a balance between user demand, safe operations and environmental impact.

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Most significantly, the restriction of direction of travel provides significant reduction in safety risk and improves the environmental outcomes associated with access. There is significant change in the nature of access which is expected to have varied impacts across user groups and trip purposes, although it is noted that there is some flexibility and choice provided to users, particularly those accessing the site outside of peak hours.

There is potential for this scenario to influence the time of day that some trips are undertaken, for instance:

- Interstate and overseas visitors are expected to be more likely to continue to visit during peak times and rely on the shuttle service.
- A proportion of locally-based active users and those planning on spending a longer duration at the site may choose to access the mountain outside of peak times in order to continue to use private vehicles.
- A proportion of trips are expected to be time-based due to activity length or weather conditions (i.e. visit snow).
- Ability for shuttle service to support mountain bike transfer should be considered with review of common visit times and durations.

There is opportunity for this scenario to operate as a combination of Scenario 5 and Scenario 6 in implemented access management to support periods of bus-only operation. Consideration could also be provided to access management outside of these periods if volumes and safety risks exceed agreed service levels.

As indicated for Scenario 5, parking and intermodal connections or other operational considerations for the bus operation periods would be required to support the successful operation under this scenario.

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	IRR to improve due to reduced traffic volumes No changes to other IRR factors are proposed in this scenario.	Major improvement
Road Safety	- Road safety outcomes are expected to improve for all road users due to reduced traffic volumes on Pinnacle Road, passing of vehicles is in a planned operation mode, and reduced risk of crashes between opposing vehicles. - Vehicle speeds and passing will be controlled by the bus drivers as leading vehicles, with all vehicles passing instances during peak times to be between at least one bus and either a bus or private vehicle as the second vehicle.	Major improvement
Further safety considerations	- To realise safety benefits: - Bus drivers would operate with driving procedures to ensure safety of bike riders and pedestrians. - Bus access and timetabling will need to be undertaken with respect to passing opportunities. - There is a residual risk to private vehicle operators outside of bus operating hours and risk remains unchanged.	
Access		
Transport mode options available	Access experience may reduce with more restrictions on time and mode choices - Transport access experience will be reduced as visitors will no longer be able to travel via private cars during certain times of the day. Instead, visitors would be required to use a shuttle bus. - However, flexibility would still be provided for those travelling outside of shuttle service times, providing users choice around when they access the site. - Restricting private vehicle access on Pinnacle Road may limit activities in Wellington Park: - For mountain bike activities noting the Mount Wellington Explorer has a limited bike capacity of 4 bikes per departure - Relative to the capacity and catchment of the bus pick-up location/s - For those with a preference for private vehicle access - The Consultation summary indicates a level of support for improving public transport options such as a shuttle bus service indicating some appetite for existing trips may convert.	General reduction in access
Journey time and access reliability	Experience reliability will be increased - Access is more consistent throughout all weather conditions during shuttle service times (as opposed to vehicle gated varying access currently). - Journey time and time of day of access will depend on bus timetables. - Trip times will be consistent and more predictable. - It is noted that visitors will not have free choice of exact departure time and duration of stay as this will be restricted to the timetabled departures.	General increase in access
Total person trips	Access capacity expected to improve - Existing car parking capacity constraints are likely to be removed with expected shift to bus service in peak times. - Access capacity would be constrained by bus capacity considering both the available seats on services and limitations to passing opportunities for buses on Pinnacle Road under existing geometric conditions. Detailed analysis would be required to determine limitation of bus services due to passing opportunities; however, it is assumed that a workable model could be found that exceeds the capacity provided by current car parking limitations.	General increase in access

Criteria	Assessment	Ranking
	- Ultimately, access capacity, other than for trips by bike or on-foot would be determined by the bus service model implemented, which may balance user demand, safe operations and environmental impacts. The total number of person trips undertaken on Pinnacle Road is subject to the likelihood of current private vehicle trips converting to bus trips. - However, as private vehicle access is provided at certain times, visitors will have the option to plan their visit around their access requirements and preferences. - Additionally, it is noted that Dove Lake shuttle bus service implementation has been effective at supporting the increased visitation to the park over the following years (noting some restricted private vehicle access is still allowed).	
Person trips with respect to all-weather access	All weather access not expected to change - Pinnacle Road access will be weather-dependent as per existing conditions. - For peak time visitors there would be an increase in consistency with the bus service operating and providing access to snow. - Existing peak demand challenges following road opening on a snow day will be removed, however consideration will be required to frequency and capacity of services, particularly with weather related demand peaks. - Spontaneous trips in response to snow events may not be as well facilitated as they will be subject to trip booking and bus capacity.	Minimal/neutral Change
Person trips across key visitor profiles	Access equity expected to be reduced based on trip fares - If bus services carry a fare, aligned to existing provisions, visitors from lower socio-economic backgrounds may be disadvantaged. However, it is noted that this disadvantage currently applies to visitors who don't have access to a private vehicle. - Buses may not service all visitor origins and destinations and will be subject to interchange / intermodal connection quality and provision. Generally, it is expected that a bus service, with appropriate intermodal connection provides access to key user groups including local, interstate and overseas visitors. - Appropriate provision for bike transport may be key, noting in the Consultation summary 19 percent of all survey respondents reported participating in mountain biking in Wellington Park in the past 12 months.	General reduction in access
Environmental Impact		
Environmental impacts in operation	Positive environmental impacts compared to existing conditions due to removal of most vehicles (excluding buses and authorised vehicles) on Pinnacle Road - Reduced disturbance from traffic volumes and infrastructure to flora and fauna. - Reduced pollution from exhaust fumes and reduced noise pollution within Mount Wellington compared to existing conditions.	General improvement
Environmental impacts during construction	Limited construction-related environmental impacts Construction activities will likely include updating road signage and construction of a boom gate or ticket kiosk at the Pinnacle Road access point near Bracken Lane.	Minimal to neutral change
Other considerations		
Relative maintenance cost	Similar maintenance cost compared to existing conditions Road maintenance required as per existing conditions.	Minimal to neutral change/medium cost
Relative operating cost	Operating cost expected to increase Increased bus services will be required.	General impact/high cost
Relative implementation cost	Medium implementation cost - Increased bus services will be required. - Cost of updating road signage to inform bus-only operation is low.	Minimal to neutral change/medium cost

Criteria	Assessment	Ranking
Ease of implementation	Implementation activities required – Implementation activities are limited to updating road signage for advanced warning of time-restricted travel. – Stakeholder engagement will be a key requirement to facilitate and support the change in access. – Community notices, tourism websites and the Wellington Park website should inform visitors of access changes.	General improvement/low cost

3.8 Road widening along the corridor, either at selected key points or continuously

Scenario description

Pinnacle Road will be widened (either locally or continuously) and otherwise improved from a road safety perspective between Bracken Lane and Wellington Pinnacle car park. For the purposes of the scenario analysis, it is assumed that for this scenario the road will be widened sufficiently to allow opposing vehicles to pass safely along the full extent of Pinnacle Road and there will be opportunities for vehicles to pass in both directions.

This scenario represents no change to the current access arrangements for Mount Wellington, but safety improvements made to the road cross section of Pinnacle Road.

In this general widening scenario, the pavement would be widened to at least 5 m such that two cars can comfortably pass each other along the full corridor. To accommodate situations where a bus must pass a campervan or other larger vehicle, a wider cross section, typically around 6 m, would be applied where terrain allows. In constrained locations where the terrain prevents continuous widening, priority should be given to widening at locations with the greatest safety implications, such as bends and especially blind or tightening curves. It is preferable for vehicles to wait to pass on straight sections with good sight distance rather than attempt passing on curves or areas with restricted visibility. In these constrained segments, localised widening or passing bays would therefore be provided to maintain safe and predictable passing opportunities for all vehicle types.

Key considerations

The scenario was assessed against criteria related to Access, Safety and Environmental Impact with review of operational and implementation considerations. The full assessment is provided below.

Most significantly, the road widening along the corridor supports improved safety outcomes, however access remains unchanged. There is a significant implementation cost to this scenario and potential for environmental impact.

Safety improvements will be made by providing improved pavement width, which will allow safe passing opportunities for vehicles. This will lead to reduction in vehicles versus vehicle incidents, and also run-off-road crashes that are influenced by vehicles' evading manoeuvres. However, it is noted that residual risk will still remain due to the steep cliff hazards.

It is noted that although a whole of corridor treatment could be considered in practice, there are significant barriers to implementation that must be considered. Further, not all locations equally benefit from road widening, and typically a larger width is required where vehicles passing are undertaking a turning manoeuvre. Typically, the road existing road widths are reflective of existing site constraints, predominantly geotechnical risks or physical width restrictions (including consideration to flora and fauna impacts), as well as significant constructability challenges for the site.

This scenario could be considered alongside other scenarios including bus-only or shuttle bus models or access management.

Assessment against criteria

Criteria	Assessment	Ranking
Safety		
IRR Rating	- IRR to improve due to wider traversable pavement. Pavement widening locations to occur at blind bends and at strategic locations to decrease frequency of passing limitations. - Pavement widening at blind bends, tightening curves, and strategic locations will reduce the frequency and severity of situations where drivers must slow, reverse, or squeeze past opposing vehicles. - No changes to other IRR factors are proposed in this scenario.	Moderate improvement
Road Safety	- Improved sight distance at widened sections will reduce crash risk associated with restricted-visibility manoeuvres. - Road safety outcomes are expected to improve for all road users. - Pavement widening will reduce risk of crash between opposing vehicles and also vulnerable road users. - Vehicles will be provided with safer overtaking opportunities at critical locations. - Improved road geometry will decrease driver workload and stress, especially for visitors unfamiliar with the route or driving rental vehicles.	Moderate improvement
Further safety considerations	- Improved road conditions may attract more vehicles and increase congestion. - Higher perceived road quality may encourage increased vehicle speeds, partially offsetting safety gains unless mitigated through design or signage.	
Access		
Transport mode options available	Access experience options not expected to change Visitors will have the same opportunities/modes to access Pinnacle Road as per existing conditions.	Minimal/neutral change
Journey time and access reliability	Experience reliability not expected to significantly change - Potentially some minor improvements in travel time from widening of the road. - Peak demand periods will still be limited by car parking capacity.	Minimal/neutral change
Total person trips	Access capacity not expected to change Capacity constraints remain, predominantly due to car parking.	Minimal/neutral change
Person trips with respect to all-weather access	All weather access not expected to change Access to Pinnacle Road will be weather-dependent as per existing conditions.	Minimal/neutral change
Person trips across key visitor profiles	Access equity not expected to change Visitors have the same access options as per existing conditions.	Minimal/neutral change
Environmental Impact		
Environmental impacts in operation	Environmental impacts not expected to change compared to existing conditions - There is not expected to be a significant change in traffic volumes. - There may be a need to protect features as much as reasonably possible, such as drystone retaining walls, early post-and-cable barriers, and track access points, ensuring these elements are avoided, retained in place, or reconstructed using sympathetic materials and methods. - Consideration in the design of new barriers, widened pavements, or slope stabilisation structures such that they do not obstruct views integral to the visitor experience.	Minimal to neutral change

Criteria	Assessment	Ranking
Environmental impacts during construction	More construction-related environmental impacts compared to other scenarios – Vegetation clearing will be required for road widening. – Significant machinery likely to cause air and noise pollution. – Avoid unnecessary excavation into significant rock formations, talus slopes, or geomorphological features that contribute to the mountain's scientific and educational value.	General impact
Other considerations		
Relative maintenance cost	Similar maintenance cost compared to existing conditions – Road maintenance required as per existing conditions.	Minimal to neutral change/medium cost
Relative operating cost	Operating cost not expected to increase relative to existing conditions.	Minimal to neutral change/medium cost
Relative implementation cost	High implementation cost – Cost of construction and upgrade of road is significant, requires surveys and design work, road closure, vegetation clearing, earth works, subgrade, base and pavement construction etc. – Consideration should be made for impacts of road closure during construction for tour operators and tourism companies.	General impact/high cost
Ease of implementation	Significant implementation activities required including: – Environmental impacts: Removal of vegetation and habitat, requiring environmental assessment and potential offsets. – Geological and geotechnical constraints: Need for detailed investigations; risk of disturbing rock faces, slopes, or geological features. – Constructability challenges: Narrow corridor limits machinery access and staging; steep terrain increases safety and complexity. – Heritage and landscape sensitivity: Protection or reconstruction of features such as drystone walls, barriers and track interfaces. – Weather and seasonal limitations: Short construction window due to snow, ice, and wind affecting productivity and safety. – Drainage and infrastructure impacts: Possible need for upgraded drainage or relocation of minor services. – Stakeholder engagement: High public interest; requires close coordination with park management, tourism operators, and community groups. – Cost and procurement: Specialist skills and methods increase cost and reduce ease of delivery. – Operational disruptions: Likely need for temporary closures or controlled access during works.	General impact/high cost

3.9 Summary

Across the scenarios analysed, trends and themes as they related to the key outcomes of Access, Safety and Environmental Impact, as well as other considerations for operation and implementation described in Section 3, are summarised in Table 8 and Table 9. A detailed table is provided in Appendix C.

Table 8 Criteria impact

Criteria	Impact
Safety	Major improvement
	Moderate improvement
	Minor improvement
	Minimal/neutral change
Access	General increase
	Minimal/neutral change
	General reduction
Environment	General improvement
	Minimal/neutral change
	General impact
Other considerations	General improvement/low cost
	Minimal to neutral change/medium cost
	General impact / high cost

Table 9 Scenario impact summary

Criteria	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	Scenario 6	Scenario 7	Scenario 8
Safety								
IRR Rating								
Road Safety								
Access								
Transport mode options available								
Journey time and access reliability								
Total person trips								
Person trips with respect to all-weather access								
Person trips across key visitor profiles								
Environmental Impact								
Environmental impacts in operation								
Environmental impacts during construction								
Other considerations								
Relative maintenance cost								
Relative operating cost								
Relative implementation cost								
Ease of implementation								

Safety

Across the eight scenarios, road safety outcomes are primarily influenced by the extent to which each option reduces traffic volumes, removes larger or slower vehicles, or resolves opposing-direction conflict points. Scenarios that substantially reduce private vehicle flows on Pinnacle Road, such as *full road closure* (Scenario 1), *bus-only operation* (Scenario 5), and *restricted-direction travel* with scheduled shuttle operation (Scenario 7), deliver the greatest improvements in safety. These options eliminate or greatly reduce vehicle-to-vehicle conflict, remove many of the passing-related risks on narrow sections, and reduce exposure of vulnerable road users to unpredictable private-vehicle movements. They also lower driver workload and reduce the likelihood of head-on or run-off-road crashes.

Scenarios that restrict only certain vehicle types (Scenarios 2–4) produce modest or negligible improvements. While removing heavy vehicles, larger buses, or campervans reduces driver stress and improves passing comfort, these vehicle types make up a small portion of existing traffic. As a result, the overall crash likelihood and severity remain largely unchanged. Demand/access-based controls (Scenario 6) offer improvement only if they effectively limit peak traffic volumes; without meaningful volume reduction, the safety outcome is similar to existing conditions.

Road widening (Scenario 8) is the only scenario to improve the underlying road geometry. Targeted widening at curves and constrained locations meaningfully reduces the frequency and severity of low-speed conflict points, improves sight distance, and lowers the stress placed on unfamiliar or less-confident drivers. These benefits, however, may be partially offset if improved road standards lead to higher operating speeds or induce additional demand. Overall, safety benefits across scenarios are strongly correlated with either reducing traffic exposure or improving the physical capacity of the road to accommodate two-way movements more safely.

Critical considerations that have been identified through the safety review include:

- Road and user safety requirements persist even in low-vehicle or no-vehicle scenarios
 - Pavement quality must still be maintained for authorised vehicles (emergency services, maintenance, operations) and for safe cycling, especially on steep descents where poor surface conditions significantly increase crash risk.
 - Bike rider downhill speeds require active risk mitigation under Scenario 1 and any low-vehicle scenario, this may include speed-calming devices, friction treatments, warning signage, advisory speeds, or separated cycling descent paths.
- In all scenarios, authorised and emergency service vehicle access must be provided.
 - Emergency vehicle access must remain consistent and unobstructed, requiring clear width, structural integrity, and safe refuge/passing points even if general vehicle access is removed.
- In scenarios with more pedestrians and bike riders (1, 5, 7), risk of conflict between active modes increases, particularly at narrow curves, descents, and viewpoints.
- Bus-dominant scenarios (5 and 7) require safe passing configurations, sight distance checks, and turning radii validation such that no bus-to-bus pinch points occur.
- Peak periods and snow events require robust operating protocols, signage and traffic controls such that vehicles are not trapped, forced to reverse long distances, or exposed to icy surfaces without warning.

Access

Across the eight scenarios, access outcomes are primarily influenced by the extent to which each scenario restricts or redistributes travel across different user groups. *Full road closure* (Scenario 1) and *bus-only operation* or *restricted-direction* models (Scenarios 5 and 7) generate the most significant changes to access. These options maintain access for pedestrians, bike riders, authorised vehicles, and emergency services, but reduce or remove private vehicle access to the mountain. As a result, access for some demographic groups may be reduced, including those who rely on private vehicles, travel in off-peak periods, or require flexible trip timing. However, these scenarios offer potential improvements in journey-time reliability and all-weather access if bus services are frequent, well-managed, and responsive to visitor patterns. Demand-based controls (Scenario 6) may also improve access reliability during peak periods by moderating traffic surges, though effects depend heavily on how restrictive the controls are.

Scenarios involving selective vehicle restrictions (Scenarios 2–4) generally maintain existing access outcomes. Removing larger vehicles, buses, or campervans has only a minor effect on overall capacity, as these vehicle types represent a small share of total traffic. Consequently, the magnitude of access, measured by the number of people able to reach the mountain, is largely unchanged, and transport options remain similar to existing conditions.

Road widening (Scenario 8) retains access choices across user groups. By improving passing opportunities, and reducing slow-moving sections, this scenario may result in localised improvements to travel-time consistency and the reliability of access during busy periods or snow-affected days, however with a maintained skew to private vehicle access (94 percent) car parking is expected to be the leading determinant of resultant access.

Overall, scenarios that maintain private vehicle access yield minimal change, whereas those that restructure the transport model or increase road capacity deliver the most substantial shifts in access outcomes.

Access must be practical, equitable and safe for a diverse visitor base:

- Even with low-vehicle scenarios, the pavement and road geometry must support authorised vehicles, including emergency, operational and potentially accessibility transport services.
- If private vehicles are restricted, adequate capacity and reliability of bus or shuttle services is critical to prevent access bottlenecks and maintain equitable access for non-drivers.
- Active-mode-only scenarios require planning for visitor ability levels, ensuring signage, trail quality, rest points and emergency procedures accommodate those unprepared for long or steep active access.
- In bus-only or hybrid scenarios, bike access must be supported, including shuttle bike-carrying capacity, safe bike rider–bus interactions, and designated spaces for bike riders at stops or passing areas.
- Booking or demand-management systems should be paired with clear real-time information, reliable weather-based updates, and systems that allow reasonable flexibility for visitors.
- Snow conditions and peak demand require operational redundancy, because relying on one mode (e.g. buses only) has the potential to increase vulnerability to unexpected surges or weather-related shocks.
- For scenarios restricting large vehicles or RVs, provision of alternative locations for parking, interchange, and mode shift (e.g. visitor nodes) is essential.
- For Scenario 5, access assessment may be more favourable if visitors were able to park at The Springs and either make their own way up or get a bus connection to the Pinnacle.

Environmental impact

Environmental outcomes vary across scenarios, largely depending on whether each option reduces vehicle numbers or introduces physical works within the corridor. Scenarios that substantially reduce private vehicle activity, such as *full road closure* (Scenario 1), *bus-only access* (Scenario 5), and *restricted-direction travel* (Scenario 7), provide the most positive operational environmental outcomes. These include reduced disturbance to flora and fauna, lower noise levels, less exhaust pollution, and overall reduced human intrusion into sensitive parts of the mountain. Construction impacts for these scenarios are minimal, typically limited to signage, gates, or access-control infrastructure, resulting in negligible short-term disturbance.

In contrast, scenarios restricting only specific vehicle types (Scenarios 2 to 4) yield little to no change in environmental outcomes, as the share of restricted vehicles is small and traffic volumes remain largely unchanged. Scenario 6 (traffic volume or safe-access criteria) provides environmental benefits only if traffic volumes are meaningfully reduced through demand management; otherwise its impact remains comparable to the existing situation.

Road widening (Scenario 8) presents the most significant environmental considerations. While operational impacts are similar to existing conditions due to stable traffic volumes, construction impacts are comparatively high. Vegetation clearing, excavation, and machinery use can introduce noise, air pollution, and potential disturbance to geodiversity and sensitive habitats. This scenario must also carefully protect cultural and landscape features such as drystone walls, early barriers, and iconic viewpoints. In summary, scenarios that reduce vehicle numbers deliver the greatest environmental benefits, whereas those involving construction, particularly widening, carry the highest environmental risk and require robust mitigation.

Environmental performance hinges on balancing access, construction, and ongoing use:

- Even in no-vehicle or low-vehicle scenarios, road surfaces will require ongoing maintenance, which may involve machinery and small-scale works that must be managed to minimise habitat disturbance.
- Construction for gates, signage, widening or passing bays must avoid sensitive flora, fauna habitats, geodiversity features (talus slopes, rock formations), and heritage elements like drystone retaining walls.
- Any scenario increasing walking or cycling activity must consider trail and verge wear, potential widening pressure, soil compaction, and erosion risks along the roadway edge.
- Bus-dominant scenarios must manage noise and emissions concentrations at pickup points and along steep gradients, ensuring operations balance visitor experience with environmental limits.
- Road widening (Scenario 8) requires strict mitigation for vegetation clearing, excavation, and machinery impacts, including sediment control, flora/fauna management, and protection of landscape viewpoints.
- Scenarios increasing active-mode traffic may need measures to avoid off-trail wandering, habitat trampling, or informal track creation.
- Snow-season demand may concentrate visitors in particular areas, requiring robust erosion, drainage and vegetation protection at car parks, stops, and popular access points.

Operations & implementation

Across the eight scenarios, the operational and implementation implications are largely influenced by the level of access restriction, the need for additional services, and the extent of physical works. Scenarios that significantly reduce or remove private vehicle traffic, such as *full road closure* (Scenario 1), *bus-only operation* (Scenario 5), and *restricted-direction travel* (Scenario 7), generally reduce road maintenance needs and simplify ongoing operations. These options limit pavement degradation, reduce wear from heavier vehicles, and have relatively low implementation costs for signage and access control measures. However, they require careful coordination with stakeholders, visitor information systems, and tour operators to manage access and ensure compliance.

Scenarios that restrict certain vehicle types (Scenarios 2 to 4) produce modest operational impacts. Maintenance requirements remain largely similar to existing conditions, with only minor reductions in wear due to excluded vehicles. Implementation costs are low, primarily relating to signage updates and, in some cases, enforcement. The operational effort is minimal, though stakeholder engagement and visitor notification remain important to avoid confusion.

Scenarios involving significant operational management or physical changes, such as *traffic volume and safe access management* (Scenario 6) and road widening (Scenario 8), have higher complexity. Traffic management scenarios require booking systems, timing protocols, and additional staff oversight, increasing operational costs and implementation effort. Road widening introduces substantial costs, construction challenges, and environmental and heritage considerations, requiring extensive planning, stakeholder coordination, and mitigation measures. Overall, ease of implementation is inversely related to the scale of intervention, with simpler vehicle restrictions requiring minimal action and major physical upgrades demanding detailed coordination and investment.

Critical considerations that have been identified through the review include:

- Even low-traffic scenarios require effective communication with visitors and stakeholders to facilitate compliance and reduce confusion.
- Scenarios requiring expanded bus services (5, 7) or traffic management systems (6) introduce higher operational complexity and ongoing costs.
- Physical interventions (Scenario 8) demand extensive planning, environmental and heritage assessments, and careful construction management to mitigate risks.
- Implementation costs are strongly correlated with the level of control and infrastructure required; minimal for vehicle restrictions, medium for service and access management, high for major construction.
- All scenarios require clear signage, stakeholder engagement, and visitor information systems to facilitate smooth operations and safe, predictable access.

4. Corridor opportunities and constraints

Based on the analysis undertaken in Section 2, a number of mitigation measures and opportunities have been identified. Table 10 presents a prioritised list of the identified interventions prioritised. The applied prioritisation has been undertaken as a multi-criteria analysis using qualitative inputs, with relative weighting as follows:

- Operationalisation and implementation was the highest weighted input with each intervention reviewed on its relative cost and implementation timeframe.
- Safety benefit was considered most significantly as interventions predominantly sought to reduce safety risk as key transport consideration for the corridor.
- Other factors were considered with a relatively low weighting, including
 - Access improvements
 - Environmental impact
 - Applicability across scenarios
 - Level of redundancy (with consideration to other interventions or changes)

The resultant list prioritises the interventions from 1 to 19, noting some are equally ranked. Key outcomes are noted as follows:

- The highest ranked intervention identified is operating speed management due to its relatively low cost and implementation timeframe and significant safety benefit (with environmental benefits also).
- Emergency, weather and incident detection and response interventions typically ranked highly, again due to benefits realised with a low cost and short implementation timeframe. Several interventions identified utilise intelligent transport systems to improve existing conditions with limited construction required in this manner, which is a key opportunity to address the site's constraints.
- Key physical interventions include Highlight Pedestrian Crossing Points as well as signage and delineation improvements (or line marking at narrow points). These are relatively low-cost interventions which have the potential to provide benefit to the transport arrangement of the site.
- Generally, it should be noted that several of the interventions are only applicable where vehicle access remains, with a smaller number targeted at improving private vehicle access conditions. The long-term access strategy should inform investment in interventions accordingly.

The prioritisation of interventions favours low-cost and short-term implementation timeframe measures, leading to interventions that involve construction activities to be ranked lower. Notably including:

- Pavement Overlay and Skid Resistance
- Roundabout at Bracken Lane
- Align Track Crossings

For the latter two consideration is given to the extended implementation timeframes, resulting in a lower ranking, noting this means delayed benefits to road users. These interventions should not be overlooked on this basis as they have significant opportunity to benefit safety and access. However, other interventions may achieve similar outcomes, for instance:

- ITS interventions such as VMS could reduce the occurrence of turning vehicles due to closures or delays, which is a key benefit of the roundabout at Bracken Lane.
- Highlight Pedestrian Crossing Points may improve the safety condition for pedestrians at track crossings, as would vehicle reductions or speed reductions. However, there is benefit to pedestrians with this intervention regardless of the other treatments being implemented.

Table 10 Corridor opportunities and constraints

Ranking	Opportunity	Description	Prioritisation framework				Applicability to scenarios										Implementation Timeframe
			Safety	Cost	Environment	Access	Issues it addresses	1	2	3	4	5	6	7	8	Overview	
1	Operating Speed Management:	Review and set lower speed limits appropriate to the challenging road geometry and mixed use, supported by speed feedback signs or enforcement.	4	\$\$	+		Safety (speed-related crashes, mixed-use corridor), Environmental/Community (noise, amenity)									Safety improvement realised where vehicle access is maintained	Short
2	Emergency Access Management:	Implement a check-in system for emergency and authorised vehicles, ensuring rapid response and clear corridor access.	4	\$\$			Safety (emergency response, corridor clearance), Congestion/Access (blockage management)									Benefit realised across all scenarios	Short
2	Highlight Pedestrian Crossing Points:	Mark and signpost all track crossings and key pedestrian areas, with wayfinding signage and, where possible, raised or coloured pavement treatments.	3	\$			Safety (pedestrian-vehicle conflict), Visitor Experience (track access clarity)									Benefit realised across all scenarios	Short
4	Incident Response Protocols:	Develop and communicate clear protocols for managing breakdowns, crashes, or weather-related closures, including designated turn-around points and recovery procedures.	4	\$\$			Safety (crash/breakdown management), Visitor Experience (minimise disruption)									Safety improvement realised where vehicle access is maintained	Short
4	Weather and Incident Detection:	Integrate weather stations and incident detection cameras to support rapid response and communication.	4	\$\$			Safety (rapid response to hazards/incidents), Visitor Experience (timely info)									Safety improvement realised where vehicle access is maintained, May be part of implementing safe access management (Scenario 6)	Short
4	Enhanced Signage and Delineation:	Upgrade signage and road markings to improve readability, especially at curves, intersections, and pedestrian crossings.	3	\$			Safety (driver error, road readability), Visitor Experience (wayfinding)									Safety improvement realised where vehicle access is maintained	Short
4	Line Marking at Narrow Points:	Use centreline or edge line markings to guide vehicles through narrow sections and discourage unsafe passing.	3	\$			Safety (head-on/sideswipe risk), Congestion/Access (passing clarity)									Safety improvement realised where vehicle access is maintained	Short
8	Ice/Black Ice Detection:	Install sensors to monitor and alert for ice formation, enabling proactive road management and timely warnings to drivers.	4	\$\$			Safety (ice-related crashes, proactive hazard management)									Safety improvement realised where vehicle access is maintained	Medium
9	Variable Message Signs (VMS):	Deploy VMS along Pinnacle Road and on approach routes (e.g., Huon Road) to provide real-time updates on closures, hazards, or parking availability, and to turn vehicles around before they commit to the corridor.	3	\$\$	+		Visitor Experience (real-time info), Congestion/Access (turnaround before commitment), Safety (hazard alerts)									Benefit realised for private vehicle access, May be part of implementing access management (Scenario 6 & Scenario 7)	Medium
9	Education and Awareness Campaigns:	Promote safe driving, appropriate vehicle choice, and responsible visitor behaviour through targeted campaigns.	2	\$\$	+		Safety (driver behaviour), Visitor Experience (expectation management)									Benefit realised for private vehicle access. These campaigns require ongoing work to ensure effectiveness, especially for visitors.	Short
11	Enforcement:	Increase ranger or police presence during high-risk periods to enforce restrictions and deter unsafe behaviour.	3	\$\$			Safety (compliance), Congestion/Access (illegal parking, restriction enforcement)									Benefit realised for private vehicle access	Short
12	Pavement Overlay and Skid Resistance:	Resurface high-risk curves and bends with high-friction materials to reduce crash risk in wet or icy conditions.	4	\$\$	-		Safety (loss of control, wet/icy conditions)									Safety improvement realised where vehicle access is maintained	Long
12	Queue and Parking Space Monitoring:	Use sensors or cameras to monitor parking capacity and queue lengths, with live updates to drivers via VMS or mobile apps.	2	\$\$	+		Congestion/Access (parking overflow, illegal parking), Visitor Experience (reduce frustration)									Benefit realised for private vehicle access, May be part of implementing access management (Scenario 6)	Short

Ranking	Opportunity	Description	Prioritisation framework				Applicability to scenarios										Implementation Timeframe			
			Safety	Cost	Environment	Access	Issues it addresses								1	2		3	4	5
14	Parking Formalisation:	Designate and clearly mark permitted parking areas, and prohibit or restrict roadside parking where there is insufficient space, to prevent unsafe stopping and maintain clear passage on narrow sections	3	\$			Safety (reduces risk of collisions and unsafe pedestrian movements caused by vehicles parked in unsuitable locations) , Congestion/Access (prevents blocked lanes and ensures emergency and service vehicles can pass), Visitor Experience (provides clarity on where parking is allowed, reducing confusion and frustration) , Environmental/Community (minimises roadside damage and maintains amenity for all users)												Benefit realised for private vehicle access, May be part of implementing access management (Scenario 6), Important to facilitate safe operation of Scenario 7	Medium
15	Roundabout at Bracken Lane:	(Currently being pursued by council) Improve intersection safety and traffic flow at this key entry point.	3	\$\$\$		+	Safety (intersection crashes), Congestion/Access (entry bottleneck)												Benefit primarily realised for private vehicle access	Long
15	Bus Priority and Coordination Systems:	Implement ITS solutions to give priority to shuttle or public buses at pinch points or intersections, and to coordinate bus movements for efficient flow .	2	\$\$			Congestion/Access (bus delays, reliability), Safety (reduce bus-car conflict)													Medium
17	Align Track Crossings:	Realign walking track crossings to minimise pedestrian exposure to live traffic and improve sightlines	3	\$\$\$	-		Safety (minimise pedestrian exposure), Visitor Experience (logical crossing points)												Benefit realised across all scenarios	Long
18	Latent Demand Data Collection:	Use ITS and booking systems to capture data on unmet demand, informing future service planning.	1	\$\$			Congestion/Access (future planning), Visitor Experience (service improvement)												Benefit realised where vehicle access is maintained	Short
19	Private vehicle snow access	On snow days, vehicles must be carrying snow chains as a condition of entry	1	\$\$		+	Visitor Experience (choice), Access to snow												Benefit realised for private vehicle access	Short* (subject to suitability of risk level of increasing road access, may require long term treatments to enable)

5. Recommendations

The reviews documented in this report included current safety and access conditions:

- Analysing crash and traffic data
- Evaluating corridor constraints
- Comparing future operational scenarios
- Identifying and prioritising mitigation opportunities

Based on these reviews it is noted that:

- Due to the geometry, road width and atmospheric conditions of Pinnacle Road, safety is likely to be a key challenge on the corridor, particularly where a high amount of private vehicle access is maintained.
- Noting this, recent upgrades, including new barriers and speed limit reductions, have improved safety, reflected in a reduction of the average Infrastructure Risk Rating and lower number of observed incidents at previously high-risk locations.
- Weather conditions, both summer and snow events, appear to greatly influence demand for access. With peak demand, activity-based demand and demand following or during snow periods being key access considerations.

Potential traffic management options

Of the eight scenarios evaluated, Scenarios 5, 6 and 7 provide the most favourable overall outcomes. With consideration to potential traffic management options for Pinnacle Road, *bus-only operation* (Scenario 5) and *restricted-direction travel* with scheduled shuttle (Scenario 7) deliver the most substantial improvements in road safety, whilst likely servicing access needs across user groups. These could also be considered individually or in conjunction with *Traffic volume and safe access management* (Scenario 6) to provide a balanced but managed access approach.

Scenario 8 (*targeted road widening*) is the only option that directly improves road geometry, but noting this option entails high implementation costs, potential environmental impacts, minimal change to access, and should be considered comparatively to interventions reviewed as part of the corridor opportunities and constraints in Section 4.

Identified interventions

The identified interventions were reviewed by applying prioritisation across operationalisation and implementation (cost and timeframe) weighted most heavily, followed by safety benefit, with access, environmental impact, scenario applicability, and redundancy considered at lower weightings. Based on this, low-cost, short-term implementation interventions were identified for most impact, notably:

- Operating Speed Management emerged as the highest priority due to its significant safety benefit, relatively low cost, short implementation timeframe, and positive environmental impact.
- Emergency, weather, and incident detection/response measures also ranked highly. These include intelligent transport system (ITS) solutions such as real-time hazard detection and response, which offer substantial safety and operational benefits with minimal construction and cost.
- Physical Interventions such as highlighting pedestrian crossing points, improved signage, and line marking at narrow points are also prioritised. These are low-cost, quickly implemented measures that can deliver meaningful safety and access improvements.

The prioritisation of interventions favours low-cost and short-term implementation timeframe measures, leading to interventions that involve construction activities to be ranked lower, however these interventions should not be overlooked. Notably including:

- Pavement Overlay and Skid Resistance

- Roundabout at Bracken Lane
- Align Track Crossings

Safety treatments

When considering potential safety improvements more broadly, and in the context of considering the potential safety benefits of Scenario 8 (*targeted road widening*), consideration against Safe System principles shows that large-scale widening of Pinnacle Road is not the most effective or efficient path to improving safety or access. Under Safe System principles, priority must be given to treatments that reduce the likelihood and severity of fatal and serious injury (FSI) crashes before considering measures that address lower-severity risks.

In this context, corridor-wide widening provides limited safety benefit, carries a very high cost, and would significantly impact the natural and scenic values of the mountain. Narrow sections of the road are not the primary constraint on capacity, summit parking is, and they are not the main source of high-severity crash risk.

Higher-value safety gains can be achieved through containment and hazard-mitigation treatments, such as targeted safety barriers, improved delineation, surface treatments, and intelligent transport systems (ITS) to manage weather, warnings, and user behaviour. These measures directly address FSI risk and enhance user confidence without compromising the environment.

If widening is pursued, it should be highly targeted, focused only on blind bends and locations where sight distance or operational constraints meaningfully elevate risk. Generalised widening across the corridor is not justified from a Safe System, environmental, or investment perspective, and could introduce new risks through higher travel speeds.

Overall, the findings indicate that a combination of targeted safety upgrades, ITS improvements, and operational management provides the greatest alignment with Safe System principles and will deliver broader safety, access, and visitor-experience benefits than extensive widening.

Conclusions

This report reviewed current safety and access conditions, crash and traffic data, corridor constraints, future operational scenarios, and prioritised mitigation opportunities for Pinnacle Road. Safety remains a core challenge due to the road's geometry, narrow width, and weather conditions.

When considering future operational scenarios, *bus-only operation*, *restricted-direction travel*, *traffic volume and safe access management*, or combined managed access approaches offer the greatest safety improvements while maintaining access for diverse users.

A combination of targeted safety upgrades, ITS improvements, and operational management interventions, provide opportunity for low-cost, quick to implement interventions that align best with Safe System principles and deliver broader safety, access, and overall benefits.

Appendices

Appendix A

Infrastructure Risk Rating result

Table 11 IRR result

Chainage section	IRR	Quality of curve	Skid resistance	Crossing visibility	Comments and site observations
800 to 900	2.15	Good	Medium		
900 to 1000	1.92	Good	Poor		
1000 to 1100	1.92	Good	Medium		
1100 to 1200	2.20	Good	Poor		
1200 to 1300	2.22	Good	Poor	Poor	Limited sight distance for hikers crossing Pinnacle Road from Radfords Track.
1300 to 1400	2.15	Good	Poor	Poor	Limited sight distance for hikers crossing Pinnacle Road from Fingerpost Track.
1400 to 1500	1.96	Good	Medium		Narrow road with limited shoulder width for vehicles travelling concurrently.
1500 to 1600	2.20	Good	Medium		
1600 to 1700	1.96	Good	Medium		
1700 to 1800	2.15		Poor		
1800 to 1900	1.66		Medium		
1900 to 2000	2.26	Good	Poor	Poor	No advance warning signage at/near Woods Track for driver.
2000 to 2100	2.22	Good	Poor	Poor	No advance warning signage at/near Woods Track for driver.
2100 to 2200	2.15	Good	Medium		
2200 to 2300	2.22	Poor	Poor	Poor	Existing CAMs are available for vehicles travelling downhill. Investigate requirements for additional CAMs on vehicles going uphill, and warning signs for substandard curve, as well as Shoobridge and North-South track.
2300 to 2400	1.66		Poor		
2400 to 2500	1.92		Poor		
2500 to 2600	1.96		Poor	Poor	
2600 to 2700	2.22	Poor	Poor	Poor	Existing CAMs are available for vehicles travelling downhill. Investigate requirements for additional CAMs for vehicles going uphill and provide advance warning signs for substandard curve, as well as Shoobridge and North-South track. Existing wire barrier is non-compliant.
2700 to 2800	1.92		Medium		
2800 to 2900	1.92		Medium		
2900 to 3000	2.15		Medium		

Chainage section	IRR	Quality of curve	Skid resistance	Crossing visibility	Comments and site observations
3000 to 3100	1.92		Medium		
3100 to 3200	2.15		Medium		
3200 to 3300	1.96		Medium		
3300 to 3400	1.96		Medium		
3400 to 3500	2.20		Medium	Good	
3500 to 3600	2.15		Medium		
3600 to 3700	2.21	Poor	Medium		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Investigate requirements for a safety barrier to protect errant vehicles falling from the cliff.
3700 to 3800	1.70		Poor		
3800 to 3900	2.20		Medium		
3900 to 4000	2.12	Poor	Poor		Existing CAMs installed for both directions of traffic. Investigate if additional CAMs are required. Investigate requirements for speed advisory warning sign.
4000 to 4100	0.95		Poor		
4100 to 4200	0.95		Medium	Good	
4200 to 4300	0.82		Poor	Good	
4300 to 4400	1.66	Good	Medium		
4400 to 4500	1.42	Good	Medium		
4500 to 4600	1.51		Medium	Poor	Limited sight distance looking south from the northern exit of Pinnacle Track due to existing vegetation.
4600 to 4700	1.44		Poor		
4700 to 4800	1.69	Good	Poor		
4800 to 4900	1.51		Poor		
4900 to 5000	1.51	Good	Poor		
5000 to 5100	1.76		Poor		
5100 to 5200	1.51		Poor		
5200 to 5300	1.76	Good	Poor		

Chainage section	IRR	Quality of curve	Skid resistance	Crossing visibility	Comments and site observations
5300 to 5400	1.51		Poor		
5400 to 5500	1.69	Good	Poor		
5500 to 5600	1.51		Medium		
5600 to 5700	1.76	Good	Medium	Poor	Investigate requirements for warning signs and pedestrian protection for pedestrians crossing the road from Lower Sawmill Track and Sawmill Track. The tracks are approximately 55 m apart.
5700 to 5800	2.00	Good	Medium		
5800 to 5900	1.51		Medium		
5900 to 6000	1.44		Medium		
6000 to 6100	1.76	Good	Medium		
6100 to 6200	1.76	Good	Medium		
6200 to 6300	1.51		Medium		
6300 to 6400	1.76	Good	Medium		
6400 to 6500	1.51		Poor		
6500 to 6600	1.51		Medium		
6600 to 6700	1.76	Good	Poor	Poor	Investigate requirements for warning signage for pedestrians crossing the road to access the car park. Closest tracks are approximately 880 m and 1120 m away.
6700 to 6800	1.76	Good	Poor		
6800 to 6900	1.51		Poor		
6900 to 7000	1.51		Poor		
7000 to 7100	1.51		Poor		
7100 to 7200	1.84		Medium		Existing wire barrier is non-compliant.
7200 to 7300	2.09	Poor	Medium		Narrow road width. Existing wire barrier is non-compliant. Investigate requirements for CAMs for both direction of traffic and speed advisory warning signage along the curves.
7300 to 7400	1.84		Medium		Existing wire barrier is non-compliant.
7400 to 7500	1.84		Medium		Existing wire barrier is non-compliant.
7500 to 7600	1.84		Medium		Existing wire barrier is non-compliant.

Chainage section	IRR	Quality of curve	Skid resistance	Crossing visibility	Comments and site observations
7600 to 7700	1.84		Medium		Existing wire barrier is non-compliant.
7700 to 7800	2.09	Good	Medium	Poor	A bus bay is located on the descent side of Pinnacle Road. Private vehicles also use the area for parking. Extent of bus bay unclear. The Chalet and Organ Pipes track is located in this area. Investigate requirements for a marked bus bay and warning signage for track location and pedestrians crossing the road. Existing wire barrier is non-compliant.
7800 to 7900	1.84		Medium		Existing wire barrier is non-compliant.
7900 to 8000	2.09	Good	Medium		Existing wire barrier is non-compliant.
8000 to 8100	1.84		Medium		Existing wire barrier is non-compliant.
8100 to 8200	1.84		Adequate		Existing wire barrier is non-compliant.
8200 to 8300	2.06	Poor	Adequate		Narrow road width, with limited sight distance for oncoming vehicles.
8300 to 8400	2.36	Poor	Adequate		Existing wire barrier is non-compliant.
8400 to 8500	2.06	Poor	Adequate		Investigate requirements for CAMs for both direction of traffic.
8500 to 8600	1.81		Adequate	Poor	Investigate requirements for warning signs for turning vehicles at car park and crossing pedestrian accessing Panorama Track.
8600 to 8700	2.30	Poor	Adequate		Existing wire barrier is non-compliant. Risk of errant vehicles falling from the cliff.
8700 to 8800	2.33	Poor	Adequate		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign.
8800 to 8900	2.09	Poor	Adequate		@Ch. 9000-9100: investigate requirement for warning sign for pedestrian crossing at Lost World Track and Big Bend entrance.
8900 to 9000	2.39	Poor	Medium		
9000 to 9100	2.34	Poor	Adequate	Poor	
9100 to 9200	1.92	Poor	Medium		
9200 to 9300	2.11	Poor	Adequate		
9300 to 9400	1.66		Adequate		Existing wire barrier is non-compliant.
9400 to 9500	1.66		Adequate		Existing wire barrier is non-compliant.
9500 to 9600	1.92	Good	Medium		
9600 to 9700	2.20	Good	Medium	Good	Existing sealed parking for private vehicles and buses. Investigate requirements for a marked bus bay.
9700 to 9800	1.70		Medium		

Chainage section	IRR	Quality of curve	Skid resistance	Crossing visibility	Comments and site observations
9800 to 9900	2.09	Poor	Medium		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Investigate upgrade to a compliance safety barrier.
9900 to 10000	2.09	Poor	Medium		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Investigate upgrade to a compliance safety barrier.
10000 to 10100	1.81		Poor		
10100 to 10200	2.06	Poor	Medium		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Existing wire barrier is non-compliant.
10200 to 10300	2.00	Poor	Medium		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Existing wire barrier is non-compliant.
10300 to 10400	1.76	Poor	Adequate		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Existing wire barrier is non-compliant.
10400 to 10500	1.76	Poor	Medium		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Existing wire barrier is non-compliant.
10500 to 10600	1.76	Poor	Medium		Investigate requirements for CAMs for both direction of traffic and speed advisory warning sign. Existing wire barrier is non-compliant.
10600 to 10700	1.51		Medium		
10700 to 10800	1.51		Adequate		
10800 to 10900	1.51		Adequate		
10900 to 11000	1.51		Medium		
11000 to 11100	1.51		Adequate		
11100 to 11200	1.51		Medium		
11200 to 11300	2.00	Good	Medium		
11300 to 11400	1.61	Good	Adequate	Poor	Investigate requirements for additional signage and/or treatment at the pedestrian crossing.
11400 to 11500	1.67	Good	Adequate	Good	

Chainage section	IRR	Quality of curve	Skid resistance	Crossing visibility	Comments and site observations
11500 to 11600	1.61	Good	Adequate	Good	
11600 to 11695	0.82		Adequate	Good	

Appendix B

Site inspection notes

Table 12 Site inspection notes

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
800 to 900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocky edge, trees	Cliff edge - unprotected, some tree cover	50	– No reflectors on guideposts – Poor pavement condition – Faded yellow 'No Stopping' marking – Existing gate
900 to 1000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge, trees	Cliff edge - unprotected, some tree cover	50	– No reflectors on guideposts – Poor pavement condition – 50 km/h speed sign and warning sign
1000 to 1100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge, trees	Cliff edge - unprotected, some tree cover	50	– No reflectors on guideposts – Poor pavement condition
1100 to 1200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocky edge, trees	Cliff edge - unprotected, some tree cover	50	– Poor pavement condition
1200 to 1300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Rocky edge - further back	Cliff edge - poor barrier, some tree cover	50	– A short section with wider shoulder on the uphill side is available for vehicles to pull off – Wire safety barrier on the downhill side – Radfords walking track crosses with the road within this section (near bend), approximately 20 m apart – Poor pavement condition
1300 to 1400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocky edge, trees	Height difference causing rollover	50	– Fingerpost Track crosses the road within this section
1400 to 1500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge, trees	Height difference causing rollover	50	– Narrow road width
1500 to 1600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocky edge, trees	Height difference causing rollover	50	
1600 to 1700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge/trees, large tree on outside of curve	Height difference causing rollover	50	– Existing tree close to the road edge could be a risk to errant vehicles – Culvert
1700 to 1800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocky edge, trees	Cliff edge - unprotected, some tree cover	50	– Narrow road width – Existing hollow tree on the descent side. Does not appear to be dead – Pavement issues (i.e. edge break)

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
1800 to 1900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge, trees	Cliff edge - unprotected, some tree cover	50	– Narrow road width – Large trees along the verge/shoulder – Culvert
1900 to 2000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Rocky edge, trees	Cliff edge - unprotected, some tree cover	50	– A short section with wider shoulder approximately 50 m from Woods Track on the uphill side is available for vehicles to pull off
2000 to 2100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Rocky edge, trees	Height difference causing rollover	50	– Shallow open drain on the uphill side
2100 to 2200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocky edge, trees	Height difference causing rollover	50	– Narrow road width – Shallow open drain on the uphill side
2200 to 2300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Solid edge	Slight height difference and trees	50	– Open drain on the uphill side – Culvert – Big trees – Kerb wall on inside of turn for downhill – A short section with wider shoulder on the uphill side is available for vehicles to pull off – Pavement issues (i.e. edge break) – Existing gate
2300 to 2400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Solid edge	Height difference causing rollover	50	– Culverts – Poor readability of 'No Standing' sign across the gate – Open channel on the uphill side – Poor pavement condition
2400 to 2500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Solid edge	Height difference causing rollover	50	– Culvert, large tree/s and open channel on the uphill side – Poor pavement condition – Pavement issues (i.e. edge break)
2500 to 2600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Solid edge	Height difference causing rollover	50	– A short section with wider shoulder on the uphill side is available for vehicles to pull off, curve warning sign (25 km/h)
2600 to 2700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Steep drop off, some tree cover	Scattered hazards	50	– Hairpin turn – Culvert – Steep embankment on the uphill side

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
							– CAM signage – Wire safety barrier located on the outside of the hairpin turn appears to be non-compliant – A short section with wider shoulder on the downhill side is available for vehicles to pull off. Potential for parked cars to block CAMS if parked along this area – Faded yellow centre line marking – Walking tracks
2700 to 2800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Steep drop off, some tree cover	Scattered hazards	50	– Steep embankment on the uphill side – Culvert – A short section with wider shoulder on the uphill side is available for vehicles to pull off – Open drain on the downhill side.
2800 to 2900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Steep drop off, some tree cover	Scattered hazards	50	– Culvert – Open drain on the downhill side – Pavement issues (i.e. edge break)
2900 to 3000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Steep drop off, some tree cover	Scattered hazards	50	– Culvert – Open drain on the downhill side – Narrow road width – Poor pavement condition
3000 to 3100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Steep drop off, some tree cover	Scattered hazards	50	– Narrow road width – Poor pavement condition
3100 to 3200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Steep drop off, some tree cover	Scattered hazards	50	– Steep embankment on the uphill side – Narrow road width
3200 to 3300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Drop off some tree cover	Scattered hazards	50	– Steep embankment on the uphill side – Culvert – Slippery when frosty advisory sign
3300 to 3400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Drop off some tree cover	Scattered hazards	50	– Narrow road width – Steep embankment on the uphill side – Pavement issues (i.e. edge break)

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
3400 to 3500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Steep drop off, some tree cover	Scattered hazards	50	– Pedestrians walking along Fingerpost Track would need to cross Pinnacle Road – Culvert – Existing wire safety barrier for a short section. Appears to be non-compliant – Pavement issues (i.e. edge break)
3500 to 3600	Very narrow shoulder (0 to <0.5 m)	Medium lane (3.0 - 3.5 m)	Winding	Steep drop off, some tree cover	Rocks close	50	– No safety barrier along the embankment – Curve and speed warning sign (poorly angled) – Pavement issues (i.e. edge break)
3600 to 3700	Very narrow shoulder (0 to <0.5 m)	Medium Lane (3.0 - 3.5 m)	Tortuous	Steep drop off, some tree cover	Scattered hazards	50	– Faded yellow 'No Stopping' marking on both sides of the road – Existing wire safety barrier does not appear to be compliant
3700 to 3800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Slight height difference and trees	Scattered hazards	50	– Culvert, poor pavement condition
3800 to 3900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Steep drop off, some tree cover	Rocks close	50	– Curve warning sign – Culvert – Steep embankment on the uphill side
3900 to 4000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Some drop off	Rocks close	50	– Culvert – Faded yellow 'No stopping line marking along on both sides of the road and centreline – Existing CAMs signage are hard to read due to the size. Vehicles parked along the lookout would also obstruct view of the CAMs – W-beam safety barrier. No reflectors on the safety barrier. W-beam does not appear to be compliant to current standards – Visitor lookout and parking area – Poor pavement condition
4000 to 4100	Very narrow shoulder (0 to <0.5 m)	Medium lane (3.0 - 3.5 m)	Straight	Smaller trees	Smaller trees	20	– Faded line marking – Poor pavement condition – 20 km/h signage for shared zone

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
4100 to 4200	Very narrow shoulder (0 to <0.5 m)	Medium lane (3.0 - 3.5 m)	Straight	Smaller trees	Smaller trees	20	– Faded line marking – Pavement issues (i.e. edge break)
4200 to 4300	Very narrow shoulder (0 to <0.5 m)	Medium lane (3.0 - 3.5 m)	Straight	Wider and smaller hazards	Steel barrier	20	– The Springs car park and Pinnacle Track access road – Pavement issue – Existing gate – W beam safety barrier with energy absorbing end terminal installed – Culvert
4300 to 4400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Drainage gutter	Steel barrier	20	– Narrow road width – Poor pavement edge profile on the uphill side – Pavement issue – W beam safety barrier
4400 to 4500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocky edge	Steel barrier	20	– Narrow road width – Pavement issue – Culvert – W beam safety barrier
4500 to 4600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge	Steel barrier	50	– Limited sight distance for vehicle exiting the upper Pinnacle Track and Pinnacle Road intersection – Existing gate – Open drain on uphill side – Faded line marking – W beam safety barrier
4600 to 4700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge	Steel barrier	50	– Steep drop off at pull off area – Grays Fire Trail entrance – Lenah Valley Track – Open drained on nearside (ascending) – Narrow road width – Very limit sighting distance from Pinnacle track stop line to Pinnacle Road @ch.4600 – W beam safety barrier – End terminal does not appear compliant

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
4700 to 4800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge	Steel barrier	50	– Edge break – W beam safety barrier
4800 to 4900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge	Steel barrier	50	– Narrow road width – Pavement issues (i.e. edge break), W beam safety barrier
4900 to 5000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge	Steel barrier	50	– Pavement issues (i.e. edge break), culvert – Narrow road width – W beam steel barrier
5000 to 5100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge, Trees	Steel barrier	50	– Narrow road width – W steel beam barrier
5100 to 5200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge, Trees	Steel barrier	50	– Narrow road width – W-beam safety barrier
5200 to 5300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge	Steel barrier	50	– Culvert – Very narrow road width – W-beam safety barrier
5300 to 5400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge	Steel barrier	50	– Culvert – Poor edge profile – Narrow road width – W steel beam barrier
5400 to 5500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocky edge	Steel barrier	50	– Culvert – W-beam safety barrier
5500 to 5600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocky edge	Steel barrier	50	– Culvert – Big trees – Narrow road width – W-beam safety barrier
5600 to 5700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Bad drain natural	Steel barrier	50	– Culverts – Narrow – No overlapping of barrier at the entrance of the track, Lower Sawmill Track, Sawmill Track – W steel beam barrier

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
5700 to 5800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Bad drain natural	Steel barrier	50	– Pinch point – Very narrow – Culvert – W steel beam barrier
5800 to 5900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Poor edge profile	Steel barrier	50	– Culvert – W beam safety barrier
5900 to 6000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Poor edge profile	Steel barrier	50	– Culvert – Edge break – W beam safety barrier
6000 to 6100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks	Steel barrier	50	– Culvert – Pavement issues (i.e. edge break, pothole) – W beam safety barrier
6100 to 6200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks	Steel barrier	50	– Rocks close uphill side - no pull over – W beam safety barrier
6200 to 6300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Steel barrier	50	– W beam safety barrier
6300 to 6400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rockwall	Steel barrier	50	– Rock wall – W beam safety barrier
6400 to 6500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rock jutting out of rockwall	Steel barrier	50	– Rock jutting out – Culvert – W beam safety barrier
6500 to 6600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rockwall	Steel barrier	50	– Rockwall – W beam safety barrier
6600 to 6700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks	Steel barrier	50	– Carpark – Rockwall – W beam safety barrier
6700 to 6800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks	Steel barrier	50	– Edge break – W beam safety barrier
6800 to 6900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Steel barrier	50	– Culvert – W beam safety barrier

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
6900 to 7000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Steel barrier	50	– Culvert – W beam safety barrier
7000 to 7100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Steel barrier	50	– Drop off – Culvert – Termination of W beam safety barrier and continuation of old wire safety barrier – Narrow road width
7100 to 7200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Cliff edge - unprotected, some tree cover	50	– Drop off – Wire safety barrier – Narrow road width
7200 to 7300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks	Cliff edge - unprotected, some tree cover	50	– Drop off – Wire safety barrier – Narrow road width
7300 to 7400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Cliff edge - unprotected, some tree cover	50	– Wire safety barrier – Narrow road width
7400 to 7500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Cliff edge - unprotected, some tree cover	50	– Culvert – Jagged rocks on the uphill side – Large cliff right up - worst point – Old wire barrier – Narrow road width
7500 to 7600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Cliff edge - unprotected, some tree cover	50	– Old wire barrier – Cliff – Narrow
7600 to 7700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks	Cliff edge - unprotected, some tree cover	50	– Poor guidepost alignment – Two-way sign – Old wire barrier
7700 to 7800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks	Cliff edge - unprotected, some tree cover	50	– Culvert – Organ pipes track – Gate – Bus stop – The Chalet – Old wire barrier

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
7800 to 7900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks and trees	Cliff edge - unprotected, some tree cover	50	– Old wire barrier
7900 to 8000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks and trees	Cliff edge - unprotected	50	– Old barrier on outer curve of large drop-off – Old wire barrier
8000 to 8100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks and trees	Cliff edge - unprotected	50	– Uneven edge of road/drainage – Poor edge profile – Old wire barrier – Narrow road width
8100 to 8200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks and trees	Cliff edge - unprotected	50	– No pull off wheel space uneven edge of road/drainage – Old wire barrier – Narrow road width
8200 to 8300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Open drain	Cliff edge - unprotected	50	– Start of open drain, pit at squeeze point – Pothole – Old wire barrier – Narrow road width
8300 to 8400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Open drain	Cliff edge - unprotected	50	– Old wire barrier – Open drain on nearside (ascending) – Extremely narrow
8400 to 8500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Open drain	Cliff edge - unprotected	50	– Gutter drainage open culvert easily snag wheel – End of old wire barrier – Narrow road width
8500 to 8600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Open drain	Cliff edge - unprotected	50	– Open drain – Edge break – Panorama Track – Parking spot with potholes on road
8600 to 8700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Open drain	Cliff edge - unprotected	50	– Open drain – Old wire barrier – Narrow road width

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
8700 to 8800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Open drain	Height difference causing rollover, some tree cover	50	– Open drain – Old wire barrier – Narrow road width
8800 to 8900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Open drain	Height difference causing rollover, some tree cover	50	– Culvert at start of open channel – Car park area – Old wire barrier – Edge break
8900 to 9000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Rocks and trees	Rocks and trees	50	– Edge drop on uphill side – Edge break
9000 to 9100	Very narrow shoulder (0 to <0.5 m)	Medium lane (3.0 - 3.5 m)	Tortuous	Rocks and trees	Rocks and trees	50	– Parking on curve – Culvert – Edge break – Lost World Track and Big Bend entrance – Two-way sign – Large curve probably requires warning
9100 to 9200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks and trees	Rocks and trees	50	– Poor edge nearside (ascending) – Pothole – Orange coloured tall guidepost – Old wire barrier
9200 to 9300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocks and trees	Rocks and trees	50	– Poor edge profile - natural spoon drain – Old wire barrier – Edge break – Orange coloured tall guidepost
9300 to 9400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks and trees	Rocks and trees	50	– Culvert – large – Open drain far side (ascending) – Old wire barrier
9400 to 9500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks and trees	Rocks and trees	50	– Unprotected drop on left – Old wire barrier
9500 to 9600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Rocks and trees	Rocks and trees	50	– Old wire barrier – Culvert – Rocky side area – Car park/pull off area – Bus stop – Fade line marking

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
9600 to 9700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Rocks and trees	Rocks and trees	50	– Bus stop – Gate – Parking/ pull-off area – Pothole on shoulder
9700 to 9800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Rocks and trees	Rocks and trees	50	– Orange coloured tall guidepost – Culvert – Edge break
9800 to 9900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Cliff	Rocks and trees	50	– Culvert – Orange coloured tall guidepost
9900 to 10000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Small drop and rocks	Rocks and trees	50	– Culverts – Old wire barrier – Orange coloured tall guidepost
10000 to 10100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Small drop and rocks	Rocks and trees	50	– Culvert – Pavement issues
10100 to 10200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Tortuous	Steel barrier	Rocks	50	– Culvert – Orange coloured tall guidepost – W beam barrier – Some pavement delamination
10200 to 10300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Steel barrier	Rocks	50	– Orange coloured tall guidepost – W beam safety barrier – Pavement delamination
10300 to 10400	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Steel barrier	Rocks	50	– W beam safety barrier – Pavement delamination – Loose gravel on nearside (ascending) – Culvert
10400 to 10500	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Steel barrier	Rocks	50	– W beam safety barrier
10500 to 10600	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Curved	Steel barrier	Rocks	50	– Culvert – W beam safety barrier – Loose gravel on shoulder

Section	Shoulder Width	Lane Width	Horizontal Alignment	Hazard Ascent	Hazard Descent	Operating Speed	Notes and site observations
10600 to 10700	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Steel barrier	Rocks	50	- Orange no standing signs - Culvert - Orange coloured tall guidepost - Panorama Track - W beam safety barrier
10700 to 10800	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Steel barrier	Rocks	50	- Non-driveable endwall - Orange coloured tall guidepost - W steel barrier
10800 to 10900	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Steel barrier	Rocks	50	- Culvert - Orange coloured tall guidepost - W beam safety barrier
10900 to 11000	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Steel barrier	Rocks	50	- Bike rider signage - Orange coloured tall guidepost - W beam safety barrier
11000 to 11100	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Steel barrier	Rocks	50	- Orange coloured tall guidepost - W beam safety barrier
11100 to 11200	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Straight	Steel barrier	Rocks	50	- W beam barrier - Loose gravel on shoulder/pavement defects - Orange coloured tall guidepost
11200 to 11300	Very narrow shoulder (0 to <0.5 m)	Narrow lane (<3.0 m)	Winding	Steel barrier	Rocks	50	- W beam safety barrier - Open drain - Start of no standing area - Barrier should continue until car park - End terminal not compliant
11300 to 11400	Very narrow shoulder (0 to <0.5 m)	Medium lane (3.0 - 3.5 m)	Tortuous	Cliff	Rocks	20	- Poles not frangible - Start of 20 km/h shared zone - Crossing unmarked - Old wire barrier
11400 to 11500	Very narrow shoulder (0 to <0.5 m)	Medium Lane (3.0 - 3.5 m)	Tortuous	Rocks	Rocks	20	Old wire barrier
11500 to 11600	Very narrow shoulder (0 to <0.5 m)	Medium lane (3.0 - 3.5 m)	Tortuous	Parked vehicles	Parked vehicles	20	More posts and reflectors
11600 to 11695	Very narrow shoulder (0 to <0.5 m)	Medium Lane (3.0 - 3.5 m)	Straight	Parked vehicles	Parked vehicles	20	- No wheel stop or edge line for parking - Faded pavement marking for DDA parking

Appendix C

Scenario analysis summary table

Table 13 Scenario impact summary

Criteria	Scenario 1 - Full road closure	Scenario 2- Light vehicles only	Scenario 3- Exclusion of campervans	Scenario 4- Limitations on bus sizes	Scenario 5- Bus-only operation	Scenario 6- Traffic volume and safe access management	Scenario 7- Restricted direction of travel	Scenario 8- Road widening along the corridor
Safety								
IRR Rating	Major improvement	Minor improvement	Minimal change	Minimal change	Major improvement	Moderate improvement	Major improvement	Moderate improvement
Road Safety	Major improvement	Minor improvement	Minimal change	Minimal change	Major Improvement	Moderate improvement	Major improvement	Moderate improvement
Access								
Transport mode options available	General reduction in access	General reduction in access	General reduction in access	Minimal/neutral change	General reduction in access	Minimal/neutral change	General reduction in access	Minimal/neutral change
Journey time and access reliability	General increase in access	Minimal/neutral change	Minimal/neutral change	Minimal/neutral change	General increase in access	General increase in Access	General increase in access	Minimal/neutral change
Total person trips	General reduction in access	General reduction in access	Minimal/neutral change	Minimal/neutral change	General increase in access	Minimal/neutral change	General increase in access	Minimal/neutral change
Person trips with respect to all-weather access	General reduction in access	General reduction in access	Minimal/neutral change	Minimal/neutral change	General Increase in access	General increase in Access	Minimal/neutral change	Minimal/neutral change
Person trips across key visitor profiles	General reduction in access	General reduction in access	Minimal/neutral change	Minimal/neutral change	General reduction in access	Minimal/neutral change	General reduction in access	Minimal/neutral change
Environmental Impact								
Environmental impacts in operation	General improvement	Minimal/neutral change	Minimal/neutral change	Minimal/neutral change	General improvement	Minimal/neutral change	General improvement	Minimal/neutral change
Environmental impacts during construction	Minimal/neutral change	Minimal/neutral change	Minimal/neutral change	General improvement	Minimal/neutral change	General improvement	Minimal/neutral change	General impact
Other considerations								
Relative maintenance cost	General improvement / low cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	Minimal to neutral/medium cost	Minimal to neutral change/medium cost
Relative operating cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	General impact/high cost	Minimal to neutral change/medium cost	General impact/high cost	Minimal to neutral change/medium cost
Relative implementation cost	General improvement/low cost	General improvement/low cost	General improvement/low cost	General improvement/low cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	Minimal to neutral change/medium cost	General impact/high cost
Ease of implementation	General improvement/low cost	General improvement/low cost	General improvement/low cost	General improvement/low cost	General improvement/low cost	General improvement/low cost	General improvement/low cost	General impact/high cost



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