

Red Hill Traffic Management Plan

Traffic Management Study



180079TIA001K-F

14 March 2019

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DOCUMENT INFORMATION

Prepared for	Mornington Peninsula Shire Council		
File Name	180079TIA001K-F	Report Date	14 March 2019
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Signature		Signature	

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1 INTRODUCTION

onemilegrid has been requested by Mornington Peninsula Shire Council to undertake a Traffic Management Study of the Red Hill local area, to identify and inform Council of the current and future traffic needs of the township.

As part of this assessment the subject site has been inspected with due consideration to the community's concerns, traffic and parking data has been sourced and relevant background reports have been reviewed.

2 EXISTING CONDITIONS

2.1 Site Location

Red Hill is located on the Mornington Peninsula, approximately 1-hour drive south-east of the Melbourne CBD as shown in Figure 1.

Figure 1 Site Location



The study area includes a number of popular attractions and destinations in Red Hill, including the Red Hill Recreation Reserve, which accommodates regular sporting events, as well as the monthly market and annual agricultural show; the Red Hill Consolidated School, Red Hill General Store and Red Hill Shops as well as Red Hill South village. These areas are shown below in Figure 2.

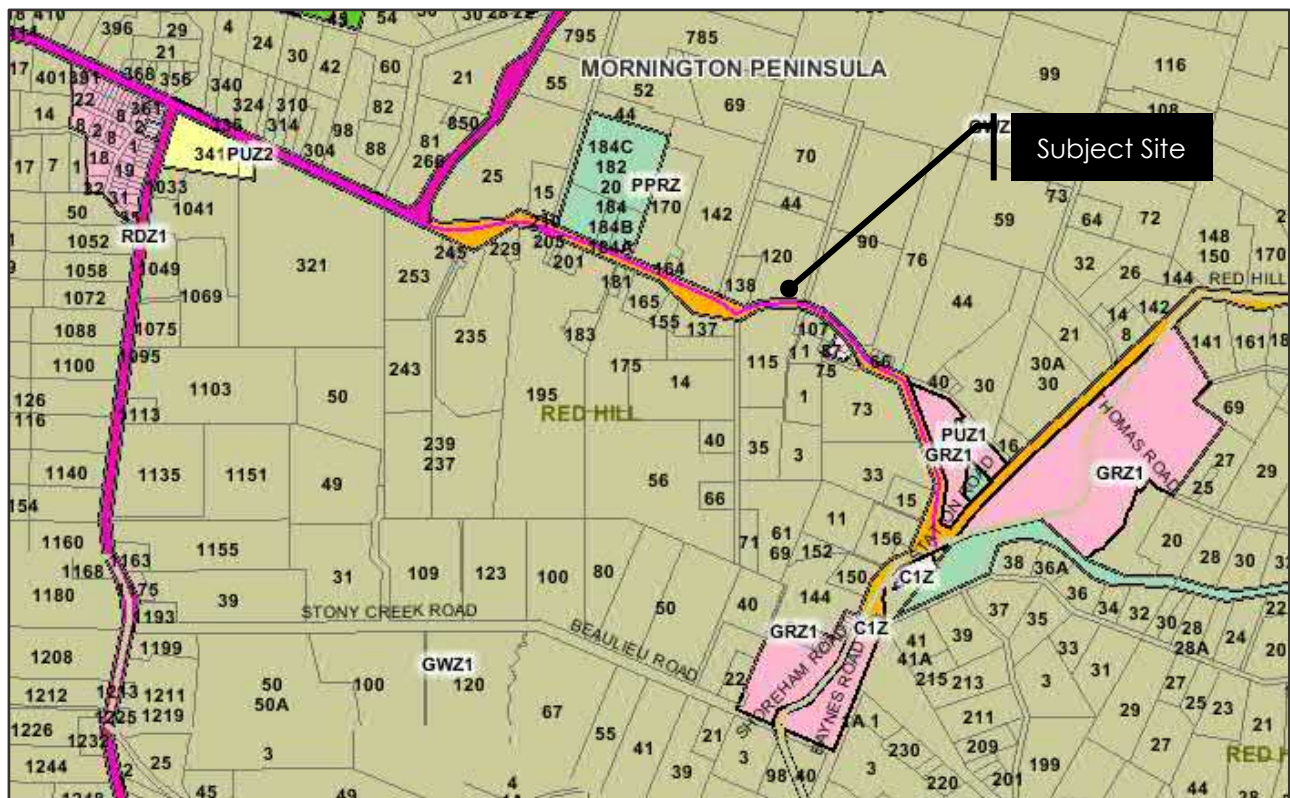


2.2 Planning Zones

It is shown in Figure 3 that the majority of the study area is located within a Green Wedge Zone (GWZ1), with scattered areas of General Residential Zones (GRZ1), Public Use Zones (PUZ2) and Public Park and Recreation Zones (PPRZ).

It is further noted that Arthurs Seat Road, Mornington-Flinders Road and White Hill Road are categorised as Road Zones through the study area.

Figure 3 Planning Scheme Zones

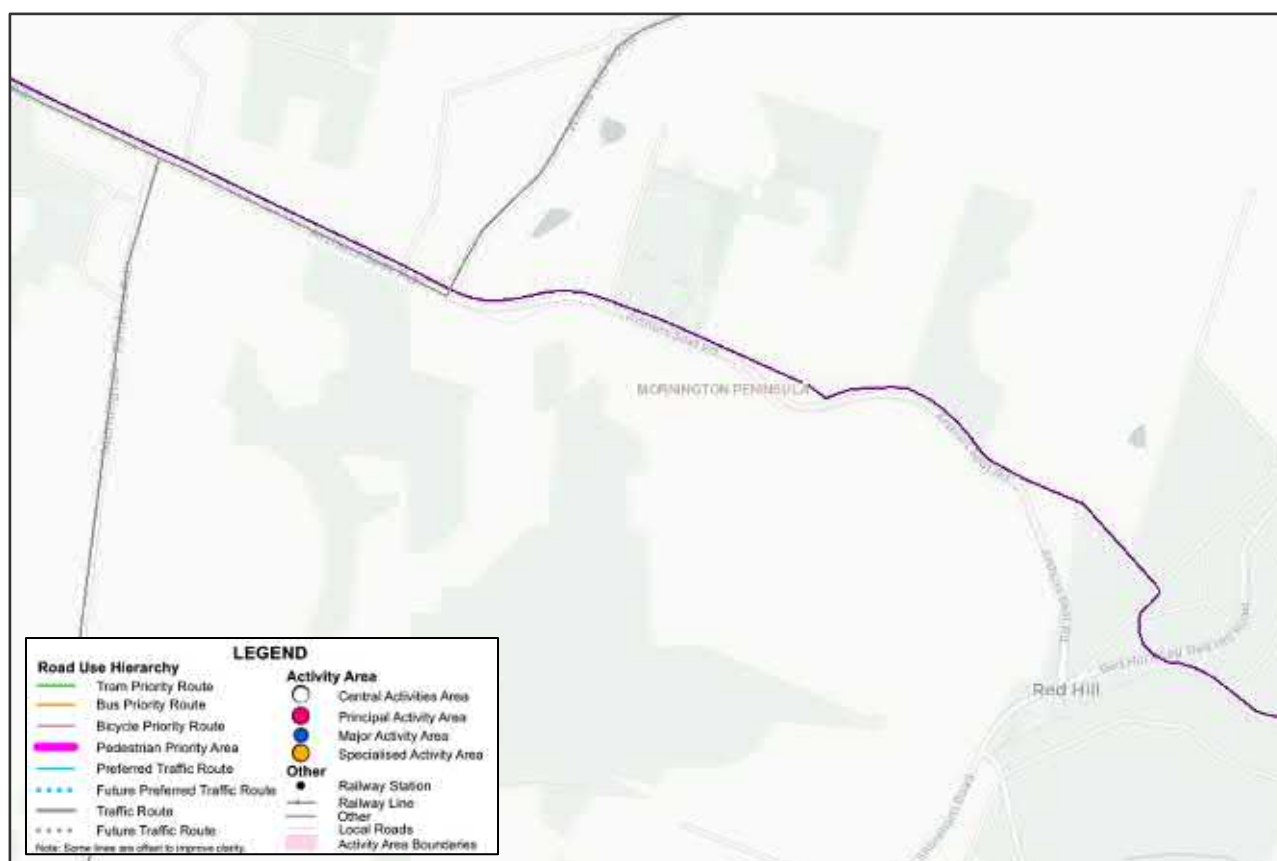


2.3 SmartRoads Road User Hierarchy Maps

In mid-2011 VicRoads developed the SmartRoads Road User Hierarchy Maps which aim to 'manage competing interests for limited road space by giving priority use of the road to different transport modes at particular times of the day.'

The SmartRoads map, reproduced in Figure 4, identifies that Arthurs Seat Road is a part of the Principle Bicycle Network and that Mornington-Flinders Road and White Hill Road are Traffic Routes.

Figure 4 SmartRoads Road User Hierarchy Map



2.4 Public Transport

There are currently no public transport routes which service the study area.

2.5 Traffic Volumes

Tube count surveys were undertaken by Nationwide Traffic Surveys Pty Ltd, on behalf of **onemilegrid** at two locations. Tube counts on White Hill Road and Arthurs Seat Road were conducted from Sunday 11th March to Sunday 18th March 2018 inclusive.

It is noted that the tube count surveys were conducted after the Red Hill Market and Red Hill Show. As such, the results shown depict the typical operation of the surveyed roads.

The results of the surveys are summarised below.

Figure 5 White Hill Road Tube Count Location Sunday 11th – Sunday 18th March 2018



Table 1 White Hill Road 7-day Average Sunday 11th – Sunday 18th March 2018

<i>Direction</i>	<i>Daily</i>	<i>AM Peak 8am-9am</i>	<i>PM Peak 3pm-4pm</i>
Northbound	3,767	264	476
Southbound	3,838	329	296
Total	7,605	593	772

Figure 6 Arthurs Seat Road Tube Count Location Sunday 11th – Sunday 18th March 2018



Table 2 Arthurs Seat Road 7-day Average Sunday 11th – Sunday 18th March 2018

Direction	Daily	AM Peak 8am-9am	PM Peak 3pm-4pm
Eastbound	2,442	229	205
Westbound	2,965	287	259
Total	5,407	516	464

Further to the above, **onemilegrid** have reviewed survey data provided by Council and have undertaken an analysis of the results from data documented from 2016 onwards. The location of the surveys conducted by Council are presented below in Figure 7.

Figure 7 Council Tube Count Survey Locations

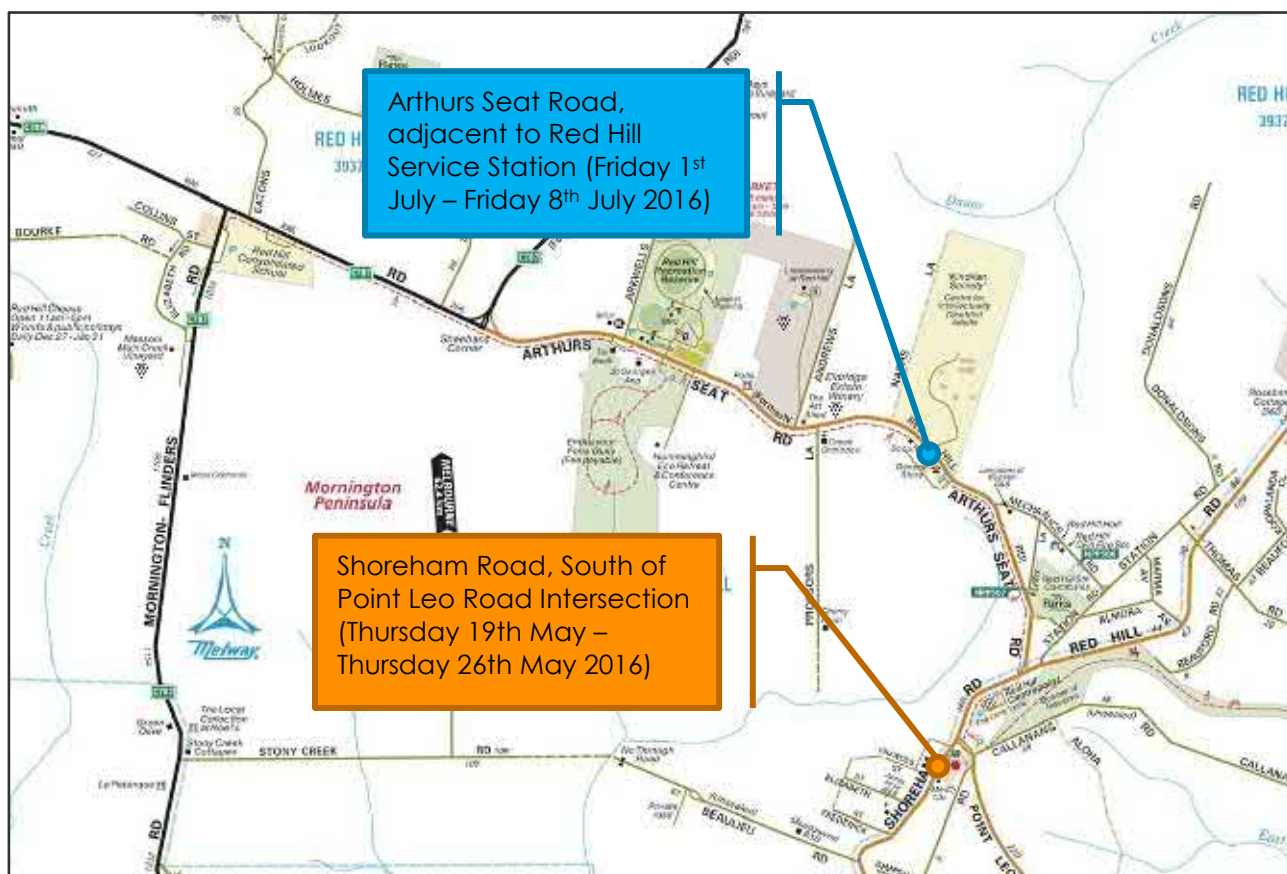


Table 3 Arthurs Seat Road 7-day Average

Direction	Daily	AM Peak 4am-5am	PM Peak 11pm-12am
Both Directions	3,990	423	145

Table 4 Shoreham Road 7-day Average

Direction	Daily	AM Peak 11am-12pm	PM Peak 3pm-4pm
Both Directions	1,774	153	184

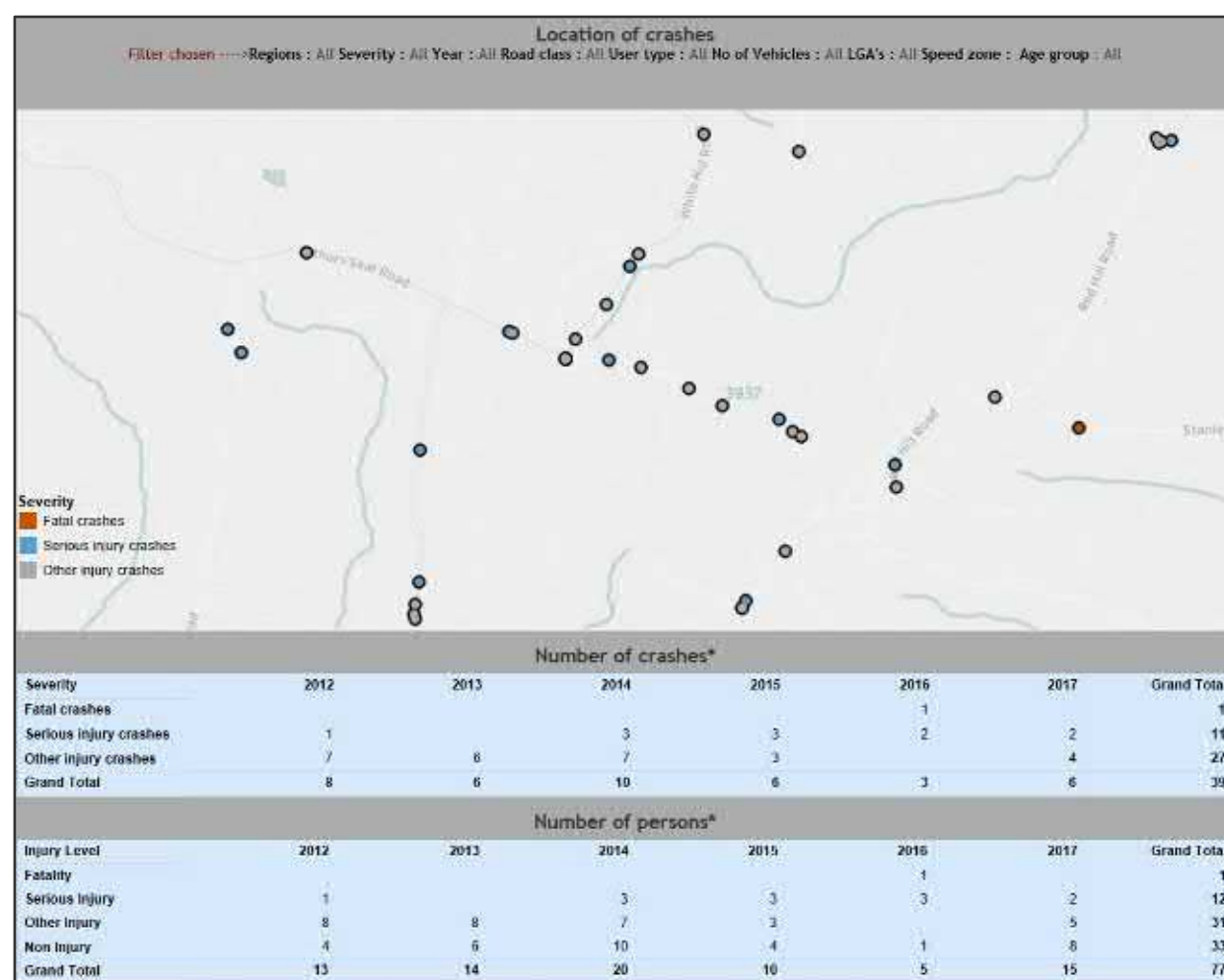
2.6 Crash History

Crash history information for the area was obtained through VicRoads CrashStats (the Victorian accident statistics and mapping program) for the latest 5-year period (2012 – 2016 inclusive).

The crash information is summarised in Figure 8 and summarised below.

- 11 serious injury crashes occurred, with three occurring on Arthurs Seat Road, one on White Hills Road and two on Mornington-Flinders Road;
- 27 other injury crashes occurred, with the Majority occurring on Arthurs Seat Road between White Hills Road and Shoreham Road; and
- One fatality occurred, though it is noted that the location is outside of the study area.

Figure 8 VicRoads CrashStats Summary

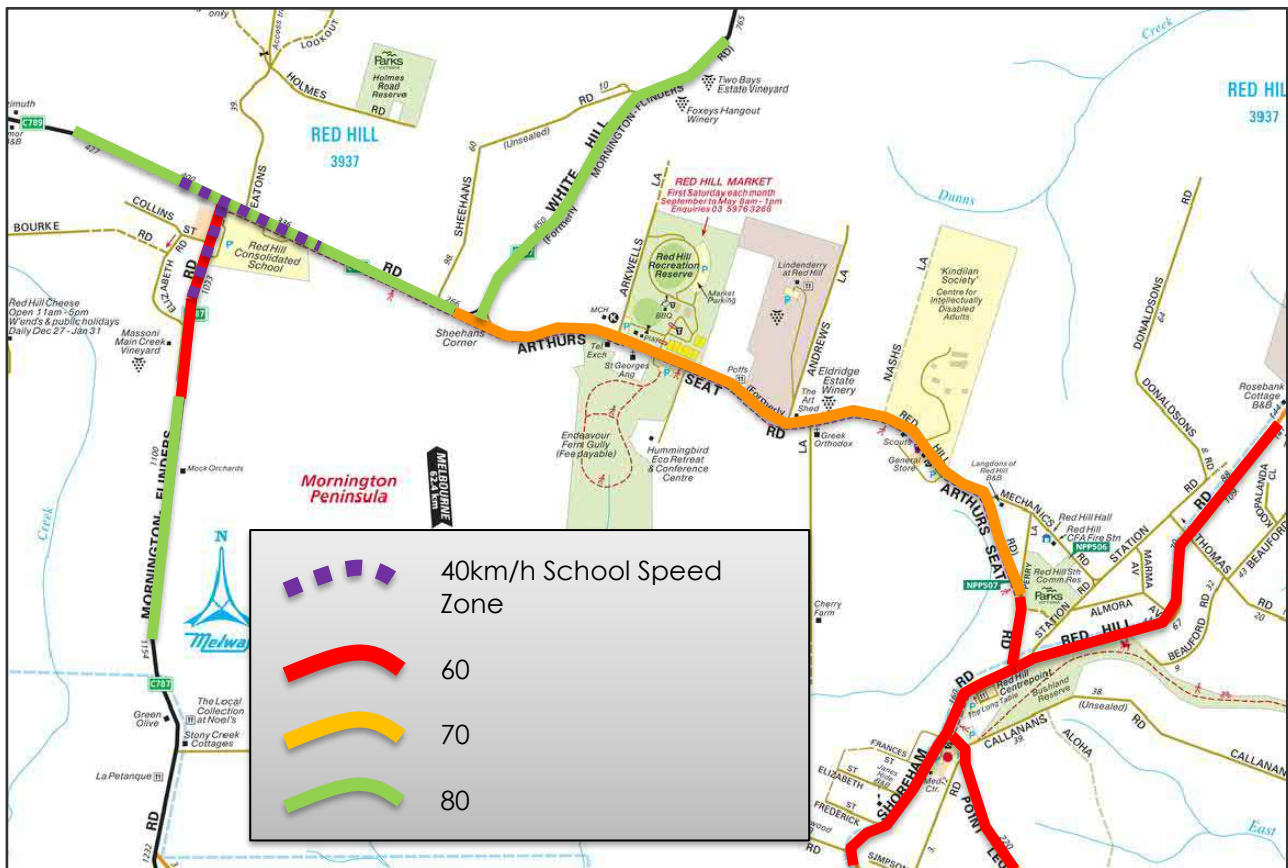


2.7 Speed Limits

2.7.1 Existing Speed Limits

The existing speed limits within the study area are shown in Figure 9.

Figure 9 Existing Speed Limits



School speed limits apply between 8:00am and 9:30am, and between 2:30pm and 4:00pm on school days.

2.7.2 VicRoads Speed Limit Guidelines

As a point of reference, the appropriate speed limits for roads are based on a number of factors. A brief summary of those factors, used to determine the appropriate speed limit of a road, is shown below in Figure 10.

Figure 10 VicRoads Speed Limit Guidelines

Speed limit	Application of speed limit
10 km/h	Shared zones where pedestrians have priority (Refer to section 5.3)
20 km/h	Car parks and similar areas where vehicles and pedestrians mix (Refer to section 5.3)
40 km/h	- Pedestrian activity areas, including shopping precincts, town centres and school zones (Refer to section 5.3) - Some local streets in urban areas (Refer to section 5.3)
50 km/h	- Default limit in urban (built-up) areas - Rural and outer metropolitan town centres (Refer to section 5.3)
60 km/h	- Most undivided urban arterial roads (Refer to section 5.2) - Divided urban arterial roads with a high number of access points and / or significant pedestrian and / or cyclist activity (Refer to section 5.2) - Some local urban collector roads (Refer to section 5.2)
80 km/h	- Divided urban arterial roads with a limited number of access points and little or no pedestrian and cyclist activity (Refer to section 5.2) - Undivided roads on the urban / rural fringe, or in a rural area where there is an elevated risk of crashes (Refer to sections 5.1 & 5.2) - Roads through small rural settlements (hamlets) (Refer to section 5.1) - Freeways where there is an elevated risk of crashes (Refer to section 5.2) - Low volume rural roads with sub-standard infrastructure (Refer to section 5.1) - Across rail level crossings on sealed rural roads (Refer to section 5.1)
100 km/h	- Default limit in rural areas - Urban freeways (Refer to section 5.2)
110 km/h	High standard rural freeways (Refer to section 5.1)

It is noted that the VicRoads current policy does not permit new 70 km/h zones. Existing 70 km/h zones are typically found on divided urban arterial roads which have direct access to the through carriageway from abutting properties (i.e. no services roads) and undivided urban roads with a limited number of access points.

2.8 Bicycle Usage

The Red Hill area is commonly used by recreational cyclists (as a training route - including the Arthurs Seat climb/descent); mountain bikers (using existing road-side verge tracks and specific off-road mountain bike tracks); and also, though less regularly, by commuter cyclists.

A view of cyclist activity (collected by Strava) is shown below, providing an indication of cyclist activity in the area.

Figure 11 Strava Heat Map



It is shown that there is considerable cyclist activity on Arthurs Seat Road, White Hill Road, Red Hill Road and Shoreham Road.

3 DOCUMENTATION REVIEW

3.1 Mornington Peninsula Activity Centre Strategy 2017

A review of the Mornington Peninsula Activity Centre Strategy indicates that a relatively high share of households in the East Region (63.4%) and West Region (63.2%) own two cars or more, which is a reflection of the significantly road-based transport system on the Mornington Peninsula.

The Mornington Peninsula Shire Council is working towards the '20-minute Neighbourhoods' as part of Plan Melbourne. The idea of the 20-minute neighbourhoods is such that residents of the area can have access to local shops, schools, parks, jobs and a range of community services within a 20-minute trip from their front door.

Overall, the concept of the 20-minute neighbourhood is about maximising the local provision of a wide range of land uses utilised regularly by the community, including those typically located in activity centres.

A visual representation of the 20-minute neighbourhood is shown below in Figure 12.

Figure 12 '20-Minute Neighbourhoods' – Plan Melbourne



3.2 Proposal to Undertake Traffic Management in Red Hill 2017

The Proposal to Undertake Traffic Management Study in Red Hill area was prepared by the Red Hill Community Association in 2017.

Concerns have been raised regarding traffic congestion during the Red Hill Market and Show, as well as long week-ends. Inadequate parking availability has also been raised as an issue, particularly at Red Hill South, Red Hill Consolidated School, and Arthurs Seat areas. The shortage of car parking spaces has been indicated to result in illegal and unsafe parking in Red Hill.

A request for bicycle lanes along key access roads (including White Hill Road, Arthurs Seat Road, Shoreham Road and Mornington–Flinders Road) has been made as it has been stated that the growing community has resulted in an increased number of cyclists using these roads.

3.3 Sustainable Transport Strategy 2015 – 2020

The Sustainable Transport Strategy was prepared by the Mornington Peninsula Shire Council to guide future infrastructure projects to deliver an integrated and sustainable transport system providing residents, visitors and workers with a wider range of transport options whilst reducing their environmental footprint.

A community consultation consisting of 512 residents resulted in the following recommendations for improving the existing transport network:

- *“Extended/changed bus routes. This reduces the distance to access the bus, making it a more convenient option e.g. more of a door-to-door service.”*
- *“More frequent bus services. This reduces waiting times and crowding, as well as making it more practical to use a bus as there is more likely to be one there when you want it.”*

The above is largely aimed to reduce the traffic congestion around schools during peak times, improving the road safety & accessibility for all types of road users & increasing the number of students who walk or ride to school.

4 COMMUNITY CONSULTATION

A community consultation plan was developed in conjunction with Council, to ensure that the primary resident groups, business owners and stakeholders within the study area were provided with suitable opportunity to provide input into the study, and feedback on the study outcomes.

The community consultation plan consists of:

- Issue of an introduction letter (as attached in 8) to the identified contacts (provided by Council), seeking input into areas of concern, recommended treatments, suggestions and comments;
- Review of the initial input and inclusion within the Draft Traffic Management Study;
- Issue of the Draft Traffic Management Study to the identified contacts, seeking further feedback and input;
- Liaise or meet with contacts if required; and
- Inclusion of the further feedback into the Final Traffic Management Study.

The following contacts were included within the initial consultation, as provided by Council:

- Red Hill Football and Netball Club;
- Red Hill Market (Craft Markets Australia);
- Red Hill Tennis Club;
- Red Hill Cricket Club;
- Red Hill Junior Football Club;
- Red Hill Community Association;
- Red Hill Lions Club;
- Red Hill Agricultural and Horticultural Society;
- Red Hill Consolidated School; and
- Mornington Peninsula Vignerons Association.

The initial input has been summarised in the following sections.

The draft report was subsequently issued to the above contacts and any additional contacts who had provided input into the draft study. Any further feedback was included within this final report.

5 KEY AREAS OF STUDY

5.1 Red Hill Consolidated School

5.1.1 Observations

The operation of the road network and parking arrangements in the vicinity of Red Hill Consolidated School was observed on Wednesday 14th February 2018 during the peak afternoon pick-up period.

Car parking demand was observed to exceed the on-site capacity, with the following results:

- On-street parking occurred on the southern shoulder of Arthurs Seat Road, on both the western and eastern sides of Mornington-Flinders Road, as shown in Figure 14;
- The small short-term pick-up/drop-off area on Mornington-Flinders Road overflowed back onto Mornington-Flinders Road, with vehicles queued through the nearby Arthurs Seat Road intersection, as shown in Figure 13;
- Double parking behind angled parking on Mornington-Flinders Road;
- On-Street parking occurred on the eastern shoulder of Mornington-Flinders Road, south of the school.

Figure 13 Overflow onto Mornington-Flinders Road



5.1.2 Surrounding Road Network

5.1.2.1 Arthurs Seat Road

Arthurs Seat Road is an arterial road generally aligned east-west running between Shoreham Road in the east and McCulloch Street in the west. Arthurs Seat Road provides a single traffic lane in each direction through the study area, with gravel shoulders. Pedestrian paths are commonly provided along Arthurs Seat Road, with a formalised pedestrian route provided along the south side, connecting Red Hill Consolidated School with Red Hill Recreation Reserve.

The cross-section of Arthurs Seat Road is shown in Figure 14.

Figure 14 Arthurs Seat Road, looking west towards Mornington-Flinders Road



A signed speed limit of 80km/h applies to Arthurs Seat Road west of White Hill Road, with a 40 km/h school speed limit during the hours of 8:00am-9:30am and 2:30pm-4:00pm from Monday to Friday in the vicinity of the Red Hill Consolidated School.

5.1.2.2 Mornington-Flinders Road

Mornington-Flinders Road is an arterial road generally aligned north-south, running between Arthurs Seat Road in the north and Cook Street in the south. Mornington-Flinders Road provides a single traffic lane in each direction. Indented on-street parking and a short-term pick-up/drop-off area is located on Mornington-Flinders Road adjacent to the Red Hill Consolidated School.

The cross-section of Mornington-Flinders Road at the frontage of the site is shown in Figure 15.

Figure 15 Mornington-Flinders Road, looking south from the Arthurs Seat Road



A signed speed limit of 60km/h applies to Mornington-Flinders Road south of Arthurs Seat Road, with a 40 km/h school speed limit during the hours of 8:00am-9:30am and 2:30pm-4:00pm from Monday to Friday in the vicinity of the Red Hill Consolidated School.

5.1.3 Community Concerns

Concerns have been raised regarding the crossing locations for students after school. We have been informed by members of the community that children from the ages of 7 to 13 attending the Red Hill Consolidated School use the walking track on the southern side of Arthurs Seat Road to attend football / netball / cricket or tennis at the Red Hill Recreation Reserve. Once they arrive at the Recreation Reserve, they proceed to cross from the southern side of Arthurs Seat Road to the northern side. Members of the community note that this is exceedingly dangerous due to the lack of sight distance in this section of Arthurs Seat Road, the speed of vehicles along Arthurs Seat Road, and the demographic of people crossing.

In addition to the above, the community has stated that there is a considerable shortage of car parking for parents during the pick-up and drop-off times. The shortage of parking thereby results in vehicles being parking areas that are a hazard to both pedestrians and motorists.

5.1.4 Parking Surveys

In order to assess the availability of parking, **onemilegrid** commissioned on and off-street car parking occupancy surveys in the vicinity of the Red Hill Consolidated School. The surveys were undertaken on Thursday 8th of March 2018 from 2:30pm-4:30pm, commensurate with the expected peak pick-up period.

The survey area is shown below in Figure 16, noting the following:

- Area 1 below is a staff parking area, which is also utilised by school buses;
- Area 2 is a short-term pick-up/drop-off area;
- Area 3 is angled parking off Mornington-Flinders Road;
- Area 4 is an off-street gravel parking area;
- Area 5 is private property, associated with the adjacent premises;
- On-Street parking along Mornington-Flinders Road includes the formal parking spaces adjacent to the shopping precinct, and verge parking adjacent the residential premises, on the west side only; and
- On-Street parking along Arthurs Seat Road includes both sides, though parking in the vicinity of the Mornington-Flinders Road intersection is restricted by No Stopping signage.

Figure 16 Survey Area – Red Hill Consolidated School

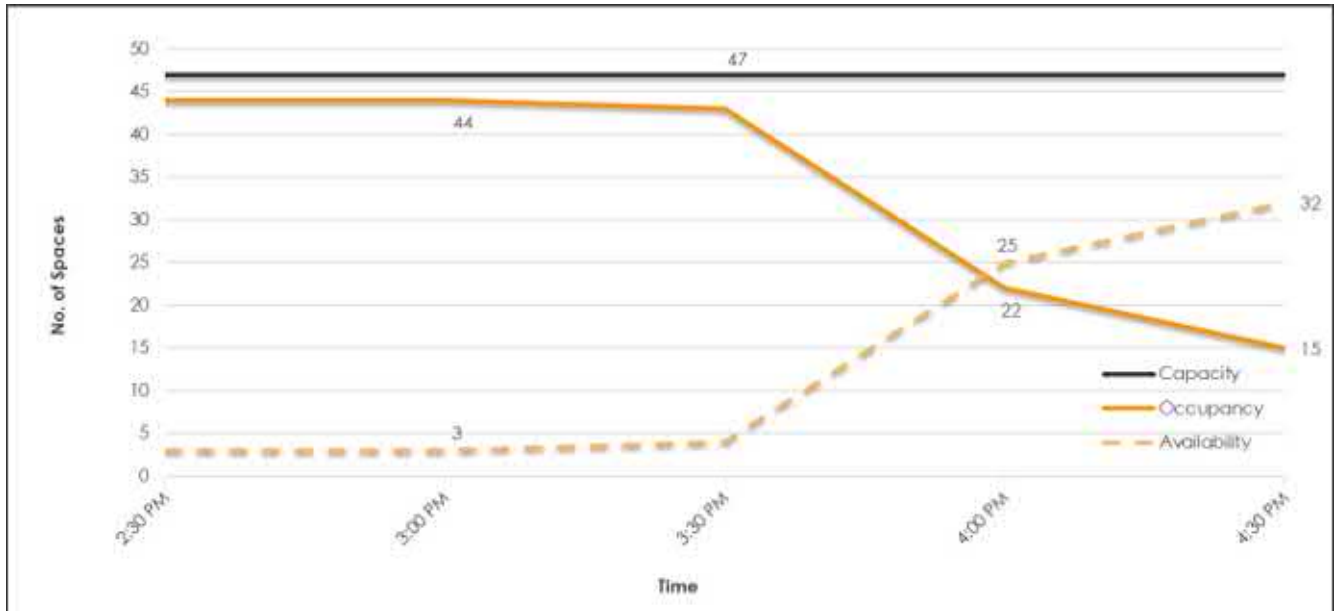


The surveys have been segregated into on-street and off-street parking areas to provide for a more detailed overview of the existing vehicle parking availabilities within the vicinity.

5.1.4.1 Off-Street Parking – Parking Area 1 (Staff/Buses)

On the Thursday, the surveys identified a constant supply of 47 parking spaces throughout the survey period. Peak occupancy occurred at 2:30pm when 44 spaces were occupied, leaving no fewer than 3 spaces available for use. Parking utilisation varied between 94% and 32% of capacity.

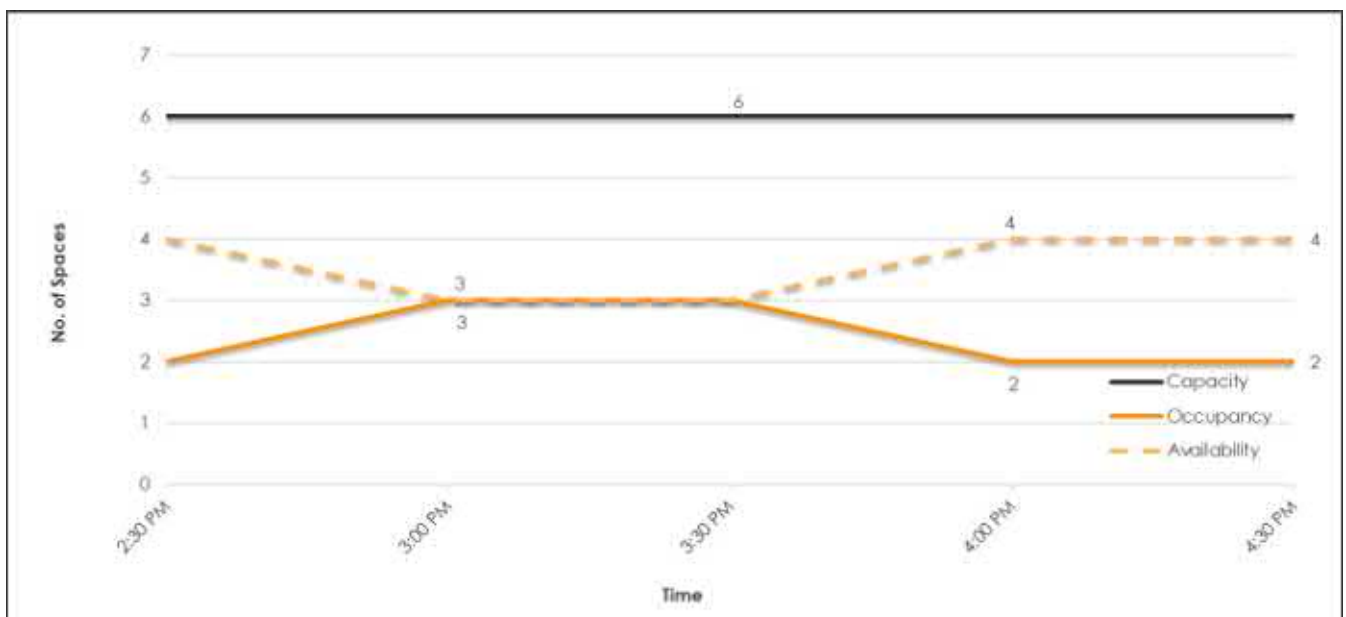
Figure 17 Red Hill School Off-Street Parking Area 1



5.1.4.2 Off-Street Parking – Parking Area 2

On the Thursday, the surveys identified a constant supply of 6 parking spaces throughout the survey period. Peak occupancy occurred at 3:00pm when 3 spaces were occupied, leaving no fewer than 3 spaces available for use. Parking utilisation varied between 50% and 33% of capacity.

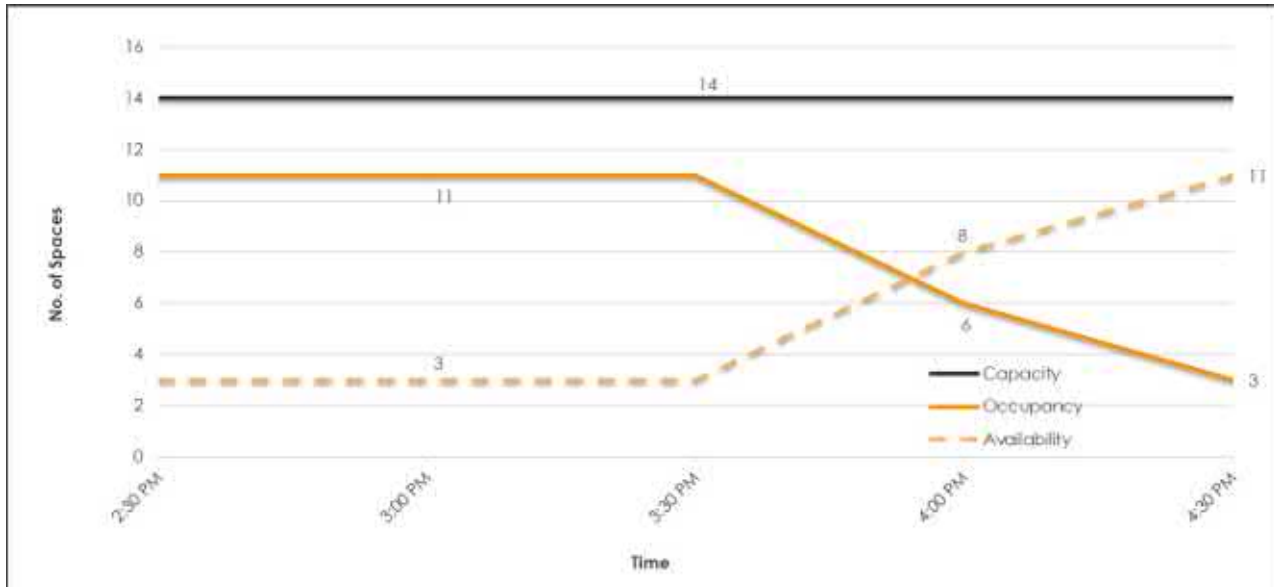
Figure 18 Red Hill School Off-Street Parking Area 2



5.1.4.3 Off-Street Parking – Parking Area 3

On the Thursday, the surveys identified a constant supply of 14 parking spaces throughout the survey period. Peak occupancy occurred at 2:30pm when 11 spaces were occupied, leaving no fewer than 3 spaces available for use. Parking utilisation varied between 79% and 21% of capacity.

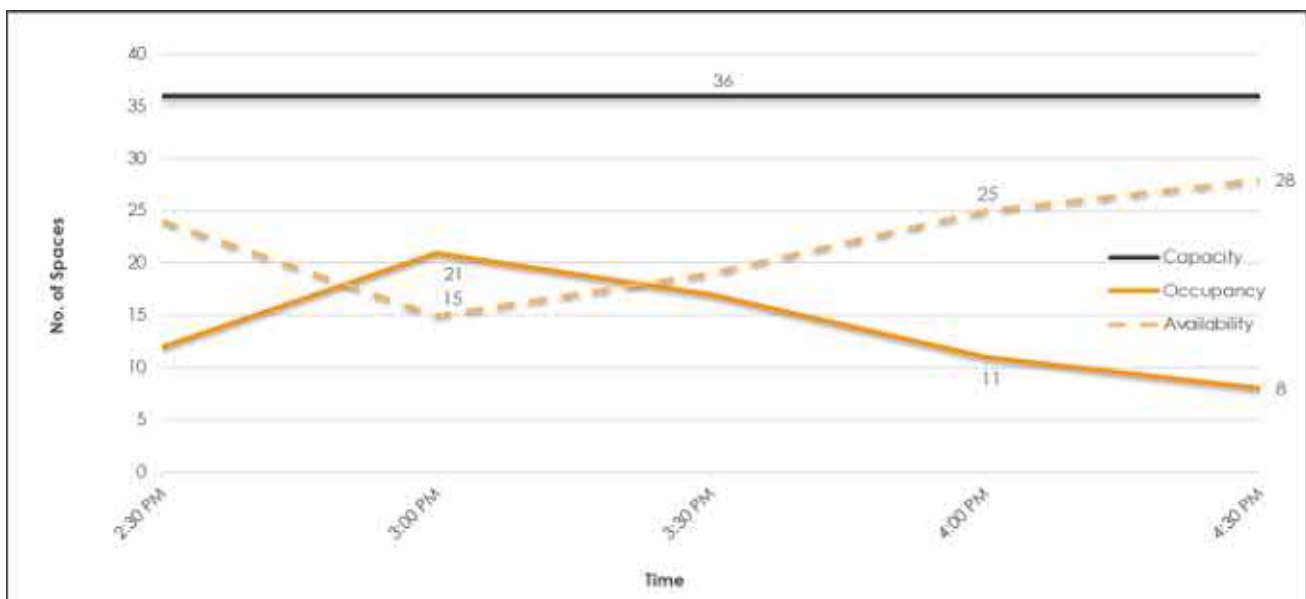
Figure 19 Red Hill School Off-Street Parking Area 3



5.1.4.4 Off-Street Parking – Parking Area 4

On the Thursday, the surveys identified a constant supply of 36 parking spaces throughout the survey period. Peak occupancy occurred at 3:00pm when 21 spaces were occupied, leaving no fewer than 15 spaces available for use. Parking utilisation varied between 58% and 22% of capacity.

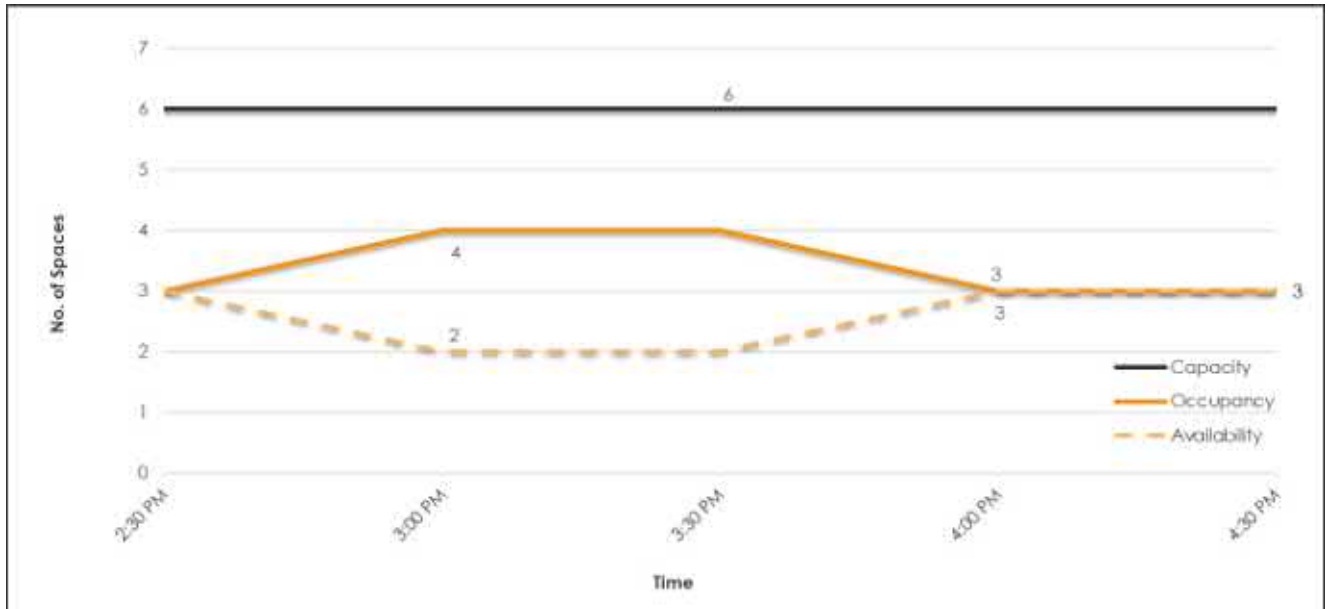
Figure 20 Red Hill School Off-Street Parking Area 4



5.1.4.5 Off-Street Parking – Parking Area 5 (Private Property)

On the Thursday, the surveys identified a constant supply of 6 parking spaces throughout the survey period. Peak occupancy occurred at 3:00pm when 4 spaces were occupied, leaving no fewer than 2 spaces available for use. Parking utilisation varied between 67% and 50% of capacity.

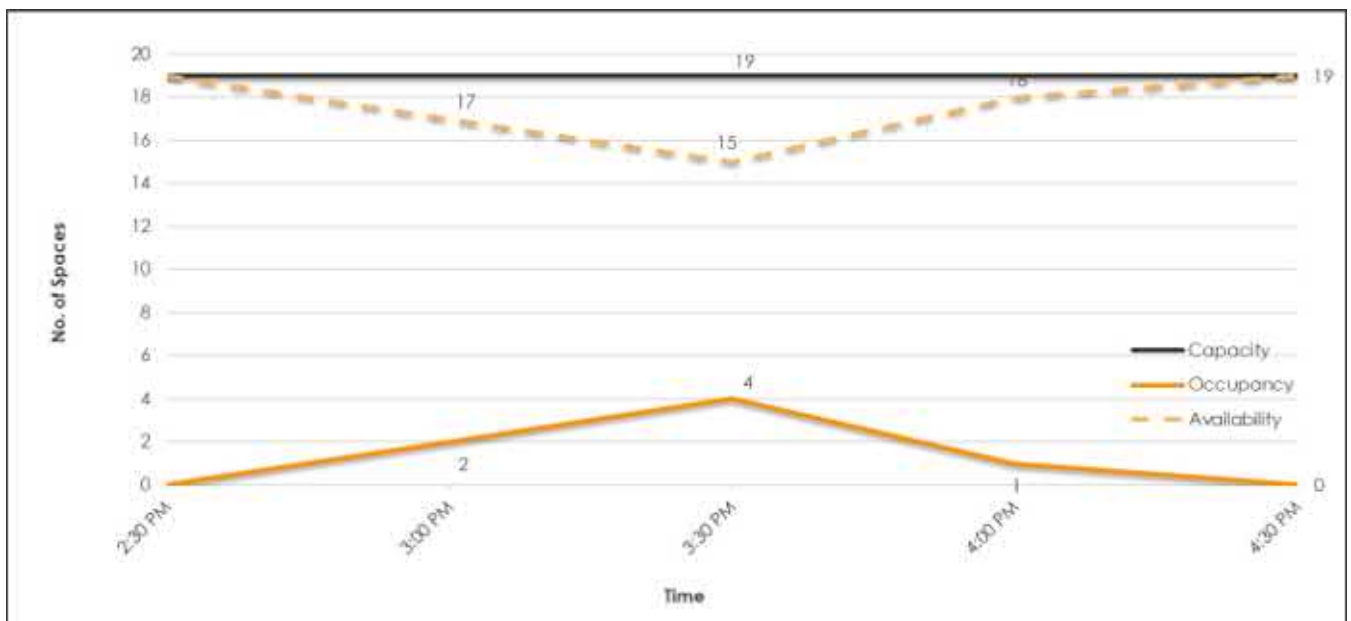
Figure 21 Red Hill School Off-Street Parking Area 5



5.1.4.6 On-Street Parking - Arthurs Seat Road (North Side)

On the Thursday, the surveys identified a constant supply of 19 parking spaces throughout the survey period. Peak occupancy occurred at 3:30pm when 4 spaces were occupied, leaving no fewer than 15 spaces available for use. Parking utilisation peaked at 21% noting that at the beginning and end of the survey times identified no parking utilisation.

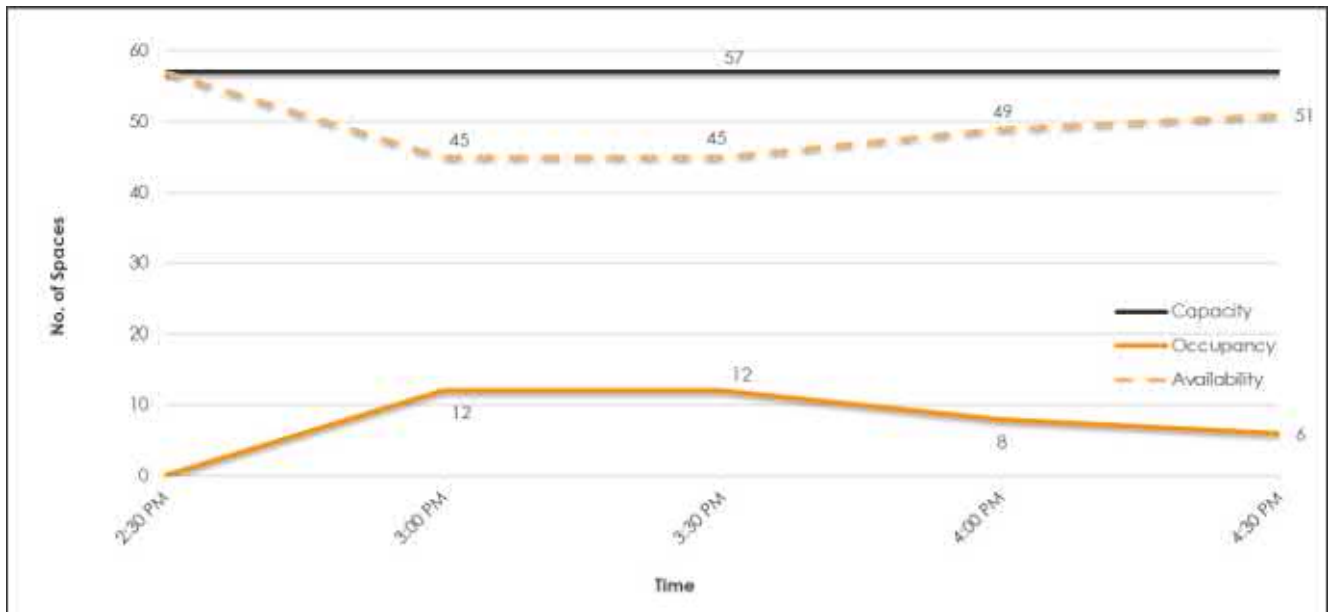
Figure 22 Red Hill School On-Street Parking – Arthurs Seat Road (North Side)



5.1.4.7 On-Street Parking - Arthurs Seat Road (South Side)

On the Thursday, the surveys identified a constant supply of 57 parking spaces throughout the survey period. Peak occupancy occurred at 3:00pm when 12 spaces were occupied, leaving no fewer than 45 spaces available for use. Parking utilisation peaked at 21% noting that at the beginning of the survey no parking spaces were utilised.

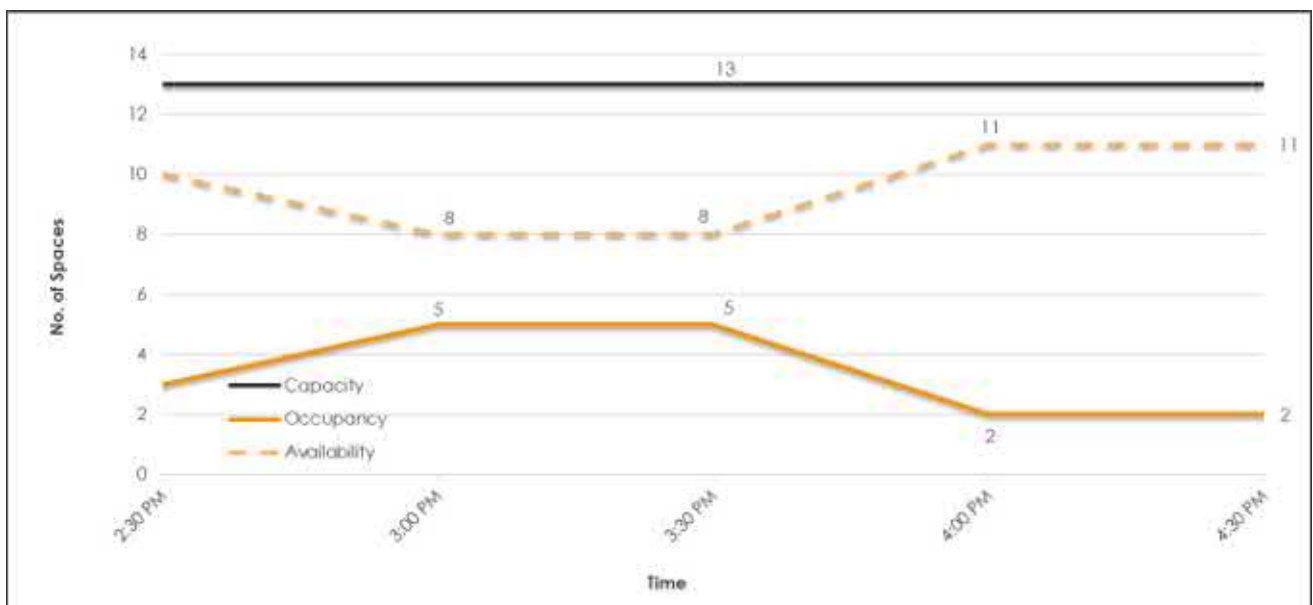
Figure 23 Red Hill School On-Street Parking – Arthurs Seat Road (South Side)



5.1.4.8 On-Street Parking - Mornington-Flinders Road (West Side)

On the Thursday, the surveys identified a constant supply of 13 parking spaces throughout the survey period. Peak occupancy occurred at 3:00pm when 5 spaces were occupied, leaving no fewer than 8 spaces available for use. Parking utilisation varied between 38% and 15% of capacity.

Figure 24 Red Hill School On-Street Parking – Mornington-Flinders Road (West Side)



It is noted that the parking surveys identified that on-street parking along Mornington-Flinders Road is available on the western side of the road only.

5.1.5 Discussion and Recommendations

As identified above, the key areas of concern are in regard to the crossing locations for the students of Red Hill Consolidated School, more specifically, students crossing Arthurs Seat Road opposite the Red Hill Recreation Reserve to attend after-school activities. The area where students cross is of concern due to the sight distance, speed and demographic of people crossing.

It is recommended to construct a formalised footpath connection extending from the Red Hill Consolidated School along the southern boundary of Arthurs Seat Road. The footpath connection will lead to a formal pedestrian crossing connecting the southern side of Arthurs Seat Road to the northern side at the frontage of the Red Hill Recreation Reserve. To provide further safety, it would be beneficial to consider widening Arthurs Seat Road in the vicinity of the Red Hill Recreation Reserve to include a pedestrian refuge island in the centre of the road, allowing pedestrians to cross one traffic lane at a time. Concept plans for pedestrian crossings in this location have been prepared and are provided within Appendix B.

It is noted that community concerns have been raised regarding the construction of new infrastructure including lighting and signage.

Recommendation: Construct of a formal pedestrian crossing facility near Red Hill Recreation Reserve, to facilitate improved pedestrian safety.

Based on the community's feedback, onemilegrid's general observations, and the results of the car parking surveys, there is a noticeable shortage of car parking and circulation opportunities during the peak pick-up and drop-off times at the school. Vehicles parking within close proximity to the Arthurs Seat Road/Mornington Flinders Road intersection, and actually propping within the intersection whilst waiting for parking to become available results in decreased sight distances, uncertainty for motorists, and general safety concerns for traffic in the area.

It is noted that school speed limits in the area appear to be generally observed, and vehicle movement in the area is generally low speed as a result, which assists general road safety in the area.

Whilst the peak parking demand may potentially be reduced by the staggering of school start and end times (by year level, or grouped year levels), practically, this is often difficult to achieve for Primary School year levels, and for parents with students in multiple year levels, can often result in longer wait times.

Ideally, additional parking areas would be provided, though a review of the site suggests there is limited opportunity for the provision of additional permanent parking, without the loss of unpaved play areas or heavily treed areas.

It noted that the community has suggested extending the pick-up/drop-off area into the angled car parking spaces. This may result in the loss of angled parking spaces and adversely increase the car parking occupancy. To address parking concerns, it may be beneficial to replace the small pick-up/drop-off area on Mornington-Flinders Road and construct angled car parking bays, extending from the existing bays located south of the pick-up/drop-off area. These spaces would be accompanied by parking restrictions, limiting vehicles to park for no more than two minutes during the peak pick-up and drop-off periods. This would result in a small net-increase of spaces available to parents along Mornington-Flinders Road.

Recommendation: Review the potential for increased car parking by converting the pick-up/drop-off area to angle parking.

It is understood that the relocation of the small pick-up/drop-off area (noted above) has been previously investigated, by relocating buses from the staff car parking area on-site, and using the existing bus parking area for pick-up/drop-off. This would require internal modifications to the roadways and parking areas within the school, but would further assist in alleviating existing parking and pick-up/drop-off concerns. Buses may be facilitated within the sports pavilion and sporting ground area for pick-up/drop-off.

Recommendation: Re-examine the potential to relocation buses internally, and provide a pick-up/drop-off lane through the staff car parking area.

A considerable amount of car parking is provided in gravel car parking in the south-western corner of the site. Observations suggest that this car parking area may not be utilised to full capacity, as parents may leave larger gaps between cars than might typically be provided in a formalised car park, though it is noted, in some cases parents may choose to park in areas where a formalised car park may not permit parking.

Recommendation: Review the potential for increased car parking provision by formalising the existing gravel car parking area in the south-western corner of the school.

5.2 Red Hill Recreation Reserve

5.2.1 Observations

The Red Hill Market was observed on Saturday 3rd March 2018. Car parking was provided on-site with entry via Arkwells Lane, and exit direct to Arthurs Seat Road. Upon inspection, the on-site carpark reached capacity early into the day, with motorists parking adjacent to the recreation reserve oval and in surrounding grassed areas.

Three off-street parking areas were opened on the southern side of Arthurs Seat Road for visitors of the Red Hill Market, generally comprising an entry fee of \$4 per vehicle.

Traffic congestion was observed along both Arkwells Lane and on Arthurs Seat Road.

Speed restriction signs were in place throughout the accessway, limiting vehicles to 10 km/h.

Figure 25 On-Site Carparking



Figure 26 Speed Limit - On-Site Carpark



Figure 27 On-Site Carpark Circulation



Figure 28 Arkwells Lane



Figure 29 National Trust \$4 Carpark



Figure 30 Arthurs Seat Road Congestion



5.2.2 Surrounding Road Network

5.2.2.1 White Hill Road

White Hill Road is an arterial road aligned north-south, running between Nepean Highway in the north and Arthurs Seat Road in the south. White Hill Road has a pavement width of approximately 7 metres and provides a single traffic lane in each direction.

A signed speed limit of 80km/h applies to White Hill Road.

5.2.2.2 Arthurs Seat Road

As previously indicated, Arthurs Seat Road is an arterial road generally aligned east-west running between Shoreham Road in the east and McCulloch Street in the west. Arthurs Seat Road provides a single traffic lane in each direction through the study area, with gravel shoulders.

Arthurs Seat Road has a signed speed limit of 80km/h west of White Hill Road, and 70 km/h east of White Hill Road.

5.2.2.3 Arkwells Lane

Arkwells Lane is a local road, which runs along the west side of Red Hill Recreation Reserve, providing access to the Reserve, and surrounding properties to the north.

The southern section of Arkwells Lane has been recently upgraded to provide sufficient width for two-way movements for the initial 140 metres into the lane (to the access point between the two ovals), as shown in Figure 31 and Figure 32.

Figure 31 Arkwells Lane, looking south towards Arthurs Seat Road



No Stopping signs are provided on both sides of Arkwells Lane along the reserve frontage.

Figure 32 Aerial of Arkwells Lane



5.2.3 Red Hill Market and Show Traffic Management Plan

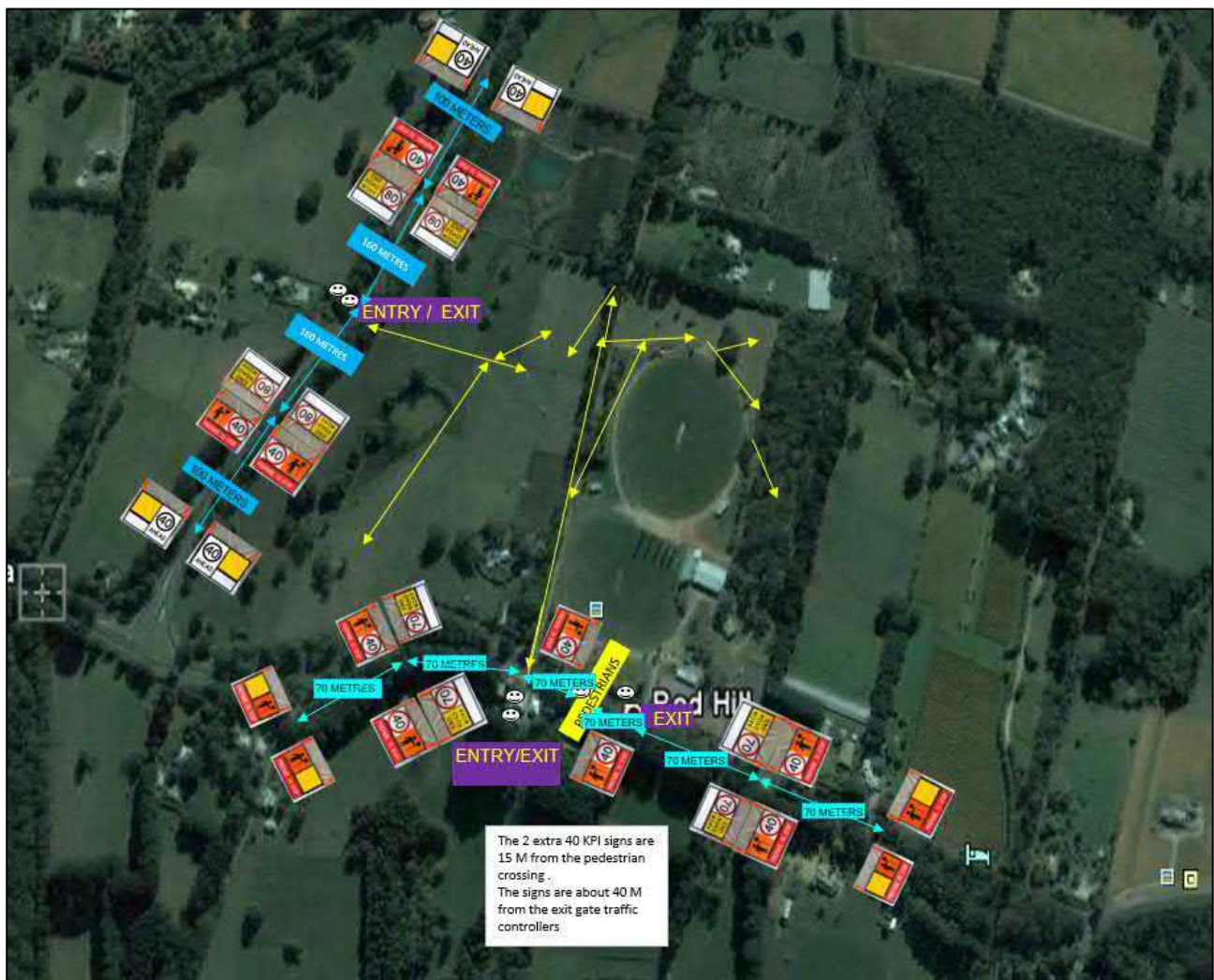
The Traffic Management Plan for the 2017 / 2018 Red Hill Show is shown below in Figure 33.

The events largely take place within the Red Hill Recreation Reserve (the two adjoining ovals), with vehicle parking provided in the surrounding grassed areas and farmland.

There are two vehicle access points in place during these events, the first of which occurring from the Arthurs Seat Road / Arkwells Lane intersection and the other from White Hill Road directly into the western parking area. A stretch of road along both White Hill Road and Arthurs Seat Road surrounding their respective access points are shown to have a reduced speed limit to 40 km/h.

Two traffic controllers are situated at each access point to manage the flow and safety of vehicles entering and exiting the site.

Figure 33 Traffic Management Plan – Red Hill Show 2017 / 2018



5.2.4 Community Concerns

Concerns have been raised regarding the availability of car parking, the circulation and access points for traffic and the pedestrian accessibility during the Red Hill Markets and the Red Hill Show.

Regarding the parking availabilities, members of the community have indicated that there is a major shortage of spaces available to the visitors of these events, with the market occurring approximately 9 times per year, the Show occurring annually, and other irregular events.

An adjacent farm paddock to the west of Arkwells Lane is generally utilised to accommodate additional car parking during the Red Hill Market, and is utilised to accommodate a considerable amount of parking for the Red Hill Show. It is understood that the agreement with the adjacent land owner to provide car parking is an informal (or at least temporary) arrangement, and may be removed at any time, potentially jeopardising the operation of the Market, and more critically the Red Hill Show.

Members of the community have stated that reversing onto Arkwells Lane during these events is 'very dangerous'. It has also been mentioned that No Stopping signs should be implemented along the fences in addition to or in place of the existing No Stopping signs on the western side of Arkwells Lane, to stop vehicles parking here.

The community have assessed the access point into the farm paddock carpark from White Hill Road to be steep, slippery and dangerous. Reference has been made to the possible extension of Arkwells Lane onto White Hill Road with an access point that complies with Council standards.

Similar to the concerns raised with regards to the Red Hill Consolidated School, pedestrian access from the southern side of Arthurs Seat Road to the northern side of Arthurs Seat Road, particularly in the vicinity of the Recreation Reserve, has been pointed out to be dangerous. A temporary crossing is set up during these events, though preference has been made to a permanent pedestrian crossing in this location.

In addition to the above concerns, the community have identified that the traffic congestion throughout the Red Hill area during the Red Hill Market is severe and have requested an upgrade of Arthurs Seat Road and White Hill Road.

5.2.5 Parking Surveys – Red Hill Market

In order to assess the availability of parking, **onemilegrid** commissioned on-street car parking occupancy surveys in the vicinity of the Red Hill Recreation Reserve. The surveys were undertaken on Saturday 3rd of March 2018 from 8:00am-1:00pm, commensurate with the Red Hill Market opening hours.

The survey area is shown below in Figure 34.

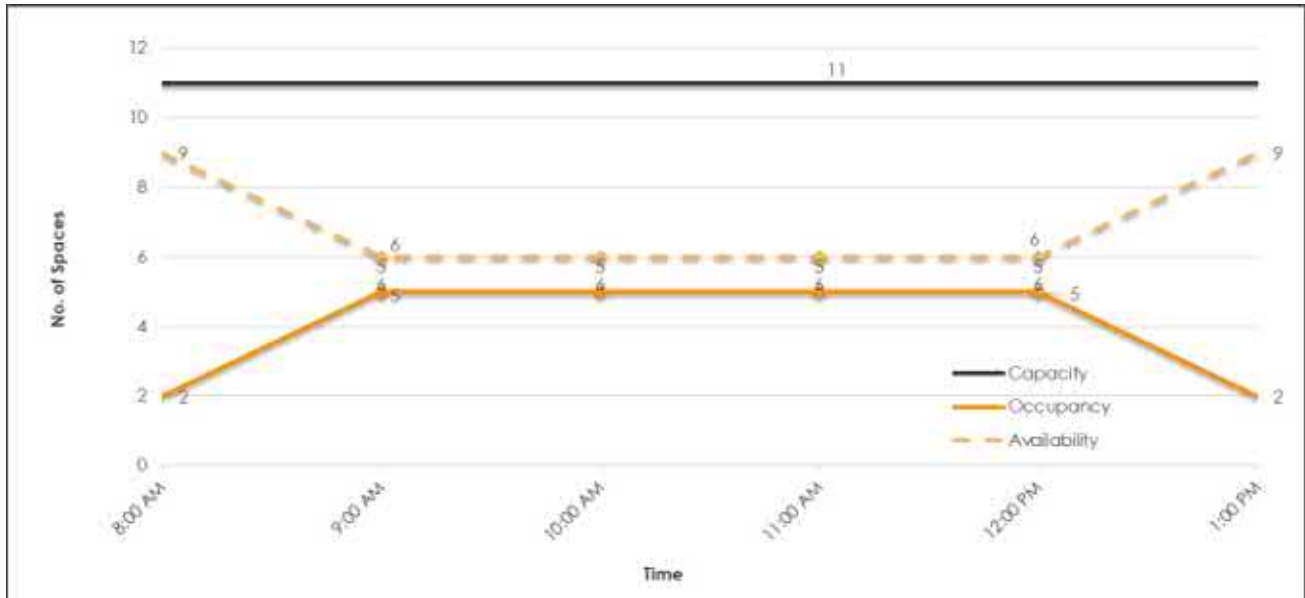
Figure 34 Survey Area – Red Hill Market



5.2.5.1 Off-Street Parking – Parking Area 1 (The Sunday School)

On the Saturday, the surveys identified a constant supply of 11 parking spaces throughout the survey period. Peak occupancy occurred at 9:00am when 5 spaces were occupied, leaving no fewer than 6 spaces available for use. Parking utilisation varied between 45% and 18% of capacity.

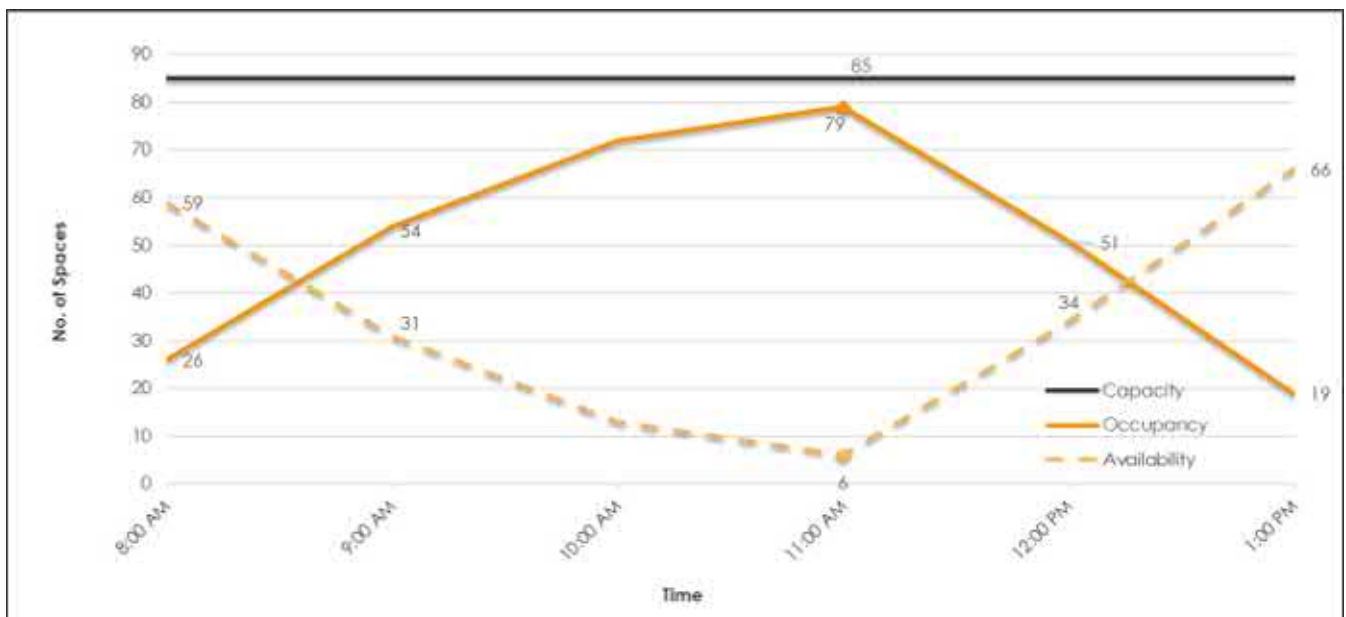
Figure 35 Red Hill Market Off-Street Parking Area 1



5.2.5.2 Off-Street Parking – Parking Area 2 (St George's Anglican Church - \$4 ticket)

On the Saturday, the surveys identified a constant supply of 85 parking spaces throughout the survey period. Peak occupancy occurred at 11:00am when 79 spaces were occupied, leaving no fewer than 6 spaces available for use. Parking utilisation varied between 93% and 22% of capacity.

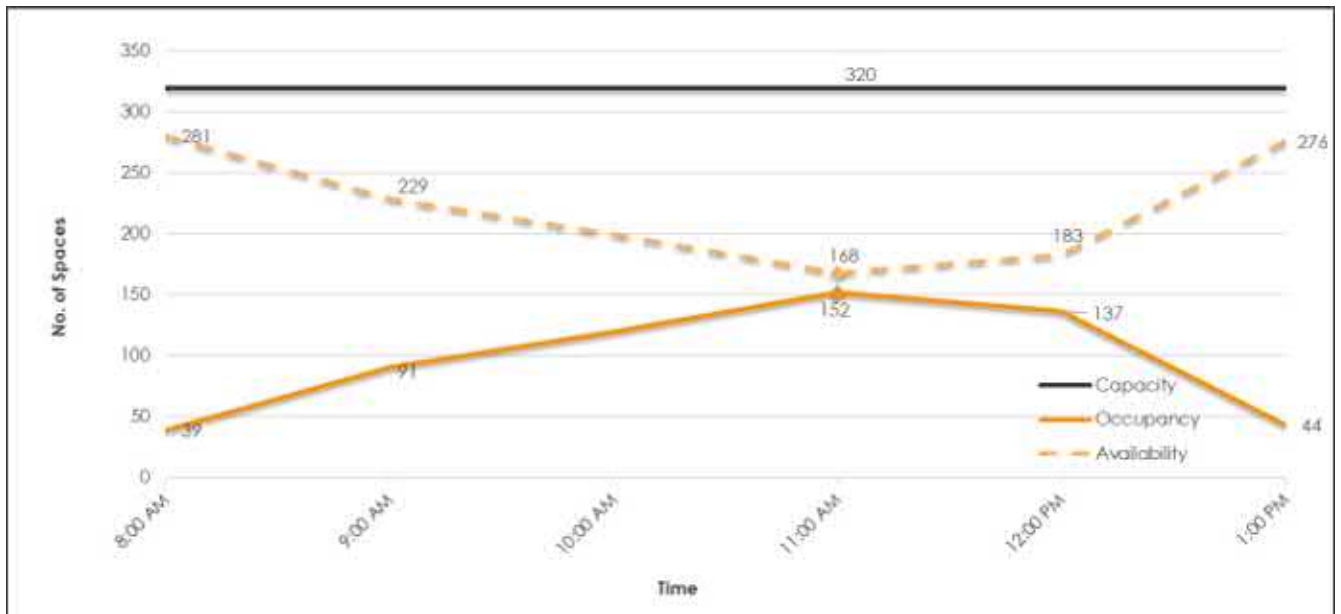
Figure 36 Red Hill Market Off-Street Parking Area 2



5.2.5.3 Off-Street Parking – Parking Area 3 (\$4 ticket)

On the Saturday, the surveys identified a constant supply of 320 parking spaces throughout the survey period. Peak occupancy occurred at 11:00am when 152 spaces were occupied, leaving no fewer than 168 spaces available for use. Parking utilisation varied between 48% and 12% of capacity.

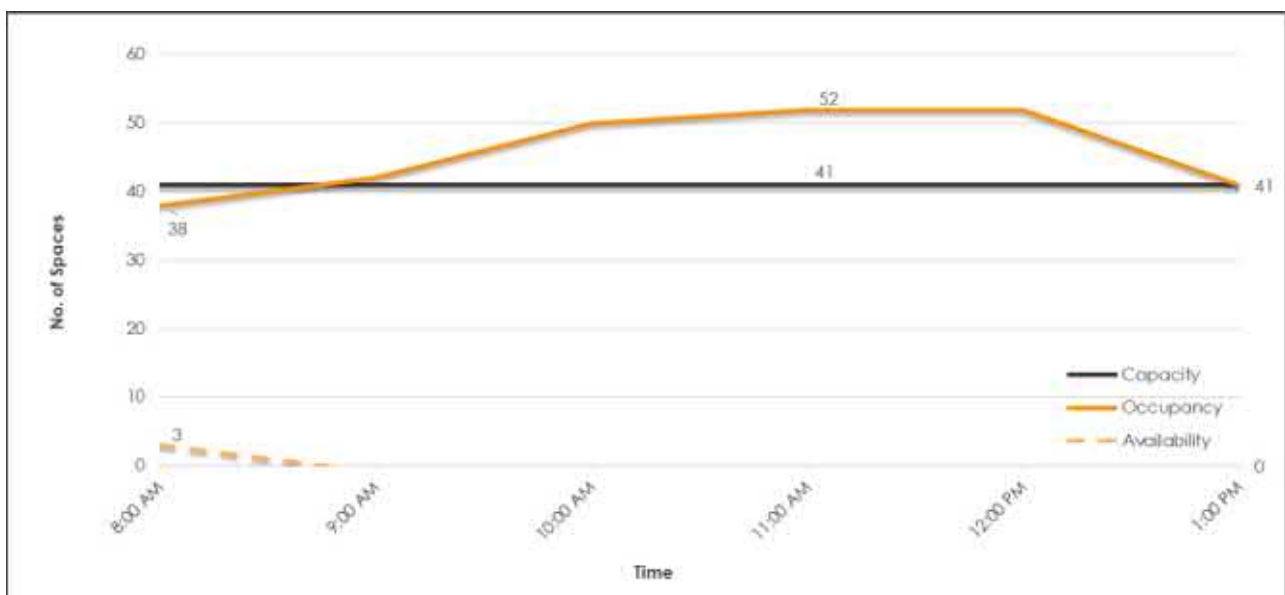
Figure 37 Red Hill Market Off-Street Parking Area 3



5.2.5.4 On-Street Parking – North Side of Arthurs Street Road

On the Saturday, the surveys identified a constant supply of 41 parking spaces throughout the survey period. Peak occupancy occurred at 11:00am when the occupancy exceeded the maximum capacity by 11 spaces. Parking utilisation peaked during the middle of the survey, though the area is considered to be fully occupied throughout the surveyed time.

Figure 38 Red Hill Market On-Street Parking (Northern Side of Arthurs Seat Road)



The above survey results indicate that motorists are parking on Arthurs Seat Road when the parking capacity has already been reached. This can result in a hazardous situation for both motorists and pedestrians.

It is noted that the parking surveys identified that on-street parking along Arthurs Seat Road is available on the northern side of the road only.

5.2.6 Parking Surveys – Red Hill Show

In order to assess the availability of parking, **onemilegrid** commissioned on and off-street car parking occupancy and accumulation surveys in the vicinity of the Red Hill Recreation Reserve. The surveys were undertaken on Saturday 10th of March 2018 from 8:30am-5:00pm, commensurate with the Red Hill Show opening hours.

It is noted that accumulation surveys were arranged throughout the major parking areas within the Red Hill Recreation Reserve, though due to mistakes made by Nationwide Traffic Surveys Pty Ltd, these surveys were not considered to be accurate and have been excluded from the results.

The survey area is shown below in Figure 39.

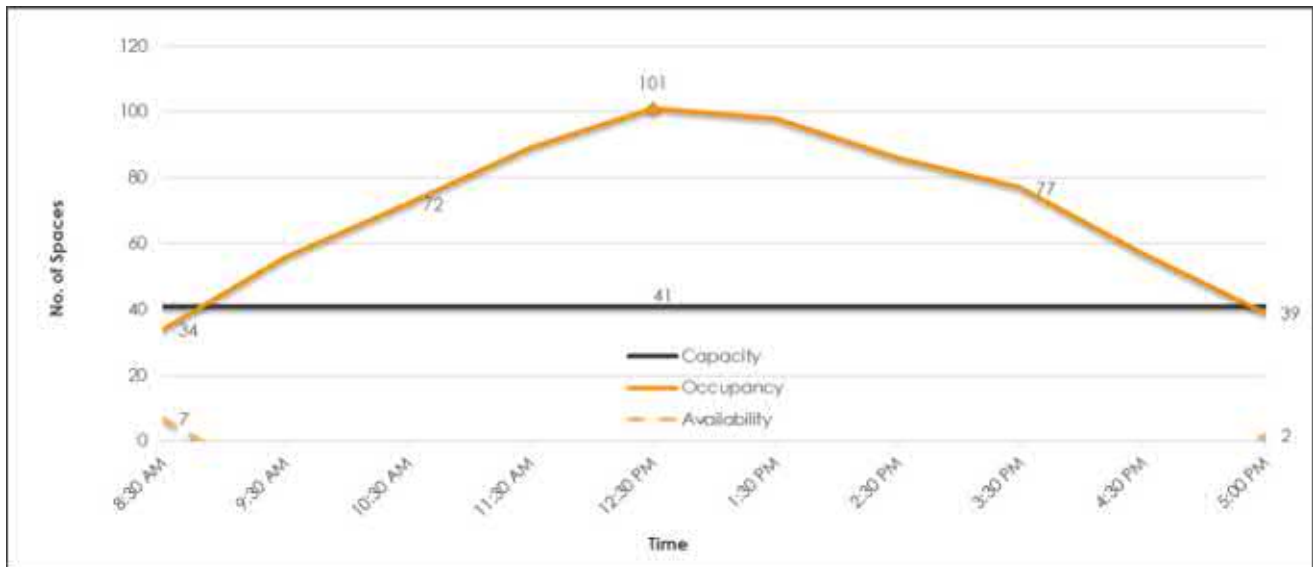
Figure 39 Survey Area – Red Hill Show



5.2.6.1 On-Street Parking – North Side of Arthurs Seat Road

On the Saturday, the surveys identified a constant supply of 41 parking spaces throughout the survey period. Peak occupancy occurred at 12:30 PM when the occupancy exceeded the maximum capacity by 60 spaces. Parking utilisation peaked towards the middle of the survey, though the area is considered to be fully occupied throughout the surveyed time.

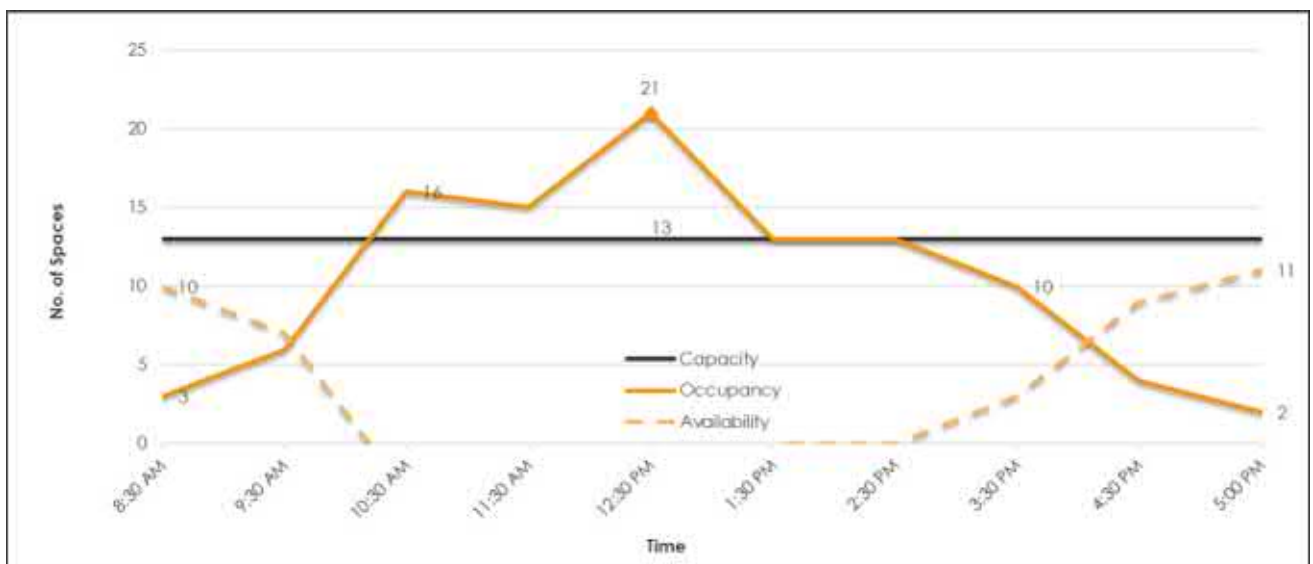
Figure 40 Red Hill Show On-Street Parking (Northern Side of Arthurs Seat Road)



5.2.6.2 On-Street Parking – South Side of Arthurs Seat Road

On the Saturday, the surveys identified a constant supply of 13 parking spaces throughout the survey period. Peak occupancy occurred at 12:30 PM when the occupancy exceeded the maximum capacity by 8 spaces. Parking utilisation peaked towards the middle of the survey, though the area is considered to be fully occupied throughout the surveyed time.

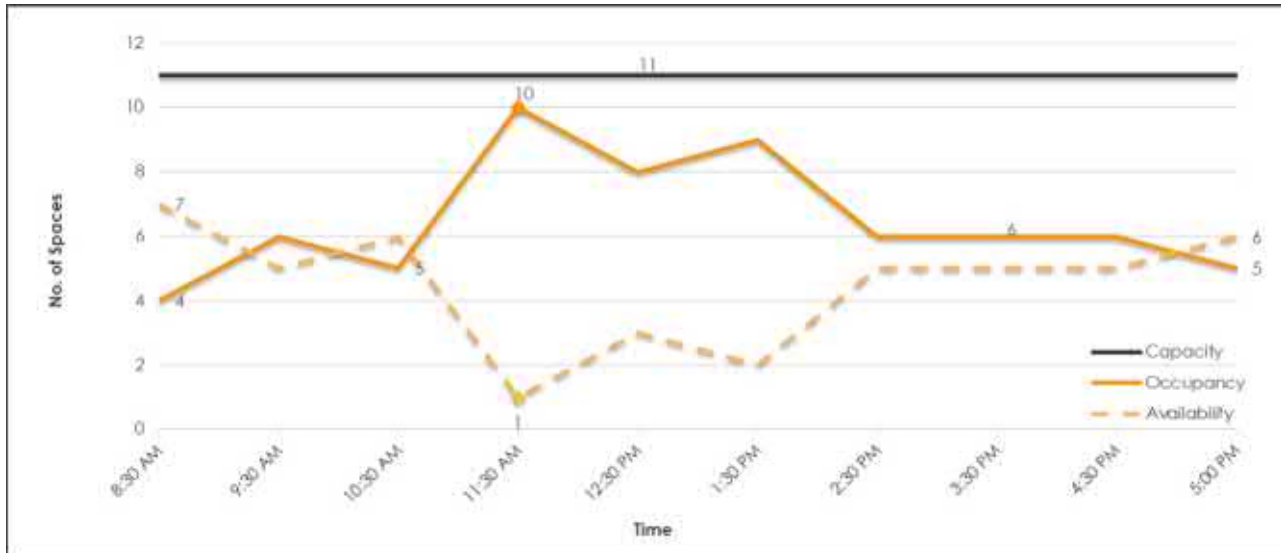
Figure 41 Red Hill Show On-Street Parking (Southern Side of Arthurs Seat Road)



5.2.6.3 Off-Street Parking – Parking Area 1

On the Saturday, the surveys identified a constant supply of 11 parking spaces throughout the survey period. Peak occupancy occurred at 11:30 AM when 10 spaces were occupied, leaving no fewer than 1 spaces available for use. Parking utilisation varied between 91% and 36% of capacity.

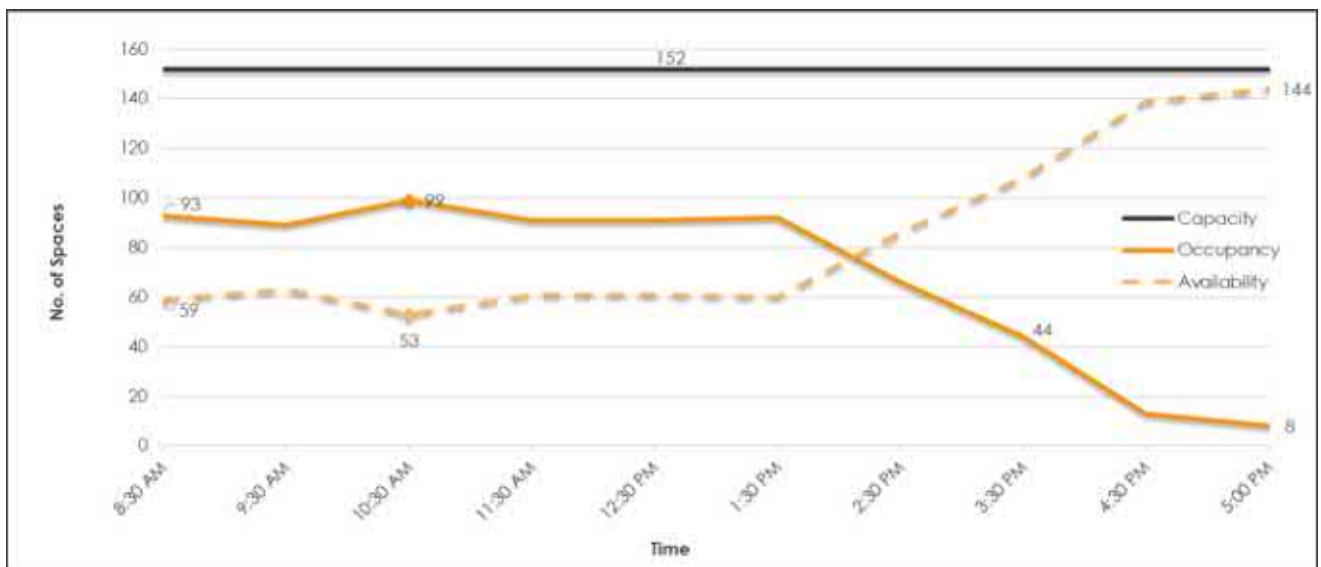
Figure 42 Red Hill Show Off-Street Parking Area 1



5.2.6.4 Off-Street Parking – Parking Area 2

On the Saturday, the surveys identified a constant supply of 152 parking spaces throughout the survey period. Peak occupancy occurred at 10:30 AM when 99 spaces were occupied, leaving no fewer than 53 spaces available for use. Parking utilisation varied between 65% and 5% of capacity.

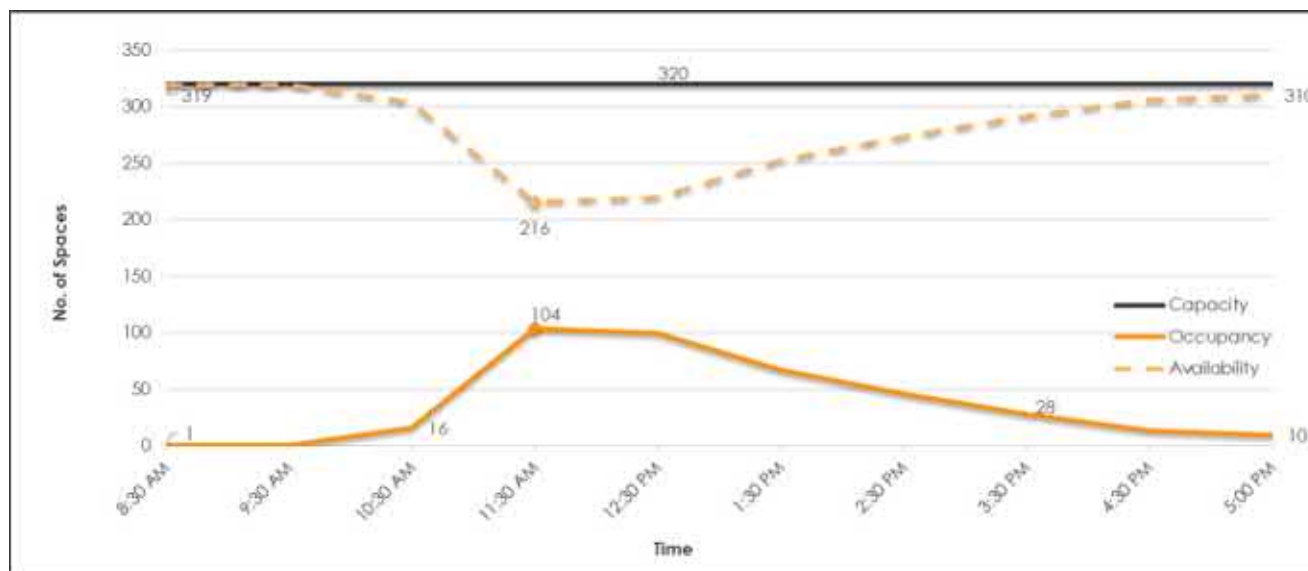
Figure 43 Red Hill Show Off-Street Parking Area 2



5.2.6.5 Off-Street Parking – Parking Area 3

On the Saturday, the surveys identified a constant supply of 320 parking spaces throughout the survey period. Peak occupancy occurred at 11:30 AM when 104 spaces were occupied, leaving no fewer than 216 spaces available for use. Parking utilisation varied between 33% and 0% of capacity.

Figure 44 Red Hill Show Off-Street Parking Area 3

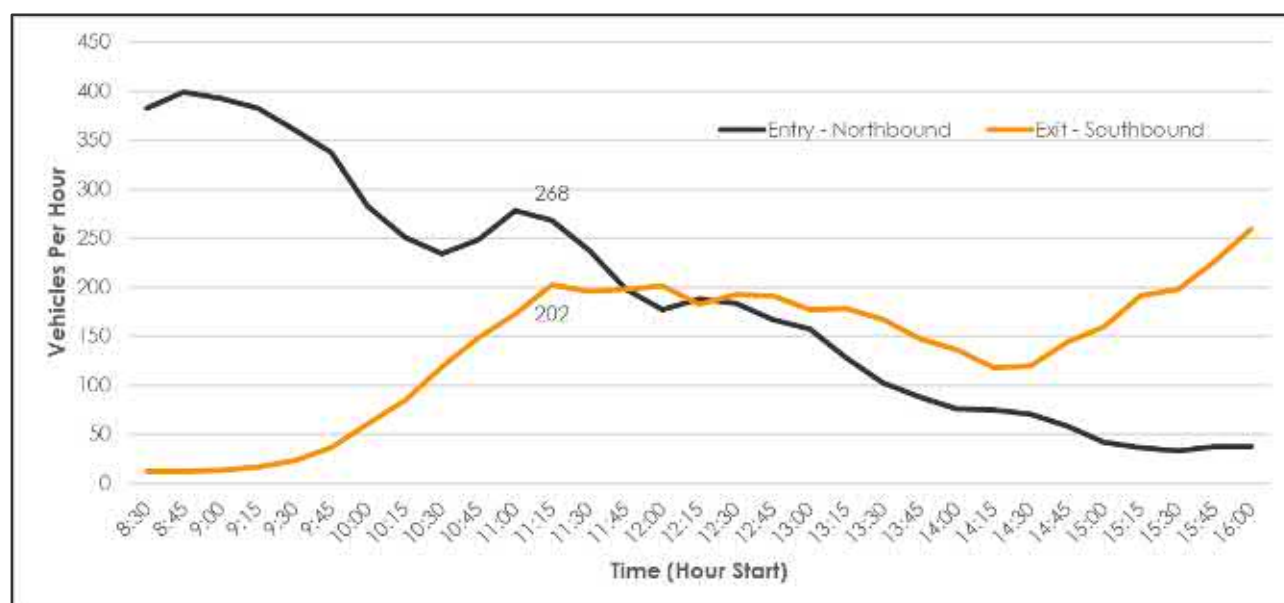


5.2.7 Traffic Surveys – Red Hill Show

In order to ascertain the traffic volumes utilising Arkwells Lane, at the Arthurs Seat Road intersection, traffic volume surveys were also undertaken on Saturday 10th of March 2018 from 8:30am-5:00pm, commensurate with the Red Hill Show opening hours.

The survey results indicate a total flow of approximately 2,800 vehicles over the survey period, with a peak flow of 470 vehicles per hour occurring at 11:15am – 12:15pm, as shown in Figure 45.

Figure 45 Arkwells Lane Traffic Volumes – Red Hill Show



5.2.8 Discussion and Recommendations

As discussed in Section 5.1.5, it is recommended that a formalised pedestrian crossing point is created adjacent Red Hill Recreation Reserve.

Furthermore, due to the increased pedestrian activity in the area, pedestrian warning signs may be beneficial, noting community concerns regarding proliferation of signage.

Recommendation: Provide pedestrian warning signs along Arthurs Seat Road in the vicinity of the Red Hill Recreation Reserve

In relation to the Red Hill Market and Red Hill Show operation, it should be noted that these events occur monthly and annually respectively; or a total of approximately 10-12 days per year. Over the course of a year, these events can be considered to be uncommon, and for the majority of the year, the existing conditions provided by the Recreation Reserve, in terms of access and car parking are appropriate.

Typically, with particular regard to the provision of car parking, it is considered appropriate to provide permanent car parking to accommodate the 85th percentile parking demands, acknowledging that the absolute peak parking demands may overflow regular parking provision. In this case, this would suggest that the regular parking demands for the Recreation Reserve should be accommodated on-site, though acknowledging that peak demands during the Red Hill Market or Red Hill Show will likely exceed these demands.

In this case, the overflow parking is accommodated off-site, including in an adjacent paddock, on-street in the vicinity, and within private parking areas in the area. Of these, whilst parking on-street along Arthurs Seat Road can cause safety concerns, the reduced speed limit and other traffic management items typically provide a safe operating environment.

In relation to the use of the adjacent farm paddock for parking, it is acknowledged that the use of this parking area cannot be guaranteed into the future, and could be an issue for the future of either the Red Hill Market or Show, and therefore to ensure the future continued use of the Recreation Reserve for the Market and Show, a long term commitment to overflow parking should be sought, or alternative parking be investigated. It is noted that the purchase of land specifically for car parking would obviously ensure ongoing parking availability during events, though would be typically unused other than during Market and Show events.

Furthermore, the potential to purchase land adjacent the Reserve, with a frontage to White Hill Road, would provide the opportunity to not only provide additional parking, but enable the creation of an additional access point to White Hill Road (subject to finding a suitable location and obtaining VicRoads approval), relieving pressure on Arthurs Seat Road and Arkwells Lane.

Recommendation: Examine possibilities for long-term use of the overflow parking areas, or alternative overflow parking, to ensure the ongoing viability of the Red Hill Market and Show, and potential additional access to White Hill Road.

It is noted that the off-street parking area located on the southern side of Arthurs Seat Road comprising a \$4 entry fee, was observed to have a maximum occupancy of approximately 50% during the show, leaving in excess of 150 available spaces during the busiest of times. This is sufficient to relieve the problematic parking along Arthurs Seat Road, though is expected to be underutilised due to the fee involved.

Recommendation: Review the traffic management plan for the Red Hill Show and Market to include the provision of No Stopping signage in the vicinity of the Recreation Reserve, to prevent problematic parking and ease congestion.

Recommendation: Increase enforcement of No Stopping areas on Market and Show days.

Arkwells Lane is a narrow gravel road, which provides access to the Reserve, and further properties to the north. The road reserve of Arkwells Lane is heavily vegetated on both sides, with large established trees along its length.

Arkwells Lane has been recently upgraded to provide a wider carriageway for the initial 140 metres and is considered to be capable of accommodating two-way traffic, as detailed in Section 5.2.2.3. Beyond this point, Arkwells Lane has sufficient width one-way traffic only.

Arkwells Lane is expected to provide appropriate levels of accessibility for the Reserve and surrounding area, though on Show days in particular, when Arkwells Lane is utilised for two-way traffic, the existing portion of the carriageway with single lane width is unsuitable for the volume of traffic expected (up to 470 vehicles per hour during the Show).

During Market days, as Arkwells Lane is generally utilised for vehicle entry only, the single lane provided is generally sufficient (though noting that a two-lane road along the entire length of the Recreation Reserve would allow for improvements to the operation).

A review of the northern portion of Arkwells Lane suggests that in all but potentially one location (as shown in Figure 46, where trees are situated in close proximity to both sides of the existing roadway), the northern portion of Arkwells Lane could be similarly upgraded to the same standard as the southern portion, though noting that regrading and drainage works may be required in some areas.

Figure 46 Arkwells Lane, north of the central access point



Whilst it is agreed that improvements to Arkwells Lane would greatly assist traffic management during the Show, noting that this occurs over only one day per year, the cost resulting from upgrades may outweigh the benefits.

Recommendation: Consider upgrading the northern portion of Arkwells Lane to improve traffic management for both the Red Hill Show and Market.

5.3 General Store and Red Hill Shops

5.3.1 Surrounding Road Network

5.3.1.1 Arthurs Seat Road

Arthurs Seat Road is an arterial road generally aligned east-west running between Shoreham Road in the east and McCulloch Street in the west. Arthurs Seat Road provides a single traffic lane in each direction through the study area. The cross-section of Arthurs Seat Road is shown in Figure 47.

Figure 47 Arthurs Seat Road, looking west from the General Store / Red Hill Shops



A signed speed limit of 70 km/h applies to Arthurs Seat Road in the vicinity of the Red Hill Shops and General Store.

5.3.2 Community Concerns

The parking availabilities around the Red Hill United Service Station and Red Hill Shops has been raised as a concern from the community, highlighting that there is insufficient parking provided to service these developments.

Concerns have also been raised regarding the increasing number of cyclists in the area, it has been suggested that on-road bicycle lanes be provided along Arthurs Seat Road.

The community has suggested restricting the speed limit in the vicinity of the service station and Red Hill Shops to 50 km/h.

5.3.3 Parking Surveys

In order to assess the availability of parking, **onemilegrid** commissioned on and off-street car parking occupancy surveys in the vicinity of the Red Hill General Store and Red Hill Shops. The surveys were undertaken on Saturday 17th of March 2018 from 12:00pm-3:00pm and 5:30pm-8:30pm, and on Sunday 18th March 2018 from 12:00pm-3:00pm commensurate with the typical peak lunch and dinner peak operating periods.

The survey area is shown below in Figure 48.

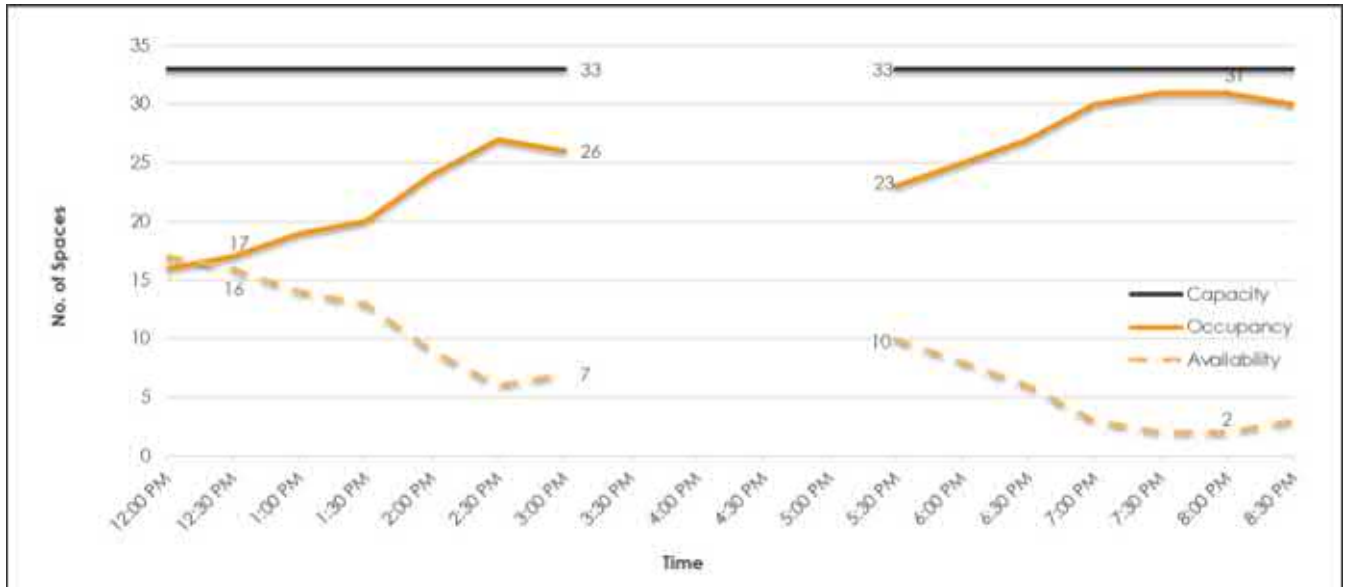
Figure 48 Survey Area – General Store and Red Hill Shops



5.3.3.1 Saturday 17th March – Off-Street Parking Area 1

On the Saturday, the surveys identified a constant supply of 33 parking spaces throughout the survey period. Peak occupancy occurred at 7:30pm when 31 spaces were occupied, leaving no fewer than 2 spaces available for use. Parking utilisation varied between 94% and 48% of capacity.

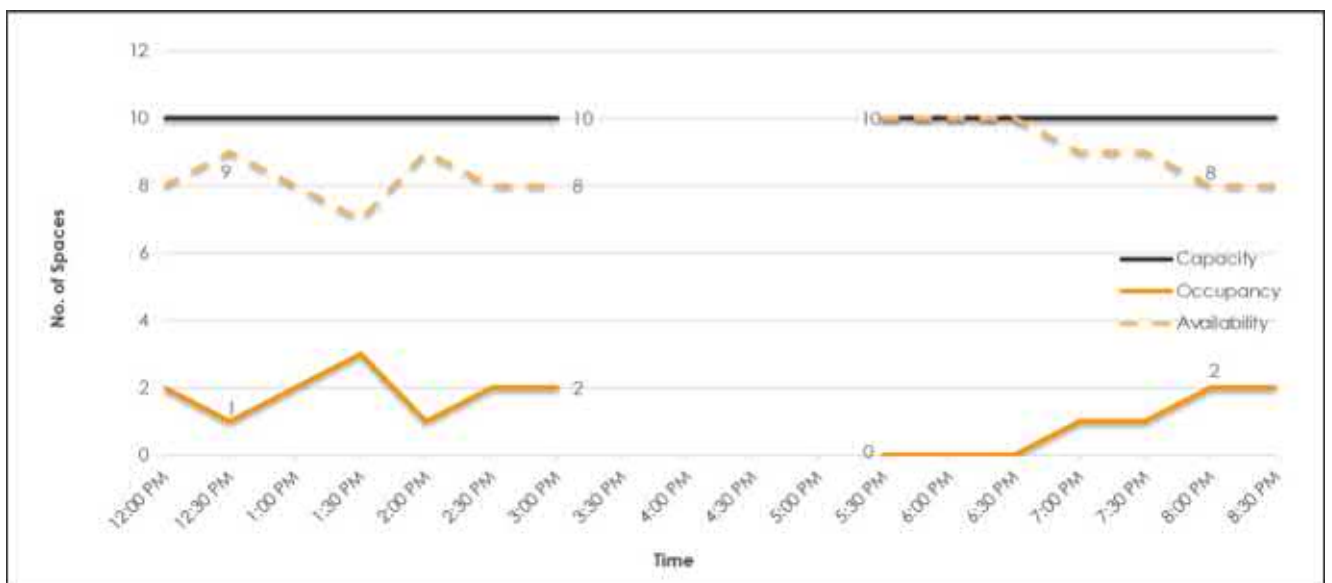
Figure 49 General Store and Red Hill Shops Off-Street Parking Area 1 – Saturday



5.3.3.2 Saturday 17th March – Off-Street Parking Area 2

On the Saturday, the surveys identified a constant supply of 10 parking spaces throughout the survey period. Peak occupancy occurred at 1:30pm when 3 spaces were occupied, leaving no fewer than 7 spaces available for use. Parking utilisation peaked at 30% of capacity.

Figure 50 General Store and Red Hill Shops Off-Street Parking Area 2 – Saturday



5.3.3.3 Saturday 17th March – On-Street Parking (Northern Side of Arthurs Seat Road)
On the Saturday, the surveys identified that a maximum of 16 spaces were occupied.

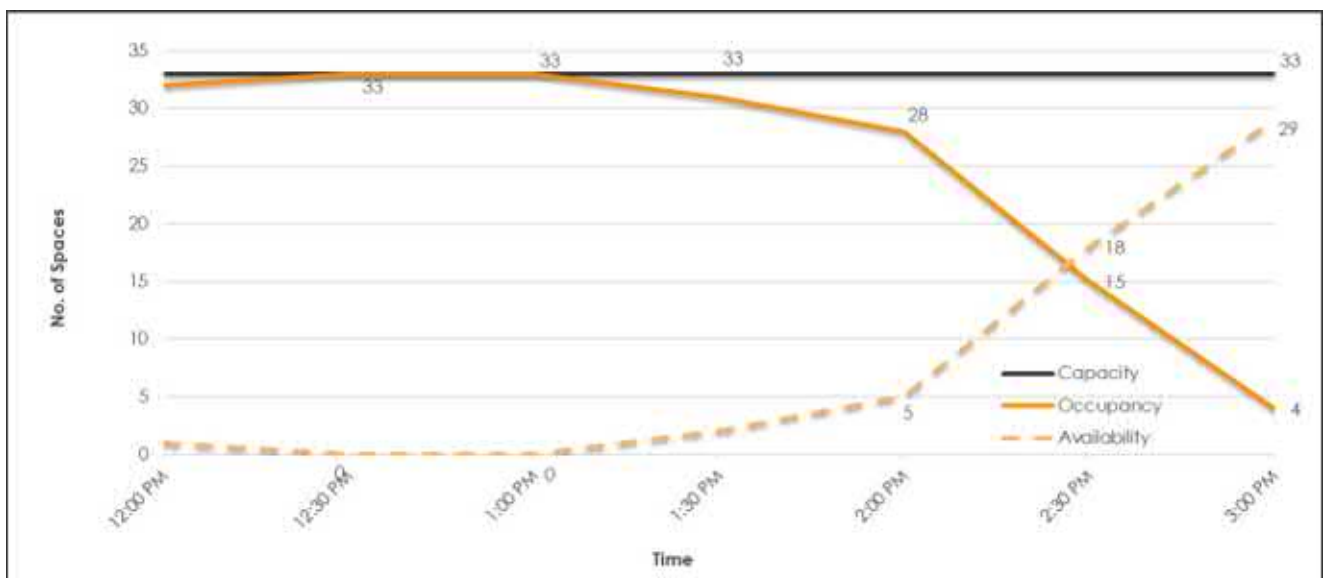
Figure 51 General Store and Red Hill Shops On-Street Parking (Northern Side) – Saturday



5.3.3.4 Sunday 18th March – Off-Street Parking Area 1

On the Sunday, the surveys identified a constant supply of 33 parking spaces throughout the survey period. Peak occupancy occurred at 12:30pm when the full capacity of 33 spaces were occupied, leaving no spaces available for use. Parking utilisation reached 100% of capacity during a significant period of the survey.

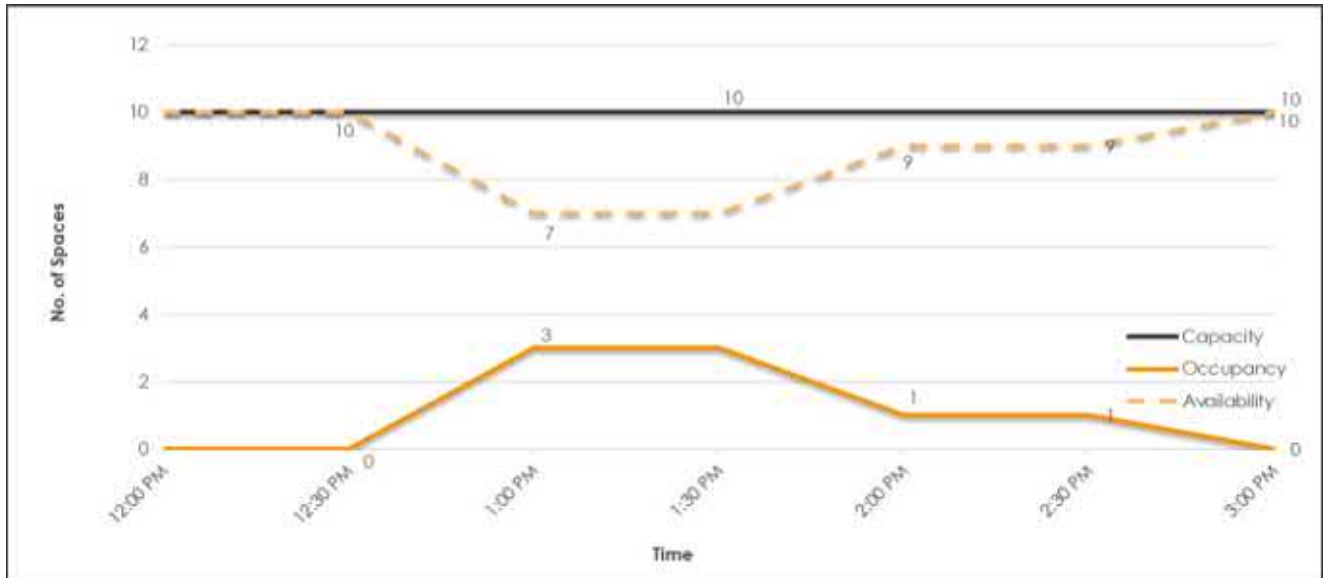
Figure 52 General Store and Red Hill Shops Off-Street Parking Area 1 – Sunday



5.3.3.5 Sunday 18th March – Off Street Parking Area 2

On the Sunday, the surveys identified a constant supply of 10 parking spaces throughout the survey period. Peak occupancy occurred at 1:00pm when 3 spaces were occupied, leaving no fewer than 7 spaces available for use. Parking utilisation peaked at 30% of capacity.

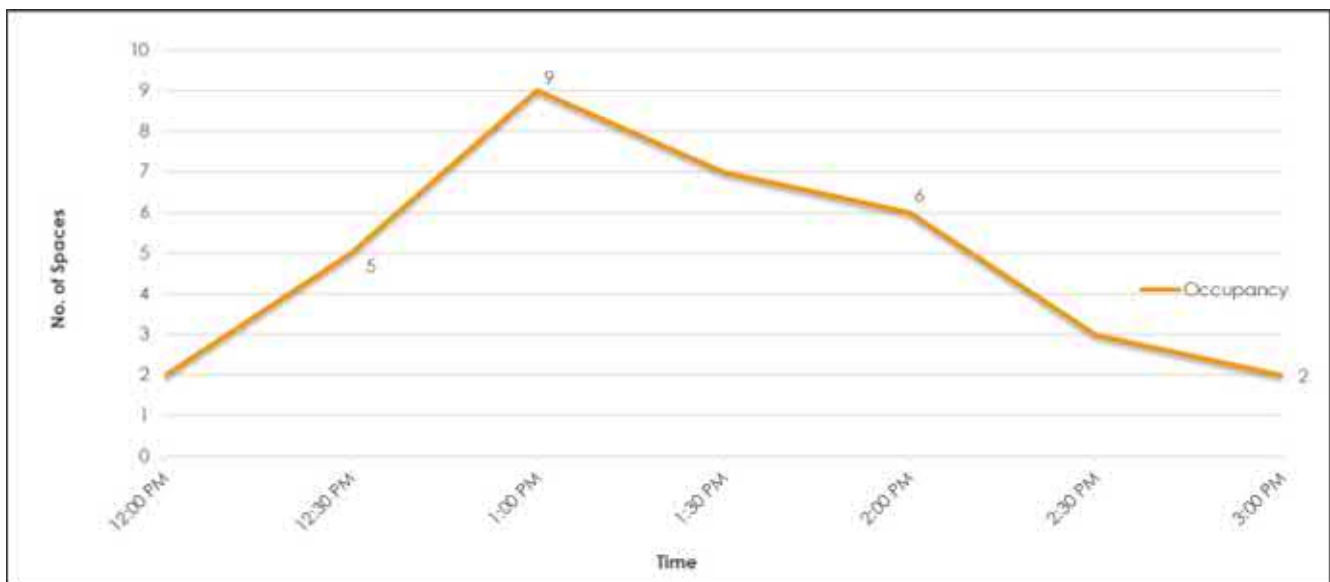
Figure 53 General Store and Red Hill Shops Off-Street Parking Area 2 – Sunday



5.3.3.6 Sunday 18th March – On-Street Parking (Northern Side of Arthurs Seat Road)

On the Sunday, the surveys identified that a maximum of 9 spaces were occupied.

Figure 54 General Store and Red Hill Shops On-Street Parking (Northern Side) – Sunday



5.3.4 Discussion and Recommendations

The main concern raised by the community within this area is the shortage of parking availabilities associated with the Red Hill United Service Station and Red Hill Shops. Car parking surveys undertaken on a typical Saturday and Sunday during the anticipated peak hours of operation have identified that the on-site parking area associated with the Red Hill Shops is fully occupied. In addition, overflow parking occurs on the northern side of Arthurs Seat Road, directly opposite the general store. It is understood that the Red Hill Shops were operating at or near maximum capacity during the time of the surveys and the survey results are therefore expected to be representative of the typical peak operation.

No Stopping signs on Arthurs Seat Road typically prevent parking in the vicinity of intersections, which should limit the safety implications of on-street parking.

Regardless, due to the higher speeds experienced in the area (70km/h posted speed limit), the reduced sight distances created by the alignment of Arthurs Seat Road, and the need for pedestrians to cross Arthurs Seat Road to access the shoulder parking, parking on-street is undesirable. The provision of additional off-street parking is preferred, although it is noted that there is limited opportunity given the existing constraints of the area, and assuming that the existing uses are operating within current planning permit limitations.

To ensure that further parking issues are not created by future development in the area, consideration should be given to ensure future planning permit applications do not result in the generation of additional demand for parking in the area.

Recommendation: Ensure future development proposals provide sufficient parking on-site to ensure existing parking concerns are not exacerbated.

In relation to pedestrian safety, due to the increased pedestrian activity in the area, pedestrian warning signs may be beneficial, noting community concerns regarding the proliferation of signage.

Recommendation: Provide pedestrian warning signs along Arthurs Seat Road in the vicinity of the Red Hill Shops and Red Hill General Store.

Further, it has been suggested that a pedestrian path be provided along the northern side of Arthurs Seat Road, with an informal crossing to connect to the southern side. Noting existing verge widths in this area, there is opportunity for the provision of a path along the existing verge, though it is expected that the vast majority of pedestrians will exit straight from their vehicle and cross Arthurs Seat Road, rather than utilise the path and crossing point.

Nevertheless, it is noted that 'Focus Individualised Support Services' is located on the northern side of Arthurs Seat Road, opposite the United Petrol Station. The support service offers different types of support for people with a disability, including day centres running daily programs and one-on-one support to go out into the community. This facility would also benefit from a pedestrian path on the north side of Arthurs Seat Road.

Based on the above, it is considered appropriate to provide a safe path and 'safer' crossing point for those who wish to use it, and encourage pedestrians to walk clear of Arthurs Seat Road.

Recommendation: Provide a marked pedestrian path along the north side of Arthurs Seat Road, from Red Hill Shops to the west, with a crossing point adjacent Red Hill Shops.

Refer to Section 6.2.2 in relation to speed limit recommendations along Arthurs Seat Road.

5.4 Red Hill South

5.4.1 Surrounding Road Network

5.4.1.1 Shoreham Road

Shoreham Road is a local road generally aligned north-south, running between Red Hill Road in the north to Frankston-Flinders Road in the south. Shoreham Road has a pavement width of approximately 6.5 metres and provides a single traffic lane in each direction.

A signed speed limit of 60km/h applies to Shoreham Road.

5.4.1.2 Point Leo Road

Point Leo Road is a local road generally aligned east-west running between Western Parade in the east and Shoreham Road in the west. Point Leo Road has a pavement width of approximately 6 metres and provides a single traffic lane in each direction.

A signed speed limit of 80km/h applies to Point Leo Road, with a reduced speed limit of 60km/h approaching Shoreham Road.

5.4.2 Community Concerns

The primary concern raised by the community consultation survey associated with the Red Hill South area has been the lack of available car parking.

Additional to this, the lack of pedestrian facilities in the area has been highlighted as a concern, including the following locations in particular:

- Along Red Hill Road (from approximately Thomas Road to the Red Hill South shops), with the potential to extend Beauford Road through to Red Hill Road to provide an alternate connection, and limit the need to travel along Red Hill Road;
- Along Point Leo Road (from Red Hill South shops to Point Leo) has also been identified. Whilst the majority of this is outside the study area, the area in the vicinity of Red Hill South shops is within the area of consideration;
- Along Shoreham Road, south of Point Leo Road, where there are no safe pedestrian facilities along the roadside verge; and
- The crossing of Shoreham Road near the Epicurean, where a central refuge is provided, though the northern connection may be blocked by buses dropping off passengers, and the southern connection leads to a grass verge and vehicle access point.

Finally, the speed of vehicles approaching Red Hill South from the south on Shoreham Road has been identified as a concern.

5.4.3 Parking Surveys

In order to assess the availability of parking, **onemilegrid** commissioned on and off-street car parking occupancy surveys in the vicinity of the Red Hill South. The surveys were undertaken on Saturday 17th of March 2018 from 10:00am-5:00pm commensurate with the general opening hours of the retail shops.

The survey area is shown below in Figure 55.

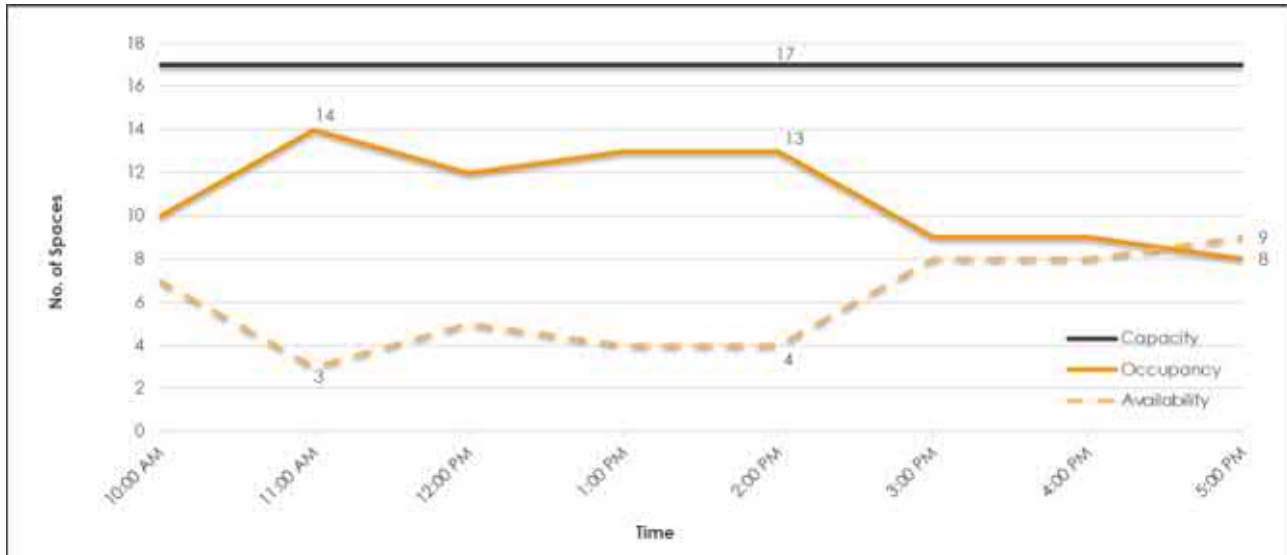
Figure 55 Survey Area – Red Hill South



5.4.3.1 Off-Street Parking – Parking Area 1

On the Saturday, the surveys identified a constant supply of 17 parking spaces throughout the survey period. Peak occupancy occurred at 11:00am when 14 spaces were occupied, leaving no fewer than 3 spaces available for use. Parking utilisation varied between 82% and 47% of capacity.

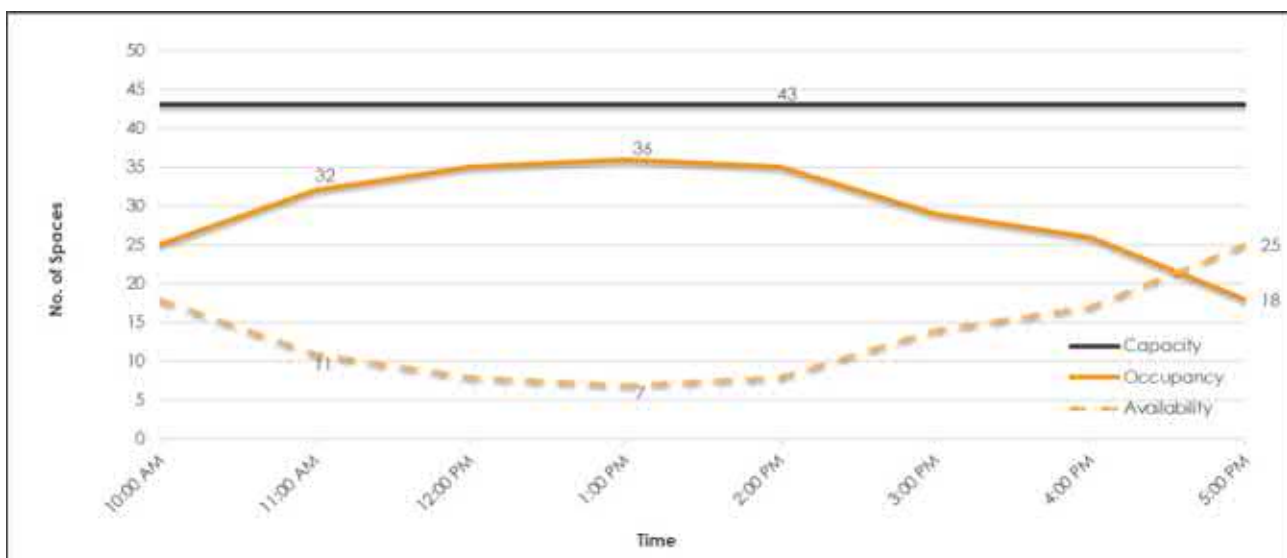
Figure 56 Red Hill South – Off-Street Parking Area 1



5.4.3.2 Off-Street Parking – Parking Area 2

On the Saturday, the surveys identified a constant supply of 43 parking spaces throughout the survey period. Peak occupancy occurred at 1:00pm when 36 spaces were occupied, leaving no fewer than 7 spaces available for use. Parking utilisation varied between 84% and 42% of capacity.

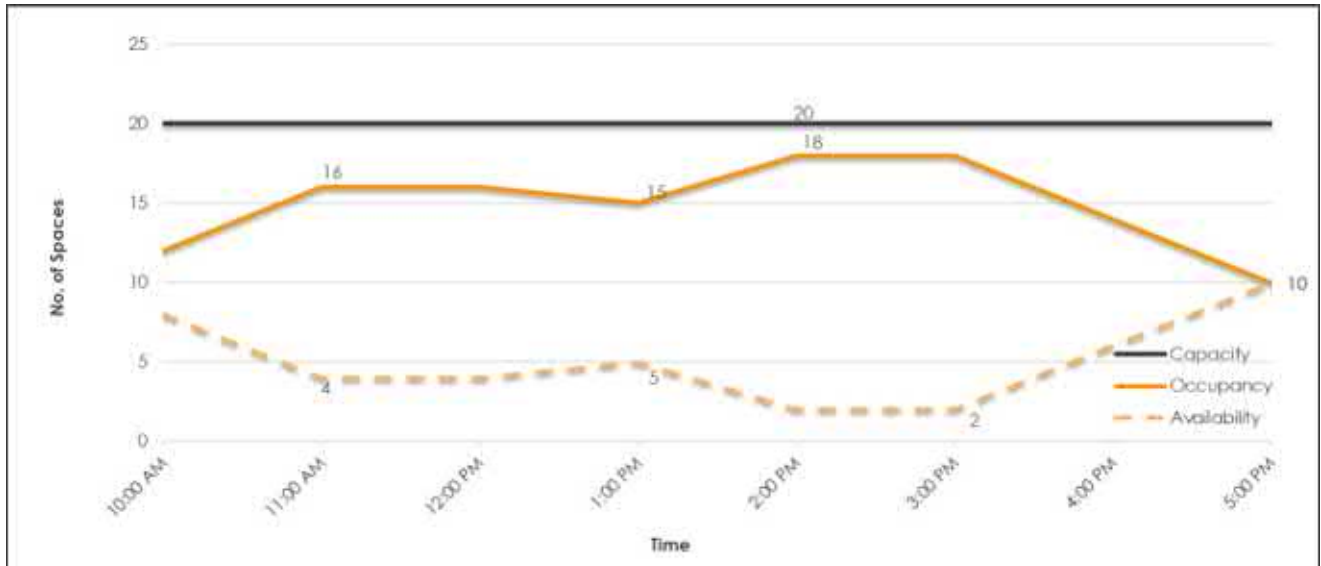
Figure 57 Red Hill South – Off-Street Parking Area 2



5.4.3.3 Off-Street Parking – Parking Area 3

On the Saturday, the surveys identified a constant supply of 20 parking spaces throughout the survey period. Peak occupancy occurred at 2:00pm when 18 spaces were occupied, leaving no fewer than 2 spaces available for use. Parking utilisation varied between 90% and 50% of capacity.

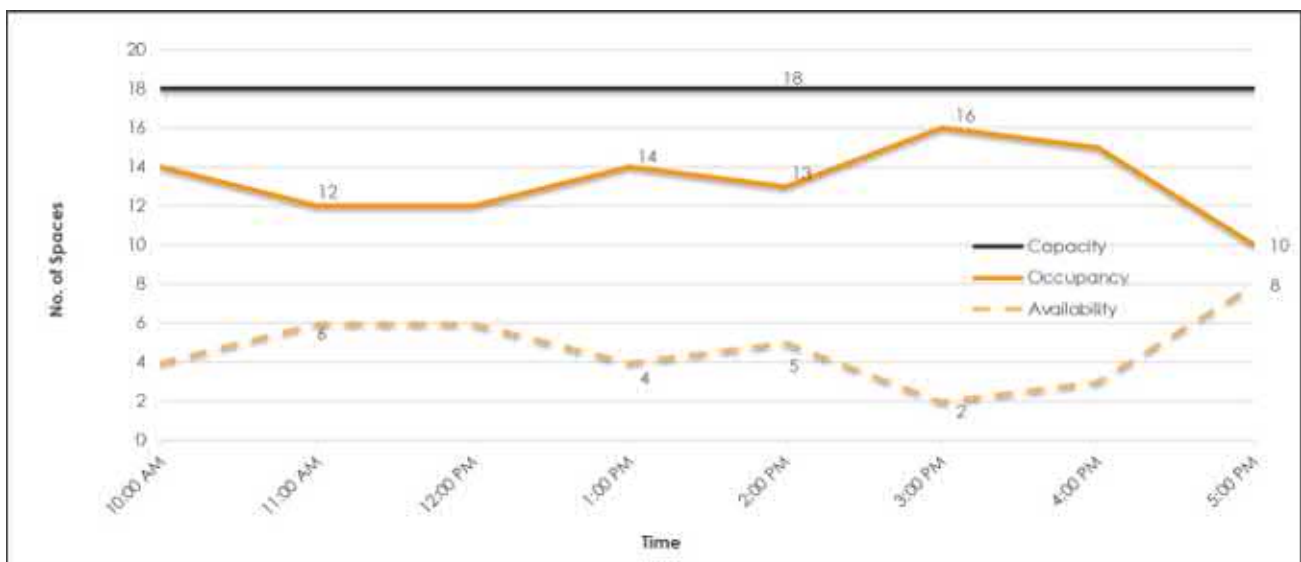
Figure 58 Red Hill South – Off-Street Parking Area 3



5.4.3.4 Off-Street Parking – Parking Area 4

On the Saturday, the surveys identified a constant supply of 18 parking spaces throughout the survey period. Peak occupancy occurred at 3:00pm when 16 spaces were occupied, leaving no fewer than 2 spaces available for use. Parking utilisation varied between 89% and 56% of capacity.

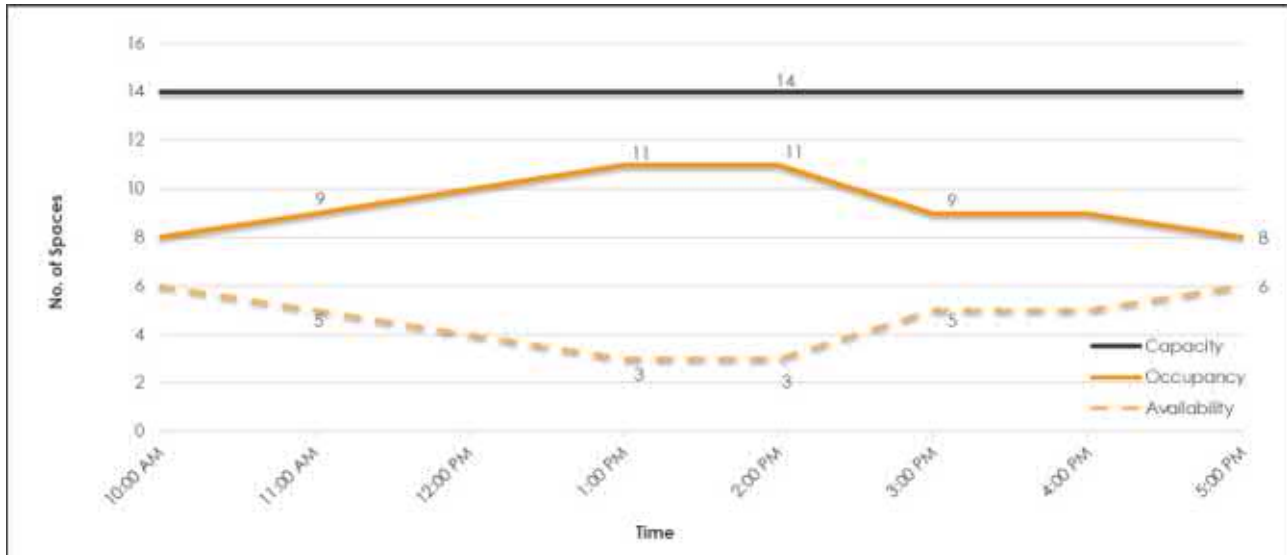
Figure 59 Red Hill South – Off-Street Parking Area 4



5.4.3.5 Off-Street Parking – Parking Area 5 and 6

On the Saturday, the surveys identified a constant supply of 14 parking spaces throughout the survey period. Peak occupancy occurred at 1:00pm when 11 spaces were occupied, leaving no fewer than 3 spaces available for use. Parking utilisation varied between 79% and 57% of capacity.

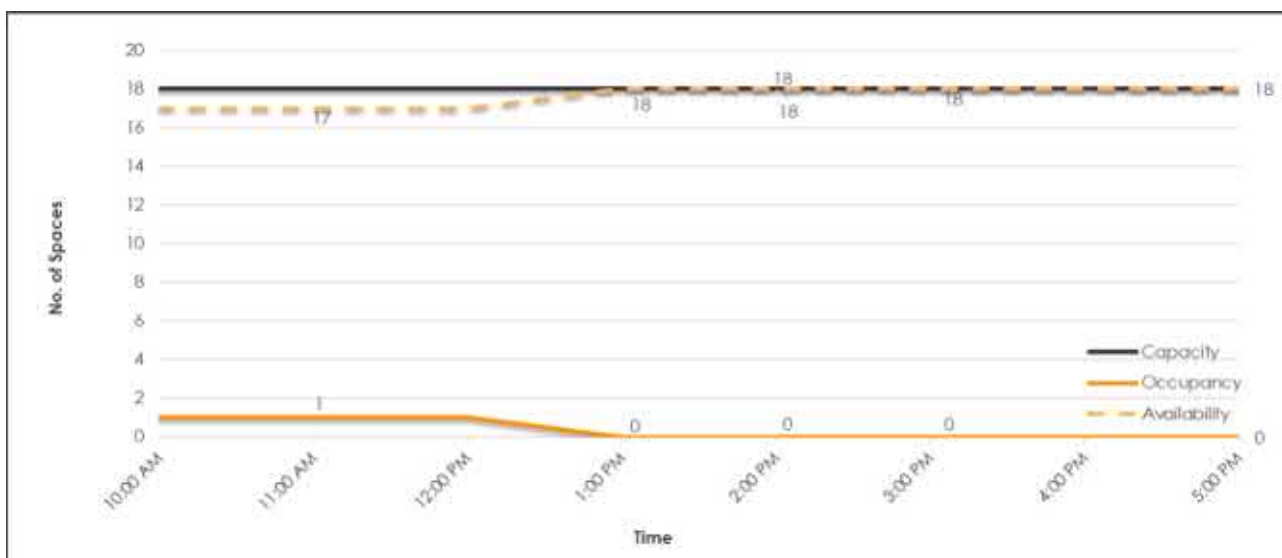
Figure 60 Red Hill South – Off-Street Parking Area 5 & 6



5.4.3.6 On-Street Parking – Shoreham Road, South of Point Leo Road

On the Saturday, the surveys identified a constant supply of 18 parking spaces throughout the survey period. Peak occupancy occurred at 10:00am when 1 spaces were occupied, leaving no fewer than 17 spaces available for use. Parking utilisation peaked at 6% of capacity.

Figure 61 Red Hill South – On-Street Parking Shoreham Road (South of Point Leo Road)



It is noted that the parking surveys observed no on-street parking spaces on Shoreham Road north of Point Leo Road and on Point Leo Road.

5.4.4 Discussion and Recommendations

The primary concern raised by the community consultation survey associated with the Red Hill South area has been the lack of available car parking.

The parking areas currently provided are reasonably interconnected, and some circulation between parking areas can be expected. Similarly, there may also be some movement between parking areas on either side of Point Leo Road by pedestrians. This should assist to disperse parking demands somewhat across the various different parking areas.

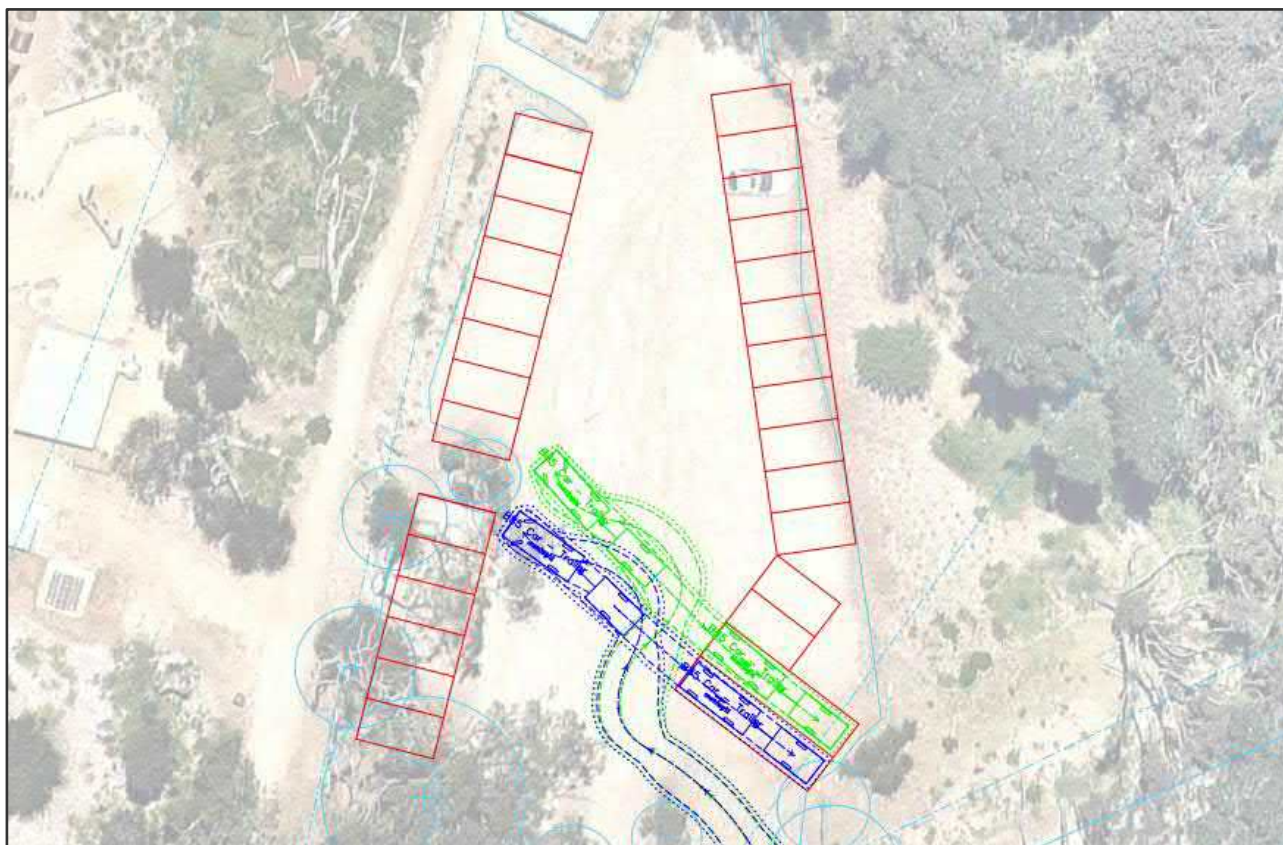
As identified by the car parking occupancy surveys, each parking area is operating close to capacity at peak times on a typical Saturday. Unlike the other areas examined previously, the Red Hill South area is expected to be affected by seasonal variation, in that over the Summer months, visitation is expected to increase. With the parking surveys indicating limited capacity, it can be expected that the parking areas would exceed capacity during busier periods, and on-street parking would occur.

Increased car parking capacity is therefore desirable, to reduce the likelihood of on-street parking occurring.

A number of parking areas provided in the area are gravel and informal, and may therefore not achieve their peak capacity due to inefficient driver behaviour (though again noting that under high peak conditions, drivers may park in areas which might not typically be sufficient to provide a formal parking area). Formalisation of gravel parking areas (to provide marked bays) is therefore expected to result in increased parking supply, though it is noted that the large gravel parking area at the Red Hill Rail Trail car park is utilised by horse floats, which will reduce the effective capacity.

A concept plan for the formalisation of the Red Hill Rail Trail car park has been prepared, as shown in Figure 62.

Figure 62 Rail Trail Car Park Formalisation Concept



Due to the odd shape of the car park, the need to accommodate horse floats, and the presence of scattered trees within the area, it is expected that the effective capacity of this car park may actually be decreased as a result of formalisation of parking spaces within the car park.

Recommendation: Retain the informal nature of the Rail Trail Car Park, to ensure capacity is maximised at peak times.

To ensure that further parking issues are not created by future development in the area, consideration should be given to ensure future planning permit applications do not result in the generation of additional demand for parking in the area.

Recommendation: Ensure future development proposals provide sufficient parking on-site to ensure existing parking concerns are not exacerbated.

Further concern has been raised in relation to pedestrian accessibility along Red Hill Road and Point Leo Road.

With regard to Red Hill Road, there is evidence of pedestrian activity along the south east side of Red Hill Road, north of the shops, where a worn path is evident in the grassed verge. An extension of Beauford Road to Red Hill Road has been suggested, with connection to the Red Hill-Merricks Rail Trail, which passes in close proximity to the south-western end of Beauford Road. This would allow residents of Beauford Road, and residents along Red Hill Road in the vicinity of the suggested Beauford Road extension to avoid the need to walk along the verge of Red Hill Road towards Red Hill South shops.

Recommendation: Review the potential for the provision of a pedestrian path following the Beauford Road extension, connecting Red Hill Road with Beauford Road, and the adjacent Red Hill-Merricks Rail Trail.

A formalised pedestrian crossing is provided across Point Leo Road, near the intersection with Shoreham Road, connecting the northern and southern portions of Red Hill South, including a pedestrian refuge in the existing central island. This provides a good connection to the northern portion of Red Hill South and the Red Hill Rail Trail car park, though the connection to the south is poor. In particular, the path connects via an uneven dirt path to the adjacent car park, and further, a steep gravel path is provided to the east along Point Leo Road, as shown in Figure 63 and Figure 64 respectively. Whilst it appears that improvements have been recently made to the path leading east, the width of the path is narrow, and it shows early signs of damage from water runoff.

Recommendation: Formalise the pedestrian connections on the south side of Point Leo Road, including to both the existing car park and beyond.

Figure 63 Point Leo Road Pedestrian Crossing



Figure 64 Path to the East on Point Leo Road



Furthermore, whilst the Point Leo Road crossing provides a suitable connection point, it is clear that pedestrians are taking a more direct route and not utilising the crossing point; instead walking through the existing roadside drain, and across Point Leo Road where no refuge is provided, as shown in

Figure 65 Bypass of the Pedestrian Crossing on Point Leo Road



Recommendation: Extend the existing fencing on the northern side of Point Leo Road further towards the east to encourage pedestrians to use the formal crossing, in conjunction with the recommended improvements to the pedestrian connections on the south side of Point Leo Road.

In relation to the crossing point of Shoreham Road near the Epicurean, it is noted that this provides the main crossing point for the shared path which runs along the south side of Arthurs Seat Road, and also for the path which connects to the residential areas to the north (Station Road). Further, it is understood that this provides the main pedestrian connection for the overflow parking that occurs on Arthurs Seat Road and Station Road. Consequently, during peak periods, reasonable pedestrian volumes are understood to use the crossing, which is shown in Figure 66.

Whilst the connection on the north side is reasonable, the southern connection leads to a grass verge or vehicle access point, with no formal pedestrian connections. Further it is understood that tourist buses often stop on the northern shoulder to drop-off or pick-up passengers during peak periods (despite No Stopping signage), which blocks sight distances to pedestrians.

Figure 66 Existing Pedestrian Crossing – Shoreham Road



Recommendation: Provide a formal pedestrian path on the south side of Shoreham Road at the existing pedestrian crossing, connecting to the north and south along Shoreham Road.

Recommendation: Consider placing kerb and channel along the northern side of Shoreham Road adjacent the pedestrian crossing point to limit the ability to be able to park or stop adjacent the pedestrian crossing (noting that the potential use of the gravel shoulder for right turning vehicles from the vehicle crossover on the south side).

6 GENERAL INVESTIGATIONS

6.1 Cyclists

6.1.1 Community Concerns

Concerns have also been raised regarding the increasing number of cyclists in the area, it has been suggested that on-road bicycle lanes be provided along Arthurs Seat Road, and White Hill Road.

6.1.2 Discussion and Recommendations

Information collected by Strava (as shown in Figure 11), anecdotal evidence, community feedback and observations indicate that Arthurs Seat Road and White Hill Road in particular experience relatively high road cyclist demands, particularly on weekends.

The existing conditions on these roads currently include higher speeds (70km/h or 80km/h signed speed limits), relatively high traffic volumes, relatively narrow pavement widths, gravel shoulders, and winding road with reduced sight distance in some areas.

These existing conditions can result in unsafe conditions for cyclists, and motorists, which are expected to increase as cyclist activity and traffic volumes naturally increase.

In order to improve cyclist (and vehicle) safety, it is recommended that both Arthurs Seat Road and White Hill Road are upgraded to include the provision of sealed shoulders (2 metres preferred, 1 metre minimum) in each direction. This will effectively allow cyclists to keep clear of through traffic, and will also improve general motorist safety, by providing a consistent surface to use when decelerating to undertake a left turn, or to overtake a right turning vehicle along the length of these roads. It is noted that both Arthurs Seat Road and White Hill Road are declared arterial roads, and therefore VicRoads are the responsible authority.

Recommendation: Lobby VicRoads to consider future upgrades to both Arthurs Seat Road (west of White Hill Road), and White Hill Road to provide a sealed shoulder in each direction, to facilitate improved cyclist and vehicle safety. Council considers future upgrades to Arthurs Seat Road (east of White Hill Road), to provide a similar sealed shoulder in each direction.

To provide appropriate warning for motorists, cyclist warning signs could be installed along both Arthurs Seat Road and White Hill Road, noting community concerns regarding proliferation of signage.

Recommendation: Lobby VicRoads to provide, and/or Council to provide cyclist warning signs along Arthurs Seat Road and White Hill Road.

Refer to Section 6.2.2 in relation to speed limit recommendations along Arthurs Seat Road.

6.2 Speed Zones

6.2.1 Community Concerns

Concerns have been expressed by the community in relation to the existing speed limits along White Hill Road and Arthurs Seat Road, and also along Shoreham Road in particular, identifying safety concerns for pedestrians, cyclist and motorists in general.

6.2.2 Discussion and Recommendations

The existing signed speed limits in the study area have been identified in Figure 9, and it is shown that the arterial roads in the area exhibit a combination of 60km/h, 70km/h and 80km/h speed zones, with 40km/h speed zones also applicable in the vicinity of Red Hill Consolidated School.

A review of the standard VicRoads speed limit guidelines, as shown in Figure 10, suggests that a 60km/h speed limit may be justified adjacent to the Red Hill Recreation Reserve, Red Hill General Store and Red Hill shops, due to the pedestrian activity which occurs in the vicinity of these locations.

Furthermore, the elevated cyclist activity (and lack of suitable facilities for cyclists), and the existing crash rate along Arthurs Seat Road in particular also provides support for a reduced 60km/h speed limit in these locations. In consideration also of the curvilinear nature of Arthurs Seat Road in particular, and given the proximity of the Recreation Reserve and General Store in relation to each other, it is recommended that the speed limit of Arthurs Seat Road, between Red Hill South and White Hill Road, be reduced to 60km/h. This would also remove the existing non-standard 70km/h speed limit, and make Arthurs Seat Road consistent with Point Leo Road, Red Hill Road and Shoreham Road to the east.

Community concerns have been raised regarding the reduction in speed along Arthurs Seat Road between White Hill Road between Mornington-Flinders Road from 80km/h to 60 km/h. Given the limited property access and pedestrian activity west of White Hill Road, the reduced speed limit would not meet VicRoads guidelines for speed limits, and is therefore not considered appropriate. It is noted that the reduced speed limit to 40 km/h along Arthurs Seat Road in the vicinity of Mornington-Flinders Road still applies during the pick-up/drop-off school times.

Whilst this section of Arthurs Seat Road is a Council Road, speed limit signage is a major traffic control device, and therefore VicRoads approval to speed limit changes will be required.

Recommendation: Obtain VicRoads approval for and reduce the speed limit of Arthurs Seat Road, between Red Hill South and White Hill Road, to 60km/h.

West of White Hill Road, pedestrian activity reduces, other than at the School, where school speed limits are in force during periods of increased pedestrian activity. Subject to the suitable provision for cyclists (as identified in Section 6.1.2), speed reductions along this section of Arthurs Seat Road may not be warranted.

On Shoreham Road, a 60km/h speed limit is currently implemented, and it is considered that the road environment does not support a reduced (50km/h) speed limit, based on VicRoads guidelines. It is expected that the existing concerns in relation to speed are likely due to low levels of enforcement, and reduced pedestrian activity outside of the peak weekend periods.

Recommendation: Request police enforcement of speed limits through the 60km/h areas of Red Hill South, and also following the potential reduction along Arthurs Seat Road.

6.3 Traffic Volumes

6.3.1 Community Concerns

The existing pavement and configuration of Arthurs Seat Road and White Hill Road have been identified by the community as being insufficient to accommodate general traffic volumes, in particular during events at the Recreation Reserve and school operation.

6.3.2 Discussion and Recommendations

Traffic volume surveys undertaken by **onemilegrid**, and previously by Council, suggest daily traffic volumes in the order of 7,600 vehicles per day on White Hill Road, and 5,400 vehicles per day on Arthurs Seat Road. During events (Red Hill Show in particular), it is anticipated that the traffic volumes would exceed the average volumes surveyed, though it is noted that events of this magnitude are rare.

In terms of the capacity of both Arthurs Seat Road and White Hill Road, it is considered that each would have a through capacity of in excess of 10,000 vehicles per day, and subject to appropriate intersection control, could accommodate in excess of 15,000 vehicles per day.

In relation to road upgrades, to increase general road capacity, an upgrade from the current road cross-section would involve the provision of an additional traffic lane in each direction. This will have a considerable impact on the roadside vegetation through the Red Hill area, and considering the expected environmental capacity of each road, is unwarranted. Furthermore, upgrades to the road cross-section will result in increased crossing difficulty for pedestrians (due to the wider pavements), and likely encourage increased speeds.

Upgrades to the road cross-section, other than as indicated to address cyclist safety, are therefore not considered to be necessary.

6.4 White Hill Road / Arthurs Seat Road Intersection

It is noted that the left turn movements at the intersection of White Hill Road with Arthurs Seat Road have a significantly large radii curve, which allow traffic to undertake these movements at high speed, and also restricts sight distances due to the angle of viewing (i.e. drivers will be required to look over their shoulder to view cars on the priority road).

This form of left turn slip lane is now non-standard, and typically removed due to associated safety concerns. Current standards are for left turn slip lanes to be constructed at an angle of no less than 70 degrees to the intersecting road, which relates to an angle of view of no more than 110 degrees.

Recommendation: Lobby VicRoads to modify the left turn slip lanes at the intersection of White Hill Road and Arthurs Seat Road to provide slip lanes to current standard.

Figure 67 White Hill Road / Arthurs Seat Road Intersection



7 SUMMARY OF RECOMMENDATIONS

7.1 Red Hill Consolidated School:

- Construct of a formal pedestrian crossing facility near Red Hill Recreation Reserve, to facilitate improved pedestrian safety;
- Review the potential for increased car parking by converting the pick-up/drop-off area to angle parking;
- Re-examine the potential to relocation buses internally, and provide a pick-up/drop-off lane through the staff car parking area; and
- Review the potential for increased car parking provision by formalising the existing gravel car parking area in the south-western corner of the school.

7.2 Red Hill Recreation Reserve:

- Provide pedestrian warning signs along Arthurs Seat Road in the vicinity of the Red Hill Recreation Reserve;
- Examine possibilities for long-term use of the overflow parking areas, or alternative overflow parking, to ensure the ongoing viability of the Red Hill Market and Show, and potential additional access to White Hill Road;
- Review the traffic management plan for the Red Hill Show and Market to include the provision of No Stopping signage in the vicinity of the Recreation Reserve, to prevent problematic parking and ease congestion;
- Increase enforcement of No Stopping areas on Market and Show days; and
- Consider upgrading the northern portion of Arkwells Lane to improve traffic management for both the Red Hill Show and Market.

7.3 General Store & Red Hill Shops

- Ensure future development proposals provide sufficient parking on-site to ensure existing parking concerns are not exacerbated;
- Provide pedestrian warning signs along Arthurs Seat Road in the vicinity of the Red Hill Shops and Red Hill General Store; and
- Provide a marked pedestrian path along the north side of Arthurs Seat Road, from Red Hill Shops to the west, with a crossing point adjacent Red Hill Shops.

7.4 Red Hill South

- Retain the informal nature of the Rail Trail Car Park, to ensure capacity is maximised at peak times;
- Ensure future development proposals provide sufficient parking on-site to ensure existing parking concerns are not exacerbated;
- Review the potential for the provision of a pedestrian path following the Beauford Road extension, connecting Red Hill Road with Beauford Road, and the adjacent Red Hill-Merricks Rail Trail;
- Formalise the pedestrian connections on the south side of Point Leo Road, including to both the existing car park and beyond;

- Extend the existing fencing on the northern side of Point Leo Road further towards the east to encourage pedestrians to use the formal crossing, in conjunction with the recommended improvements to the pedestrian connections on the south side of Point Leo Road; and
- Provide a formal pedestrian path on the south side of Shoreham Road at the existing pedestrian crossing, connecting to the north and south along Shoreham Road.
- Consider placing kerb and channel along the northern side of Shoreham Road adjacent the pedestrian crossing point to limit the ability to be able to park or stop adjacent the pedestrian crossing (noting that the potential use of the gravel shoulder for right turning vehicles from the vehicle crossover on the south side).

7.5 Cyclists

- Lobby VicRoads to consider future upgrades to both Arthurs Seat Road (west of White Hill Road), and White Hill Road to provide a 2m sealed shoulder in each direction, to facilitate improved cyclist and vehicle safety. Council considers future upgrades to Arthurs Seat Road (east of White Hill Road), to provide a similar 2m sealed shoulder in each direction; and
- Lobby VicRoads to provide, and/or Council to provide cyclist warning signs along Arthurs Seat Road and White Hill Road.

7.6 Speed Zones

- Lobby VicRoads to provide, and/or Council to provide cyclist warning signs along Arthurs Seat Road and White Hill Road;
- Obtain VicRoads approval for and reduce the speed limit of Arthurs Seat Road, between Red Hill South and White Hill Road, to 60km/h; and
- Request police enforcement of speed limits through the 60km/h areas of Red Hill South, and also following the potential reduction along Arthurs Seat Road.

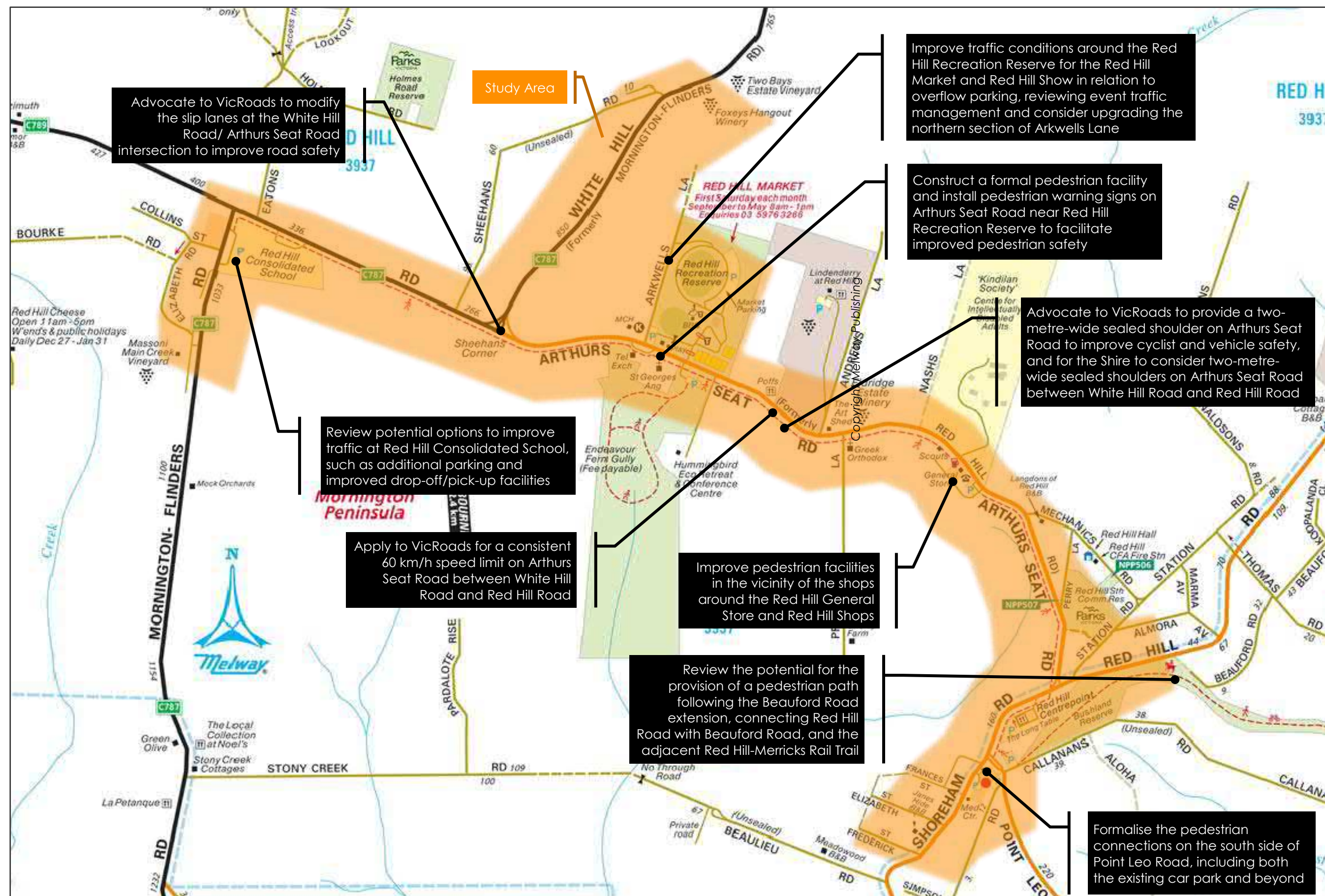
7.7 White Hill Road / Arthurs Seat Road Intersection

- Lobby VicRoads to modify the left turn slip lanes at the intersection of White Hill Road and Arthurs Seat Road to provide slip lanes to current standard.

7.8 Recommendations Summary

A visual representation of the recommendations outlined above are presented geographically below in Figure 68.

Figure 68 Recommendations Summary



8 RISK ASSESSMENT AND COSTING

In order to provide guidance regarding the priority of each treatment, consideration has been given to both the safety aspects of each recommendation, and the likely implementation (construction) cost. In relation to safety, the level of risk for each treatment has been assessed in terms of:

- Likelihood that the identified problem will result in harm;
- Severity of that harm; and
- The resulting level of risk.

Table 5 How often is the problem likely to lead to a crash?

Frequency	Description
Frequent	Once or more per week
Probable	Once or more per year (but less than once per week)
Occasional	Once every five to ten years
Improbable	Less often than once every ten years

Table 6 What is the likely severity of the resulting crash type?

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

Table 7 The Resulting Level of Risk

	Frequent	Probable	Occasional	Improbable
Catastrophic	Intolerable	Intolerable	Intolerable	High
Serious	Intolerable	Intolerable	High	Medium
Minor	Intolerable	High	Medium	Low
Limited	High	Medium	Low	Low

Table 8 Treatment Approach

Risk	Suggested treatment approach
Intolerable	Must be corrected
High	Should be corrected or the risk significantly reduced, even if the treatment cost is high
Medium	Should be corrected or the risk significantly reduced, if the treatment cost is moderate, but not high
Low	Should be corrected or the risk reduced, if the treatment cost is low

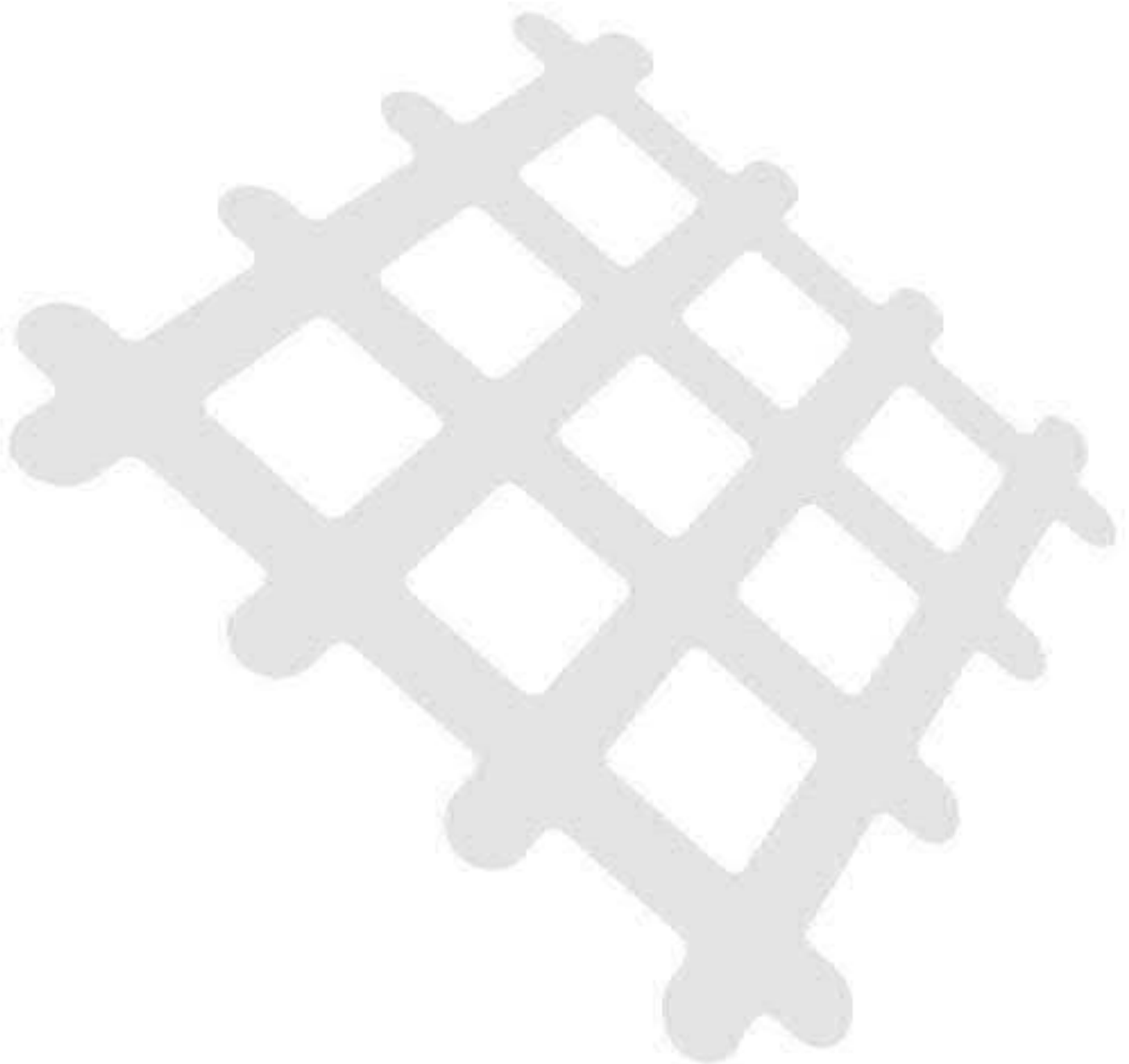
Based on the above rating system, each recommendation, with its approximate implementation cost, and resulting priority is identified below.

Table 9 Priority of Recommendations

<i>Recommendation</i>	<i>Approx. Cost</i>	<i>Priority</i>
Construct of a formal pedestrian crossing facility near Red Hill Recreation Reserve, to facilitate improved pedestrian safety;	\$130,000	High
Review the potential for increased car parking by converting the pick-up/drop-off area to angle parking;	\$60,000	Medium
Re-examine the potential to relocate buses internally, and provide a pick-up/drop-off lane through the staff car parking area;	\$15,000	Medium
Review the potential for increased car parking provision by formalising the existing gravel car parking area in the south-western corner of the school;	\$10,000	Low
Provide pedestrian warning signs along Arthurs Seat Road in the vicinity of the Red Hill Recreation Reserve;	\$1,000	Medium
Examine possibilities for long-term use of the overflow parking areas, or alternative overflow parking, to ensure the ongoing viability of the Red Hill Market and Show, and potential additional access to White Hill Road;	\$1M plus	N/A
Review the traffic management plan for the Red Hill Show and Market to include the provision of No Stopping signage in the vicinity of the Recreation Reserve, to prevent problematic parking and ease congestion;	By others	Medium
Increase enforcement of No Stopping areas on Market and Show days;	\$10,000 per year	Medium
Consider upgrading the northern portion of Arkwells Lane to improve traffic management for both the Red Hill Show and Market.	\$400,000	Medium
Ensure future development proposals within the Red Hill Shops provide sufficient parking on-site to ensure existing parking concerns are not exacerbated;	N/A	Medium
Provide pedestrian warning signs along Arthurs Seat Road in the vicinity of the Red Hill Shops and Red Hill General Store;	\$1,000	Medium
Provide a marked pedestrian path along the north side of Arthurs Seat Road, from Red Hill Shops to the west, with a crossing point adjacent Red Hill Shops.	\$25,000	Medium
Retain the informal nature of the Rail Trail Car Park, to ensure capacity is maximised at peak times;	N/A	N/A

Recommendation	Approx. Cost	Priority
Ensure future development proposals within Red Hill South provide sufficient parking on-site to ensure existing parking concerns are not exacerbated;	N/A	Medium
Review the potential for the provision of a pedestrian path following the Beauford Road extension, connecting Red Hill Road with Beauford Road, and the adjacent Red Hill-Merricks Rail Trail;	\$25,000	Medium
Formalise the pedestrian connections on the south side of Point Leo Road, including to both the existing car park and beyond;	\$20,000	Medium
Extend the existing fencing on the northern side of Point Leo Road further towards the east to encourage pedestrians to use the formal crossing, in conjunction with the recommended improvements to the pedestrian connections on the south side of Point Leo Road; and	\$5,000	Medium
Provide a formal pedestrian path on the south side of Shoreham Road at the existing pedestrian crossing, connecting to the north and south along Shoreham Road.	\$40,000	Medium
Consider placing kerb and channel along the northern side of Shoreham Road adjacent the pedestrian crossing point to limit the ability to be able to park or stop adjacent the pedestrian crossing (noting that the potential use of the gravel shoulder for right turning vehicles from the vehicle crossover on the south side).	\$50,000	Low
Lobby VicRoads to consider future upgrades to both Arthurs Seat Road (west of White Hill Road), and White Hill Road to provide a 2m sealed shoulder in each direction, to facilitate improved cyclist and vehicle safety. Council considers future upgrades to Arthurs Seat Road (east of White Hill Road), to provide a similar 2m sealed shoulder in each direction; and	\$15M	High
Lobby VicRoads to provide, and/or Council to provide cyclist warning signs along Arthurs Seat Road and White Hill Road.	\$4,000	Medium
Obtain VicRoads approval for and reduce the speed limit of Arthurs Seat Road, between Red Hill South and White Hill Road, to 60km/h; and	\$8,000	Medium
Request police enforcement of speed limits through the 60km/h areas of Red Hill South, and also following the potential reduction along Arthurs Seat Road.	N/A	Medium
Lobby VicRoads to modify the left turn slip lanes at the intersection of White Hill Road and Arthurs Seat Road to provide slip lanes to current standard.	\$250,000	Medium

Appendix A Community Consultation Introduction Letter



Red Hill Traffic Management Study

Community Feedback

ABN: 79 168 115 679

1/59 Keele Street

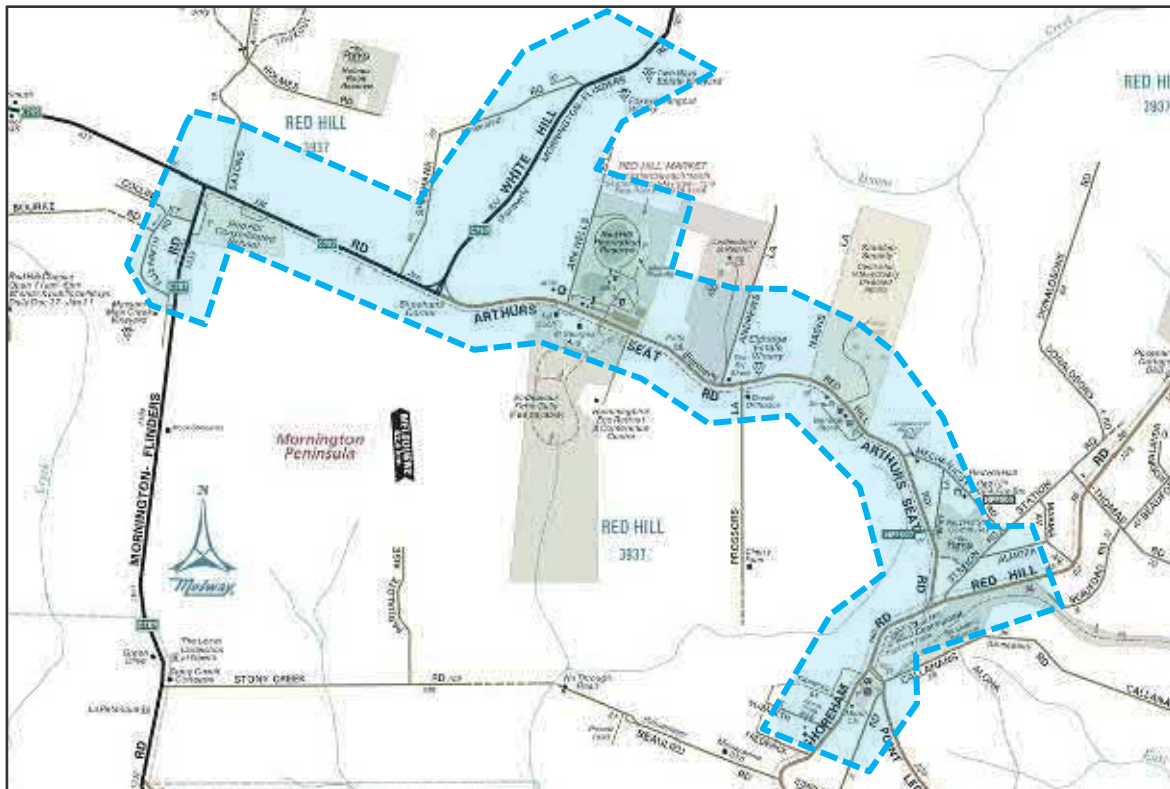
COLLINGWOOD, VIC 3066

www.onemilegrid.com.au

Dear resident/business owner/stakeholder,

onemilegrid is a traffic and transport engineering consultancy firm, that has been engaged by Mornington Peninsula Shire Council to undertake a Traffic Management Study throughout the Red Hill area, as shown generally in Figure 1.

Figure 1 Red Hill Study Area



onemilegrid will be reviewing existing peak parking demands in the area, including those associated with the Red Hill Market and Red Hill Show, analysing traffic volumes, and reviewing existing pedestrian and bicycle networks throughout the study area.

In order to provide a more efficient and sustainable transport network for residents, business owners and visitors within the Red Hill area, we are seeking input as to the existing traffic, car parking, pedestrian and bicycle conditions in the study area. Your feedback, comments and suggestions would be highly appreciated and taken into consideration in the preparation of the study.

Please send all responses through to ross.hill@onemilegrid.com.au or feel free to call on 9982 9725 should you wish to discuss in further detail.

Yours sincerely,

Ross Hill

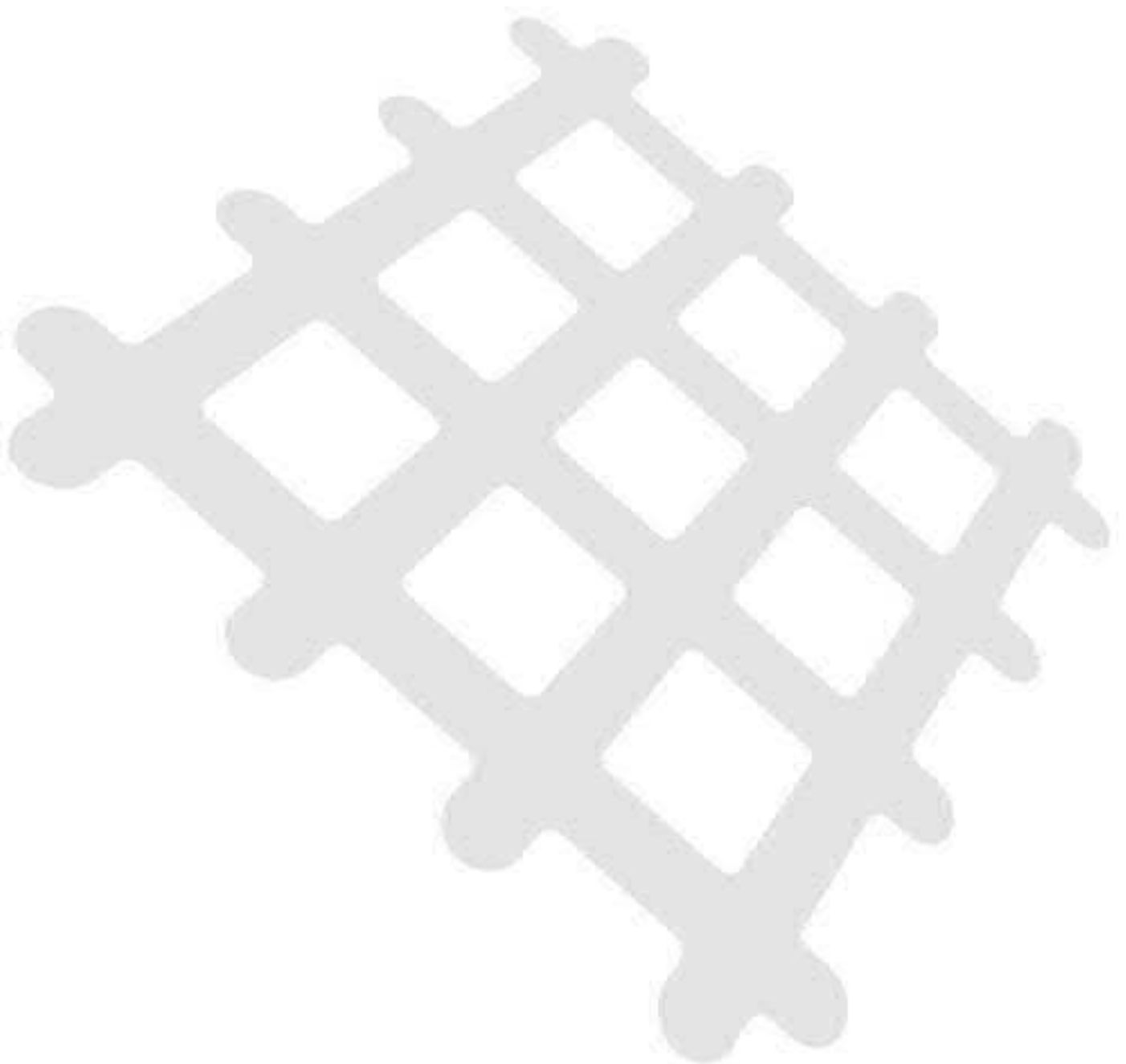
Director - Senior Engineer

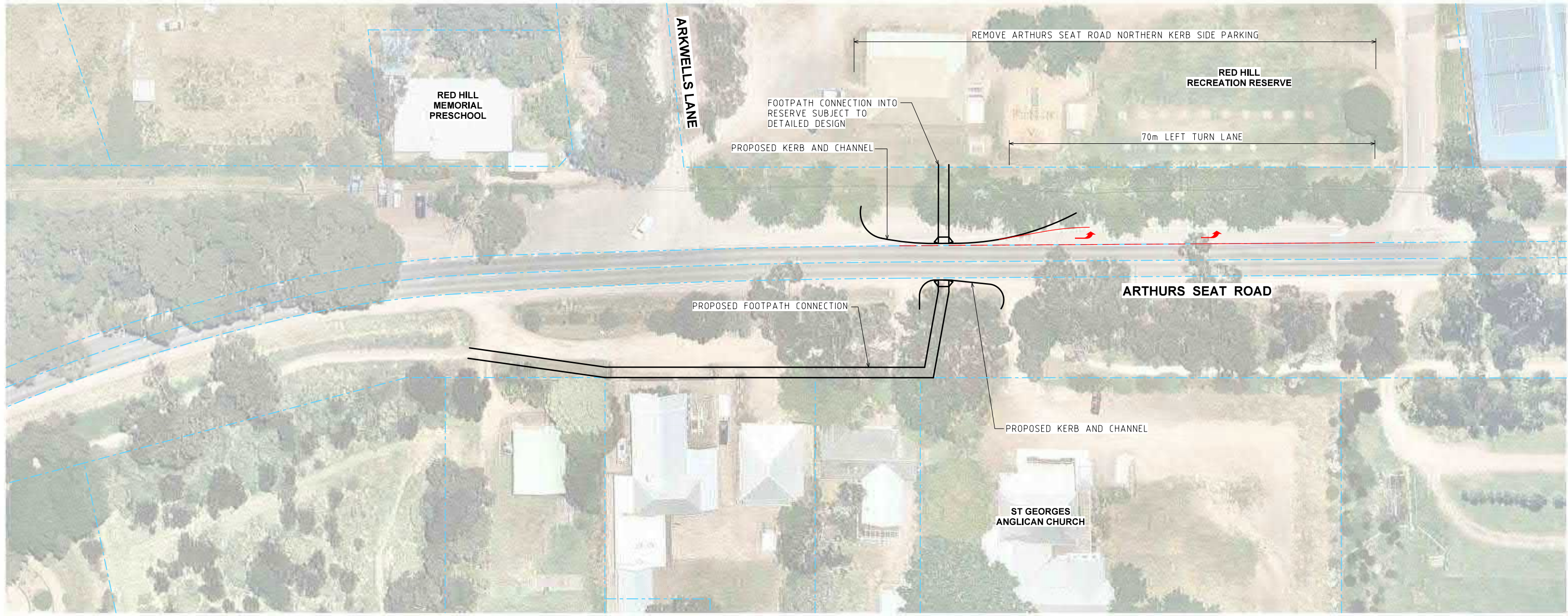
onemilegrid

d: (03) 9982 9725

e: ross.hill@onemilegrid.com.au

Appendix B Concept Layout Plans



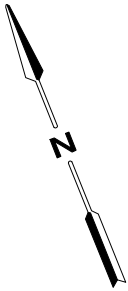
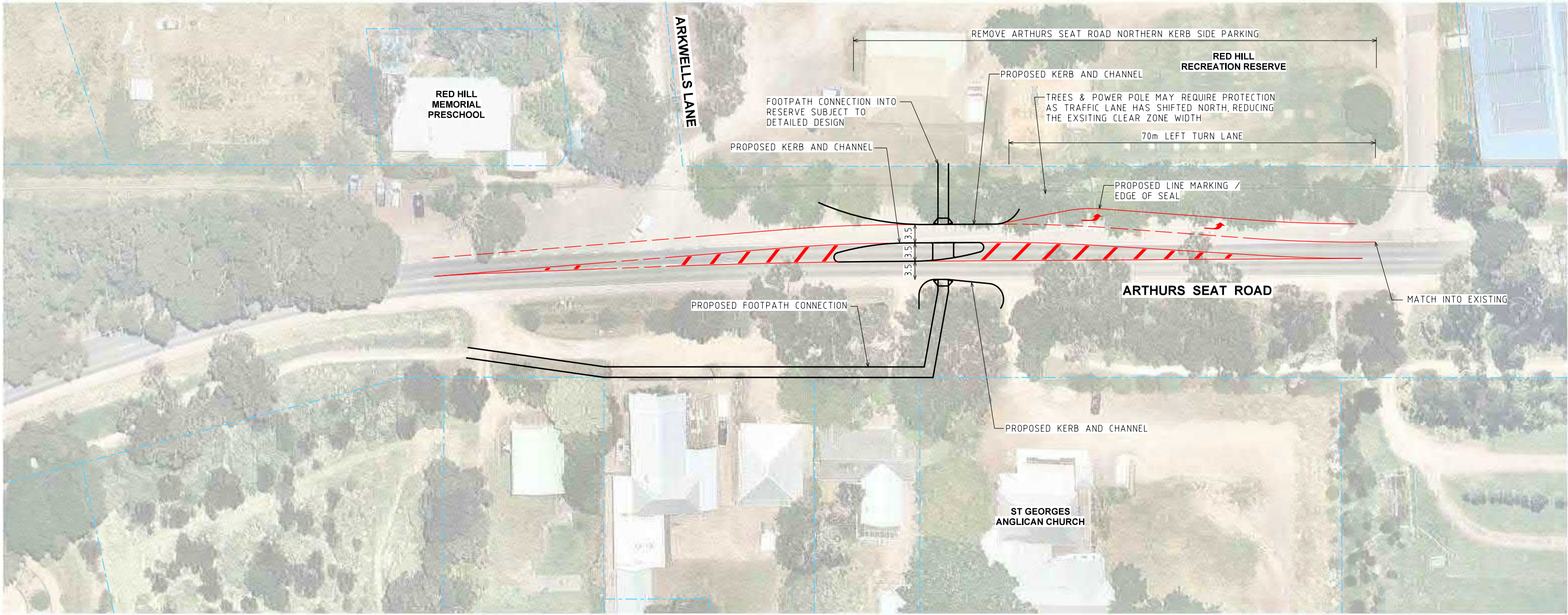


onemilegrid
TRAFFIC ENGINEERING
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Phone (03) 9939 8250

Scale
1:750 @ A3

0 3.75 7.5 15

Drawing Title ARTHURS SEAT ROAD, RED HILL PEDESTRIAN CROSSING - OPTION 1 CONCEPT LAYOUT PLAN		
Designed TCW	Approved RBH	Metway Ref 160 H11
Project Number 180079	Drawing Number CLP100	Revision A



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Scale
1:750 @ A3

0 3.75 7.5 15

Drawing Title ARTHURS SEAT ROAD, RED HILL PEDESTRIAN CROSSING - OPTION 2 CONCEPT LAYOUT PLAN		
Designed TCW	Approved RBH	Metway Ref 160 H11
Project Number 180079	Drawing Number CLP101	Revision B