Rings Scenic Tours Ltd - Development Concept Plan
Updated Transportation Review

Matamata-Piako District Council

ISSUE 2, 11 MARCH 2019

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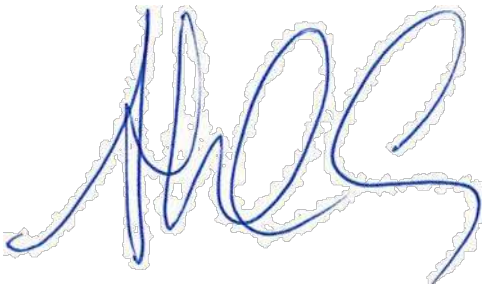
Matamata-Piako District Council

Prepared by: .....
Alastair Black



Approved by:
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ISSUE 2, 11 MARCH 2019

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EXECUTIVE SUMMARY

The Proposal

Rings Scenic Tours Ltd (the applicant) has prepared a Development Concept Plan (DCP) for the Hobbiton Movie Set as part of a Private Plan Change to establish new rules and provisions in the District Plan. We prepared the Transportation Review (Issue 2, 14 February 2018) on behalf of MPDC to support their evaluation of the DCP.

The submissions have raised concerns related to traffic some of which were not specifically covered in our earlier review. The purpose of this report is to:

- Provide an update to the assessment of the transportation impact of the proposed development on the surrounding area dealing with topics raised in submissions;
- Provide responses specific to traffic and transport issues raised in submissions; and
- Where relevant, provide updated crash and traffic count information.

This report provides assessment that updates and should be read in conjunction with our previous review. These findings generally result in a more onerous requirement for mitigation. The conclusions from this review extend and supersede those from our previous review.

Summary of Transport Submissions

The following table summarises and comments on the topics raised in transport-related submissions and whether we consider the mitigation currently proposed by the applicant is likely to be sufficient to managed effects to an acceptable level.

Topic	Submitter Concerns and Discussion	Reviewer's opinion on whether further mitigation is required to manage effects?
1. Buckland Road (east)	• Not all proposed works completed (refer ITA, Appendix B) • Amenity effects at 21 Buckland Road	Yes • Applicant should complete planned infrastructure upgrades (due to insufficient funding provided in previous MOU). • Install no-stopping signs and markings adjacent to 21 Buckland Road (to mitigate amenity effects)
2. Puketutu Road/ Buckland Road Intersection	• Intersection difficult to see, and people miss the intersection • Concern about sign location and messaging • Loss of control crashes	Yes • Further mitigation required to improve intersection conspicuity and layout, e.g. splitter island or intersection realignment.
3. Buckland Road (west)	• Lack of delineation at out of context curves and along the route • Increasing use by visitors, traffic volumes have doubled since 2014	Yes • Install chevron and speed advisory signs near 1241 Buckland Road • Install centreline along length of Buckland Road (west), this will require line marking within Waipa DC • Travel information identifying the preferred route should be supplied to staff and deliveries

Topic	Submitter Concerns and Discussion	Reviewer's opinion on whether further mitigation is required to manage effects?
4. Private entrances – 385 and 399 Buckland Road	• Poor sight distance • Increased risk of rear-end and turning crashes	Yes • Improvements to sight distance are required to mitigate the crash risk. This appears likely to require lowering of Buckland Road.
5. Pull-off Areas	• Risk of crashes when tourist park at in appropriate locations to take photos • Well designed and signed pull off areas should reduce the risk	Yes • Only one of the two pull off areas proposed in the ITA has been constructed (due to insufficient funding provided in previous MOU). • Recommend that signs are erected indicating location of pull-off areas
6. Hobbiton Entrance and Underpass	• Risk of pedestrian crashes when crossing the road • Increase in bus movements between the two precincts • Submitter request for underpass • Construction of an underpass would likely required reconfiguration of the site at significant cost. Likely to be beyond what is considered reasonably practicable.	Yes • Applicant should provide further mitigation of pedestrian crash risk by improving barriers to pedestrians crossing the road and providing designated photo opportunities. • Setting speed limits requires bylaw change by Council and is beyond the scope of this application. We recommend that Council consider a slower speed restriction at the Hobbiton entrance.
7. SH29/ Hopkins Road Intersection	• High crash rate	No • NZTA implementing Intersection Speed Zone to address crash risk. No further mitigation by applicant required.
8. Rangitanuku Road	• Improvements to SH29/ Rangitanuku Road intersection (e.g. right-turn bay) • Widening of Rangitanuku Road sought.	No • Provided good travel information is provided to staff, visitors and tourist companies, the use of Rangitanuku Road by Hobbiton traffic should be low. • No mitigation by applicant required.
9. Speed Management	• Submitters seek speed limits of 80km/h or lower • Changing speed limits requires a change to Council bylaw outside of the plan change process.	Yes • Setting speed limits requires bylaw change by Council and beyond scope of this application. • We support Council reviewing speed limits on affected roads including a slower speed restriction at Hobbiton entrance. • No mitigation by applicant required.
10. Effects within Matamata	• Effects covered in our earlier review • Increased parking demand over a longer period.	No • No mitigation by applicant required.

Topic	Submitter Concerns and Discussion	Reviewer's opinion on whether further mitigation is required to manage effects?
11. Visitor Cap	• NZTA prefer a cap based on trip generation, rather than visitors • The transport effects are directly related to the trip generation. Restricting activities at the site by the number of visitors does not take into account change in vehicle occupancy or vehicle type (car vs bus).	Yes • Agree a cap on the activity is required • Providing a limit based on vehicle numbers is a more appropriate measure. • The ITA assessed trip generation excluding trips generated by events. Therefore the cap should be set at 387,000veh/year and 2,084veh/day

Table 1: Transportation Submission Summary

Conclusion

With appropriate performance standards, the transportation effects of the proposal could be managed to be acceptable. If MPDC chooses to accept the proposed Development Concept Plan, it should be subject to additional infrastructure improvements and performance standards that include maximum visitor numbers/trip generation, minimum car park numbers, minimum standards for site access, and a framework for managing travel to events at the site.

An on-going monitoring and reporting framework is required to monitor trip generation of tours, trip generation of events held outside tour hours, parking demand and provision of information to tour operators, deliveries and staff (new requirement).

1. INTRODUCTION

1.1. Background

Rings Scenic Tours Ltd (the applicant) has prepared a Development Concept Plan (DCP) for the Hobbiton Movie Set as part of a Private Plan Change to establish new rules and provisions in the District Plan. The property is located at 501 Buckland Road, Matamata.

Matamata-Piako District Council (MPDC) engaged Gray Matter Ltd to review the traffic and transportation aspects of the DCP.

1.2. Purpose and Basis of this Report

We prepared the Transportation Review (Issue 2, 14 February 2018). This report provides updated crash and traffic count information and provide responses specific to traffic and transport issues raised in submissions.

This report provides assessment that updates and should be read in conjunction with our previous review. These findings generally result in a more onerous requirement for mitigation. The conclusions from this review extend and supersede those from our previous review.

This updated report is based on:

- NZTA CAS data 2013-2018;
- Safer Journeys Risk Assessment Tool; Edition II;
- 2019 traffic counts provided by MPDC,
- Transport related submissions; and
- Updated Activity Schedule and Performance Standards.

The structure of this report is as follows:

- Section 1: Introduction.
- Section 2: Update to the transport environment information based on the latest crash data and Safer Journeys Risk Assessment Tool. Much of the transport environment information in our earlier report remains relevant.
- Section 3: Submissions. The submissions have raised safety concerns at specific locations (e.g. vehicle crossing to 385 and 399 Buckland Road) that do not feature in the reported crash data. This updated review considers these concerns and whether the mitigation currently proposed by the applicant is considered adequate.
- Section 4: Provides comments on the proposed plan provisions and performance standards.
- Section 5: Provides an updated summary of traffic impacts that replaces our earlier summary. A summary of the further mitigation is also included.
- Section 6: Conclusion, which replaces our earlier conclusion.

2. TRANSPORT ENVIRONMENT

2.1. Road Network and Updated Traffic Counts

The site can be accessed from the state highway network by a number of local roads as shown in Figure 2. Traffic counts for Buckland Road are discussed in Section 3.4.

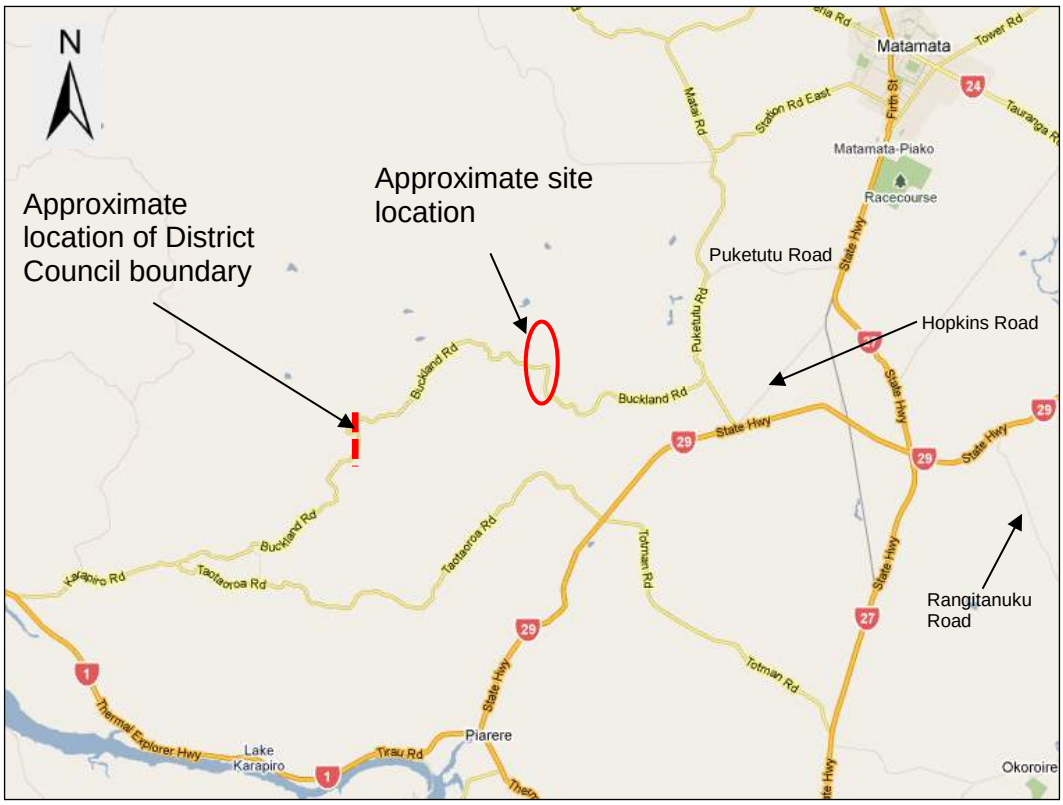

Figure 1: Site Location, 501/502 Buckland Road (Source: Google Maps)

2.2. SH29/ Hopkins Road Intersection

The NZTA is currently implementing an Intersection Speed Zone at the intersection of SH29/ Hopkins Road. Intersection Speed Zones are electronic signs that detect when someone is turning into or out of a side road and temporarily reduce the legal speed limit on the state highway.

When activated at this intersection the speed limit on SH29 will reduce from 100km/h to 60km/h. The system will detect vehicles approaching on both Hopkins Road and Puketutu Road, but the speed limit on these side roads will not be reduced.

The risk of serious injury or death from side-impact crashes increases significantly above 50km/h, so getting motorists to slow down when there is another vehicle approaching high risk rural intersections helps prevent these types of crashes and significantly lower the risk of serious injury. A study of the first 10 Intersection Speed Zones trialled in New Zealand found that the fatal and serious crash rate reduced by 79% and the overall crash rate reduced by 51%. The diagram below shows how reducing travel speeds can significantly increase the risk of surviving a crash.

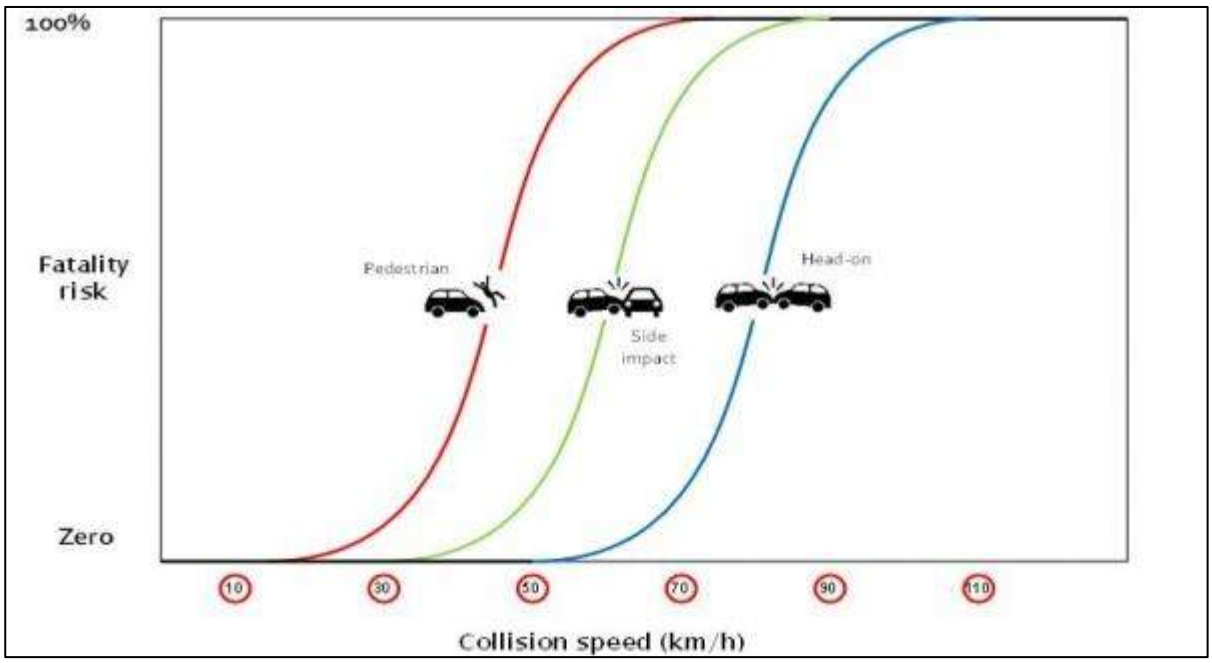

Figure 2: Fatality Risk and Collision Speed

Intersection Speed Zones are relatively low-cost, simple improvements that can prevent crashes. They can also be a good interim measure until larger scale improvements are made. Any larger scale improvements would be subject to investigation by NZTA and MPDC. Intersection Speed Zone

More information on the Intersection Speed Zones, including a video, is provided on the NZTA website: https://www.nzta.govt.nz/safety/our-vision-of-a-safe-road-system/safety-boost-programme/safety-boost-programme-locations/intersection-speed-zones/

2.3. Road Safety 2013-2018

The ITA provides crash data for the 10-year period, 2007-2016. The assessment concluded that:

- The crash rate has increased:
  - on Buckland Road;
  - at the Buckland Road/ Puketutu Road intersection; and
  - at the Buckland Road/ Karapiro Road intersection;
- There have been no reported crashes at property accesses along Buckland Road;
- The number of crashes attributed to tourists has increased over the last five years; and
- Traffic volumes on Buckland Road have increased and this is likely to contribute to the increase in crashes.

To assist us in our review we have retrieved crashes for the period 2013-2018. The crash diagrams are provided below, with more details provided in Appendix A.

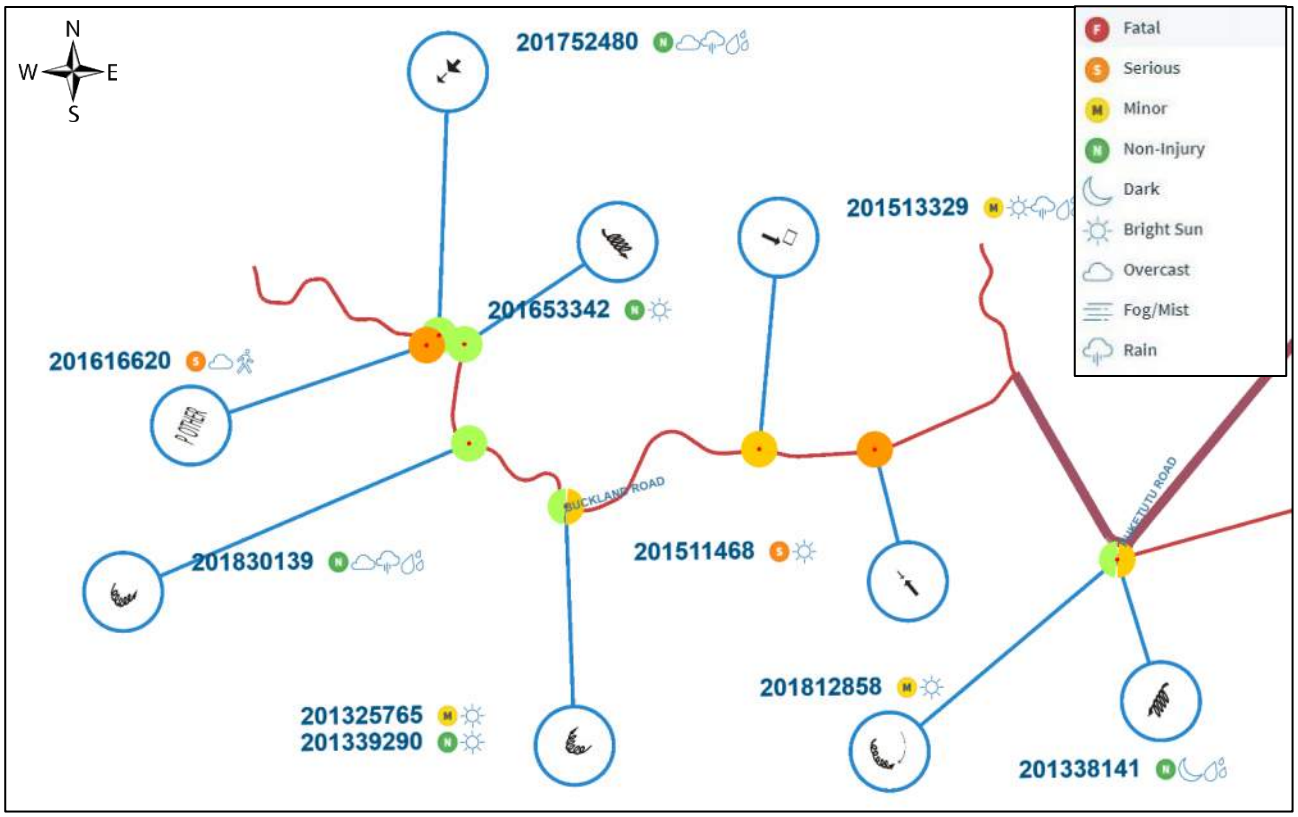

Figure 3: Crash Diagram for Buckland Road (east)

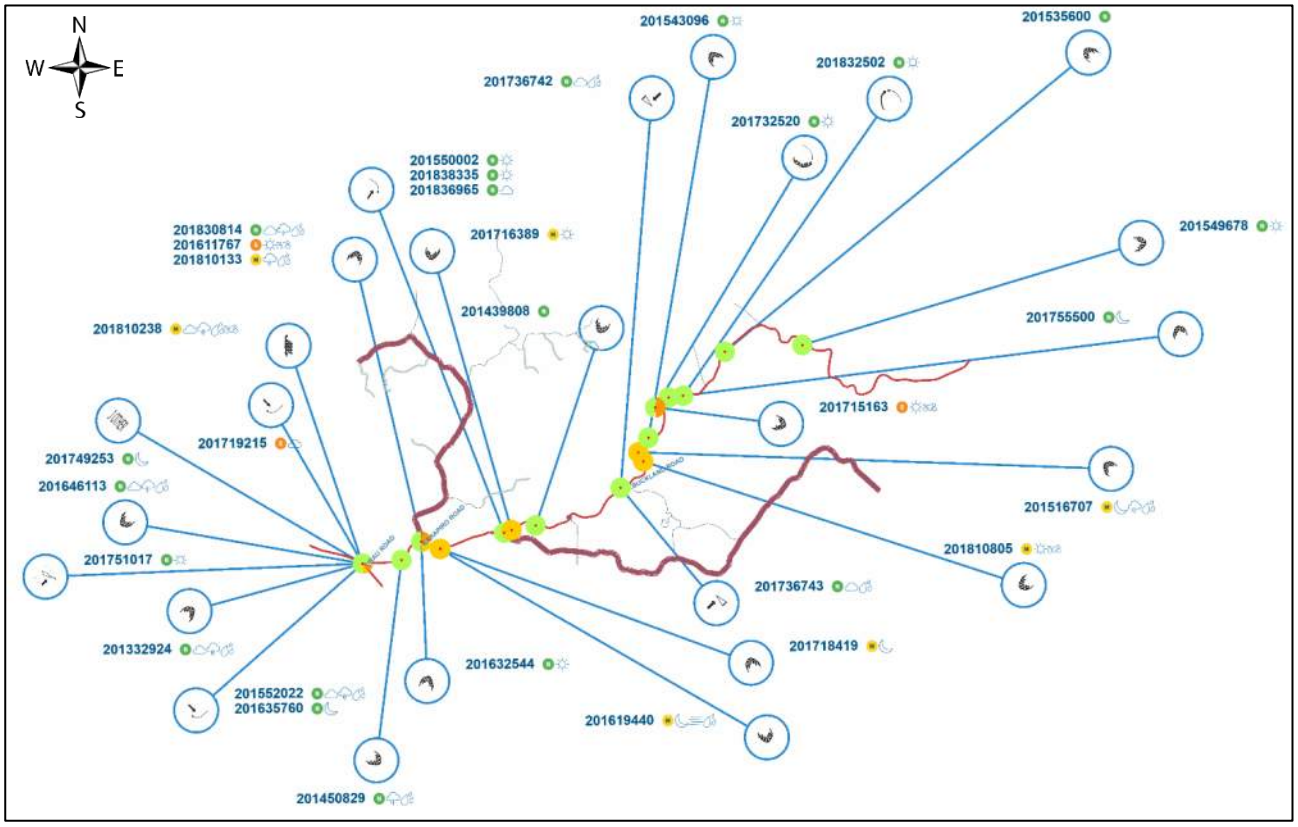

Figure 4: Crash Diagram for Buckland Road (west)

2.4. Safer Journeys Risk Assessment Tool, Edition II

In September 2018, the NZ Transport Agency updated the Safer Journeys Risk Assessment Tool to Edition II. This update includes more recent crash data and additional travel speed information. This has resulted in some changes to the information presented in our earlier Transportation Review. The most significant change is a reduction in the Safe and Appropriate Speed from 80km/h to 60km/h which is related to the higher Personal Risk.

The mean operating speed on the whole length of Buckland Road within MPDC is shown as 60-64km/h. It is likely that the mean operating speed will be higher on the section of Buckland Road east of Hobbiton due to the straighter alignment and flatter topography.

Parameter	Feb 2018 Assessment	Feb 2019 Assessment
Collective Risk	Low to Low-Medium	Low-Medium
Personal Risk	Medium-High	High
Infrastructure Risk Rating	Medium-High	Medium-High
Safe and Appropriate Speed	80km/h	60km/h

Table 2: Safer Journeys Risk Assessment Tool For Buckland Road (east)

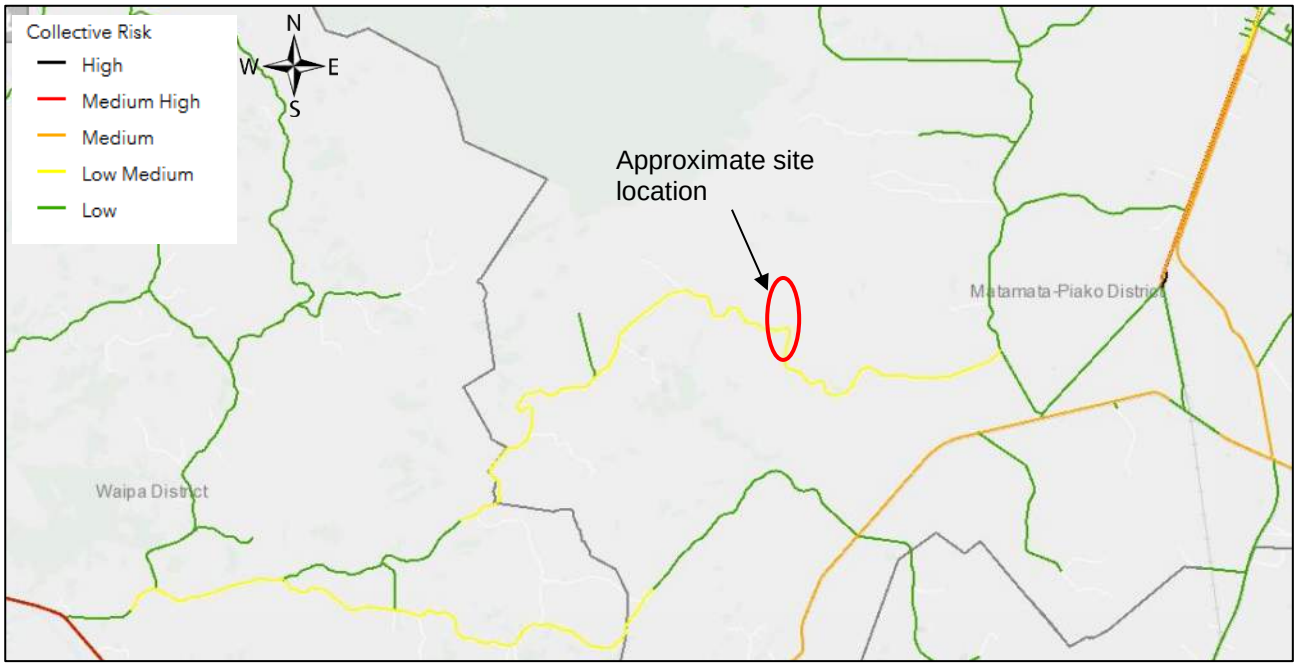

Figure 5: Collective Risk

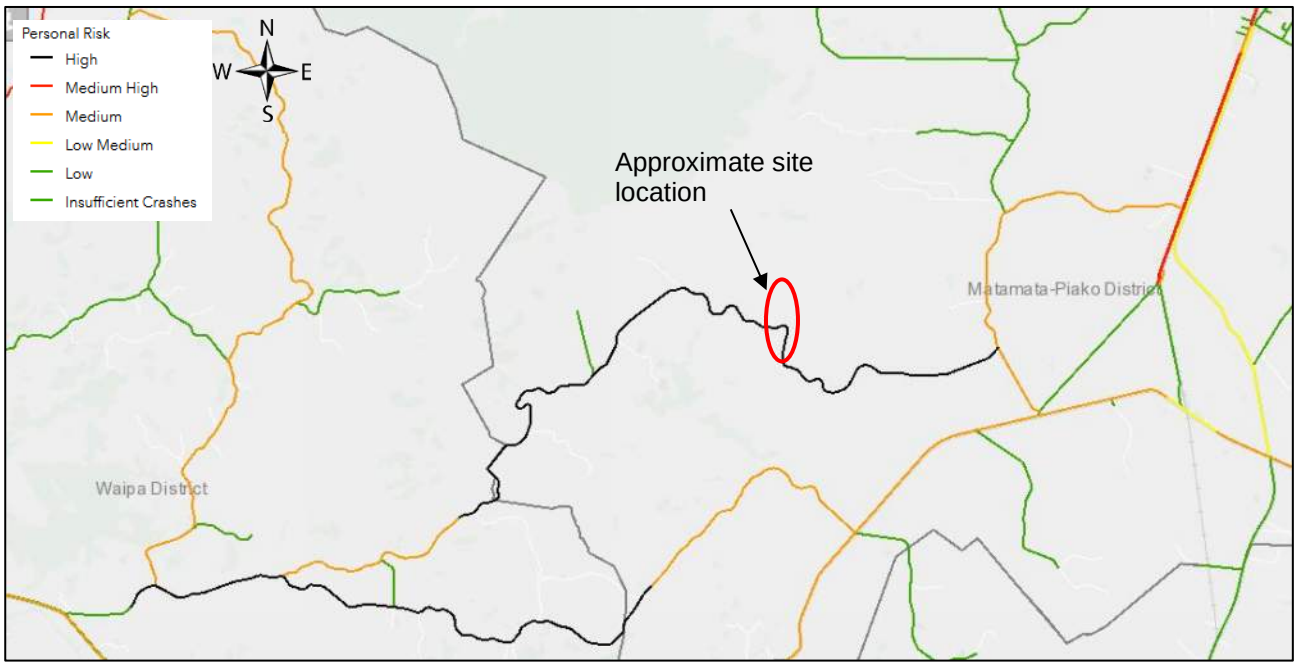

Figure 6: Personal Risk

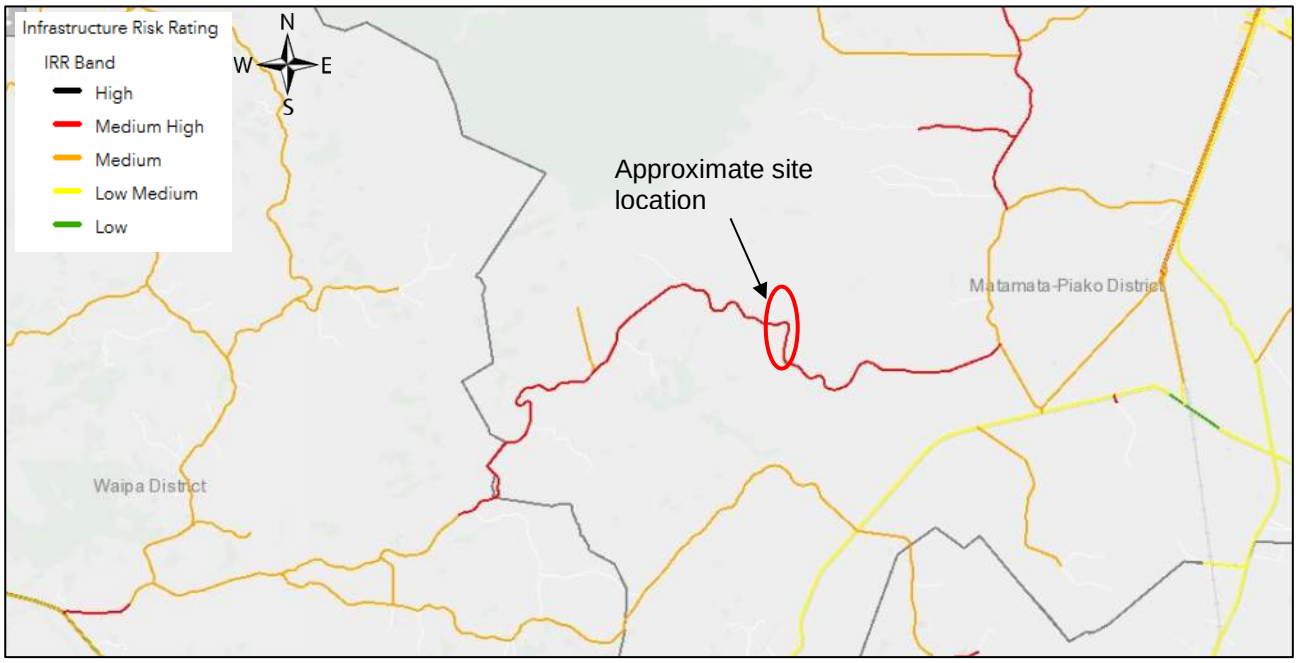

Figure 7: Infrastructure Risk Rating

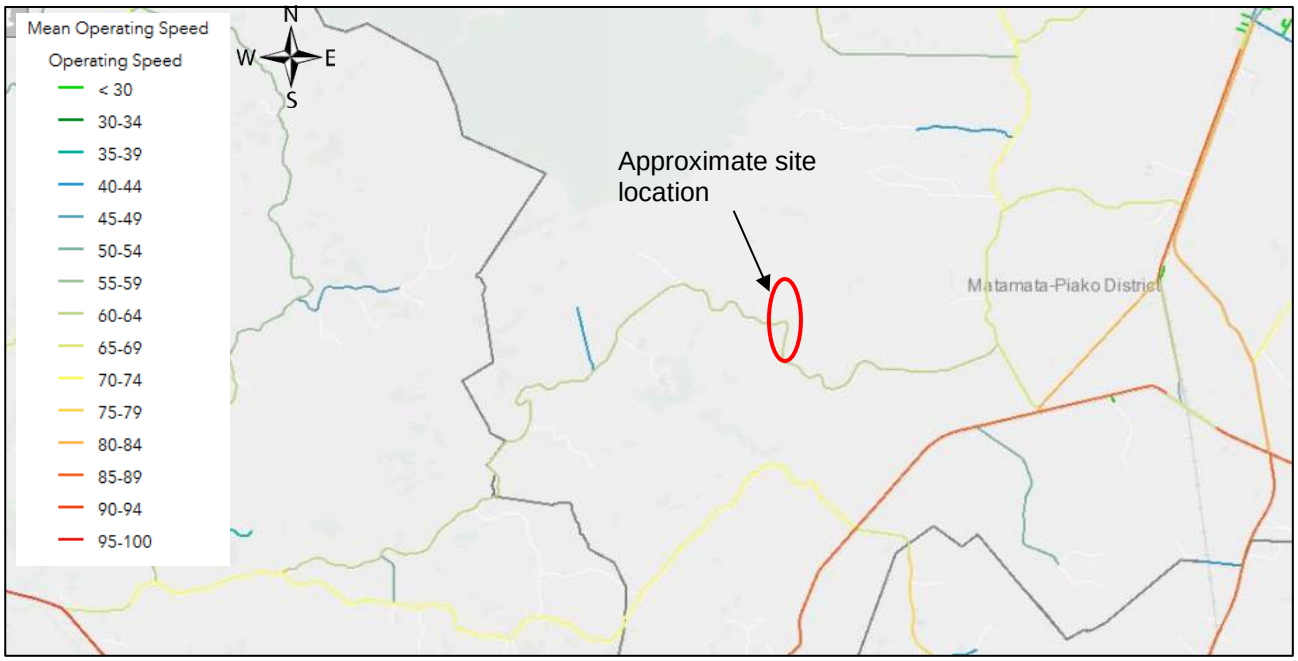

Figure 8: Mean Operating Speed (km/h)

3. TRANSPORT SUBMISSIONS

3.1. Overview

Ten submissions include transport comments. The submissions raise a number of transport related issues mainly relating to safety. The relief sought relates mainly to infrastructure improvements or speed management. The specific issues identified include:

- Delineation provided on Buckland Road (west);
- Parking on the side of roads and in vehicle crossings. Requiring laybys has been suggested as mitigation;
- Seeking a lower speed limit;
- Seeking underpasses connecting the two parts of the Hobbiton site providing for buses and pedestrians;
- Safety concerns at entrances to 385 and 399 Buckland Road;
- Safety concerns at the Puketutu Road/ Buckland Road intersection;
- Safety concerns at the SH29/ Hopkins Road intersection;
- Concerns about safety on Rangitanuku Road; and
- Parking and traffic impacts within Matamata.

3.2. Buckland Road (east)

Several submitters requested additional line marking. This section of Buckland Road has centreline, edgeline, no-overtaking and some sections of no-stopping lines. During a site visit on 1 February 2019, I noted that some of the works included in the applicant's proposed road safety improvements (BBO Drawings 144150/00/P/101-110, Rev B) have not been completed. The incomplete works include:

- Some directional arrows have not been installed;
- 'Trucks' signs have not been removed;
- Convex mirrors have not been installed. We understand from Council and through submissions that the property owners (#339 and #385) do not want them installed;
- The possible pull-off area at CH3750 has not been constructed; and
- Thermoplastic markings have not been installed at the site entry and exit.

We understand that the owners of 21 Buckland Road have amenity, privacy and biosecurity concerns about drivers parking in their driveway. There do not appear to be any specific transportation (safety or efficiency) effects from this type of driver behaviour, marking no-stopping lines and erecting sign along their property frontage may assist in reducing amenity effects. A security gates should minimise biosecurity concerns.

There are no destinations or features that should lead to demand for on road parking in this area. It is possible that drivers are stopping to reconfirm directions or take photos. This could be minimised by installing a new direction sign or relocating an existing sign closer to the intersection. This would provide visitors with confirmation that they are on the correct route.

There would be no adverse transportation effects from marking no-stopping lines and erecting signs as indicated in the figure below. Installing additional no-stopping lines and signs would require additional parking enforcement by Council.

Figure 9: Potential No-Stopping Markings – 21 Buckland Road

3.3. Puketutu Road/ Buckland Road Intersection

Concerns have been raised with location of signs and layout of the Puketutu Road/ Buckland Road intersection. Currently there is:

- an advanced warning sign on Puketutu Road with the text “Hobbiton Movie Set Tourist Farm 6km”;
- an advanced warning sign on Puketutu Road with the text “Hobbiton Movie Set Tourist Farm Turn Left 200m”; and
- a sign at the Puketutu Road/ Buckland Road intersection indicating the left turn with the text “Hobbiton Movie Set Tourist Farm 5km”.

Submitters state that there have been loss of control crashes at the intersection, as a result of vehicle turning left from Puketutu Road in Buckland Road. In 2014, there were two reported non-injury crashes within 250m of the intersection, both involved vehicles losing control while turning left into Buckland Road and hitting the fence. On a recent site visit (1 February 2019) we observed one vehicle miss the left-turn into Buckland Road and u-turn on Puketutu Road before continuing on towards Hobbiton. Typical crash rates and intervention strategies generally take account of under-reporting of crashes[1].

Options to improve the conspicuity and layout of the intersection include:

- Modifying the advanced signage and line marking.
- Realigning the Buckland Road approach so that it is perpendicular to Puketutu Road. This would assisting in managing vehicle speed and improve visibility. This will require land purchase.
- Providing a splitter island on Buckland Road – would reduce speed of vehicles turning right from Buckland Road into Puketutu Road and vice versa.

[1] NZTA Economic Evaluation Manual, Appendix A6

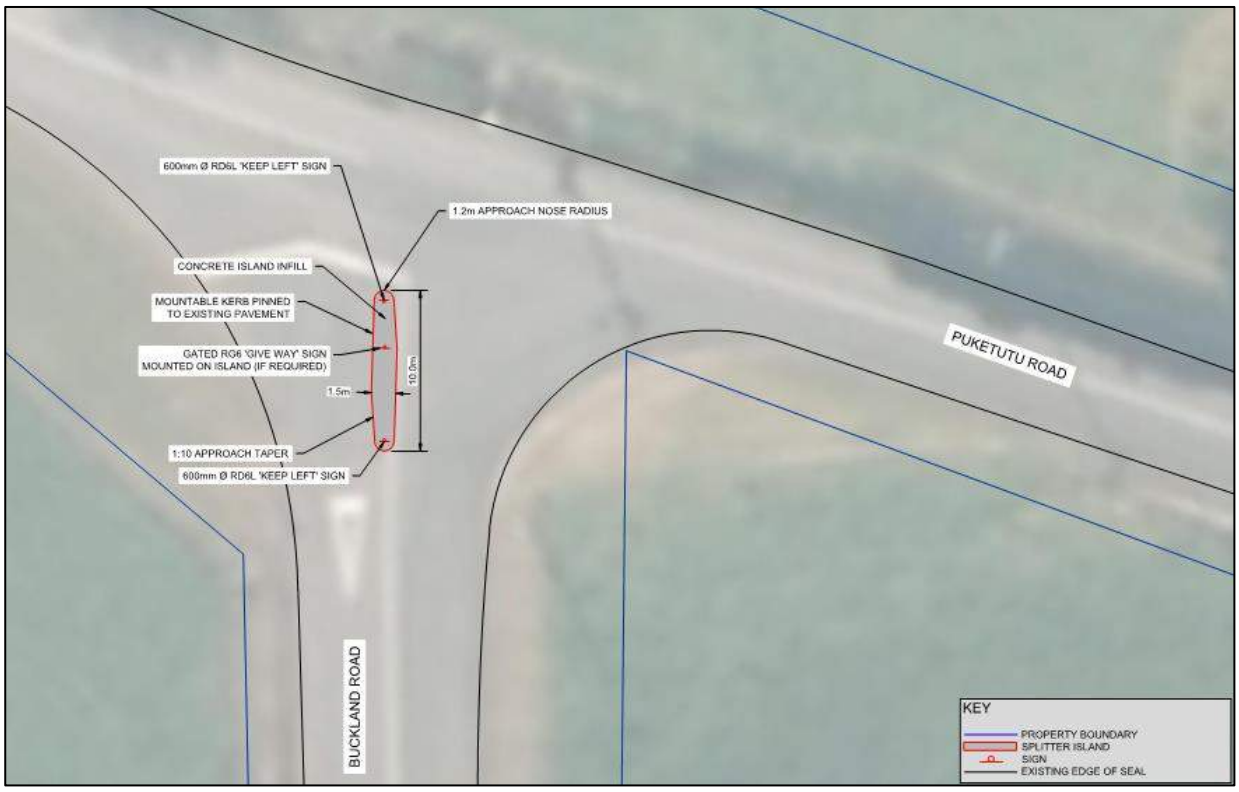

Figure 10: Splitter Island Concept

3.4. Buckland Road (west)

3.4.1. Assessment of Centreline and Edgelines

Several submitters have requested that Buckland Road (west) be upgraded to include centreline and edgeline markings. The sealed width of Buckland Road (west) varies from 5-6.5m and has varying levels of delineation. For example, centrelines, edge lines and edge marker posts are provided in some areas but are not continuous along the corridor.

Where there is adequate width, centreline markings can discourage overtaking and drifting from the lane and reduce head-on type crashes by shifting lane position away from the centre of the road. The NZTA High Risk Rural Roads Guide indicates a centreline can result in a 30% reduction in all crashes. Edgelines can reduce run-off-road crashes and sealed shoulder damage.

The Traffic Control Devices (TCD) Manual[2] and RTS 5 indicates that centrelines should be used where a road is greater than 5m wide (absolute minimum) or 5.5m (desirable minimum) and minimum AADT of 250veh/day. This is consistent with the Traffic Control Devices Rule[3] which states “a road controlling authority may mark a centreline on a roadway that is 5.1m or more in width”.

The Traffic Control Devices (TCD) Manual[4] and RTS 5[5] state that edgelines should be used where the seal width is greater than 6.6m (desirable minimum width) and the AADT is greater than 750veh/day, but can be used where the seal width is 6m (absolute minimum width).

[2] MOTSAM Part 2: markings, Section 2.01.01(b)
[3] Traffic Control Devices Rule 2004, Section 7.2(1)
[4] MOTSAM Part 2: markings, Section 2.03.01(b)
[5] RTS 5 Guidelines for Rural Road Marking and Delineation

There can be issues with providing additional delineation. Marking centrelines on narrow roads can increase travel speeds and decrease the level of safety. The NZTA High Risk Rural Roads Guide indicates marking edgelines only may be more beneficial on narrow roads.

The crash data from 2013-2018 shows that:

- 11 of the 31 crashes (35%) occurred at intersections including eight at the Karapiro Road/ SH1 intersection;
- 16 crashes (52%) were single vehicles losing control;
- Two crashes involved vehicles hitting a fallen tree (in the same incident); and
- Two crashes were head-on crashes on corners.

Both the head-on crashes occurred on a narrow section of Buckland Road where the centreline is already marked.

During a site visit in February 2019, at least one member of Hobbiton staff was observed driving along Buckland Road (west) overtaking other traffic before entering the staff car park on the northern side of Buckland Road. The Applicant actively provides information to tour operates reminding them the recommended route to Hobbiton is via Buckland Road (east). It is desirable that staff are also encouraged to use Buckland Road (east), they could potentially be required to use Buckland Road (east) as a condition of employment.

As shown by the summary of traffic counts the volume of traffic on Buckland Road has been increasing since the previous consent was granted.

Date of Count	Buckland Road (west) (CH 4380)	Buckland Road (east) (CH5470)
April 2015	289veh/day	1,181veh/day
January 2018	435veh/day (11% HCV)	2,018veh/day (11% HCV)
February 2019	459veh/day (12% HCV)	1,768veh/day (15% HCV)

Table 3: Buckland Road Traffic Volumes

On Buckland Road (west) the traffic volume has increased to approx. 450veh/day in the Hobbiton peak summer period. The ITA states the traffic volume in 2014 (when operating closer to current consented limit) was 206veh/day on Buckland Road (west), indicating traffic has doubled on this route over the past five years.

Traffic volumes on Buckland Road (west) have increased significantly over the past five years to a level where the criteria for a marked centreline are met where the width allows. A centreline should be installed as part of the applicant's road improvement package.

The criteria for edgelines along the whole corridor is not met, a minimum traffic volume of 750veh/day is required.

3.4.2. Additional Chevron Signs

The crash data indicates a history of crashes at curves located near 1241 Buckland Road, including a minor injury crash in 2018[6]. In our experience, visitors are still using Buckland Road (west) to travel to the site and this is supported by the traffic counts. Based on the road alignment (curve radius

[6] Crash ID 201810805, motorcycle lost control turning right.

48m[7]) these curves are out of context with the approaches. We recommend that additional chevron and speed advisory signs are installed at the location shown on the figure below.

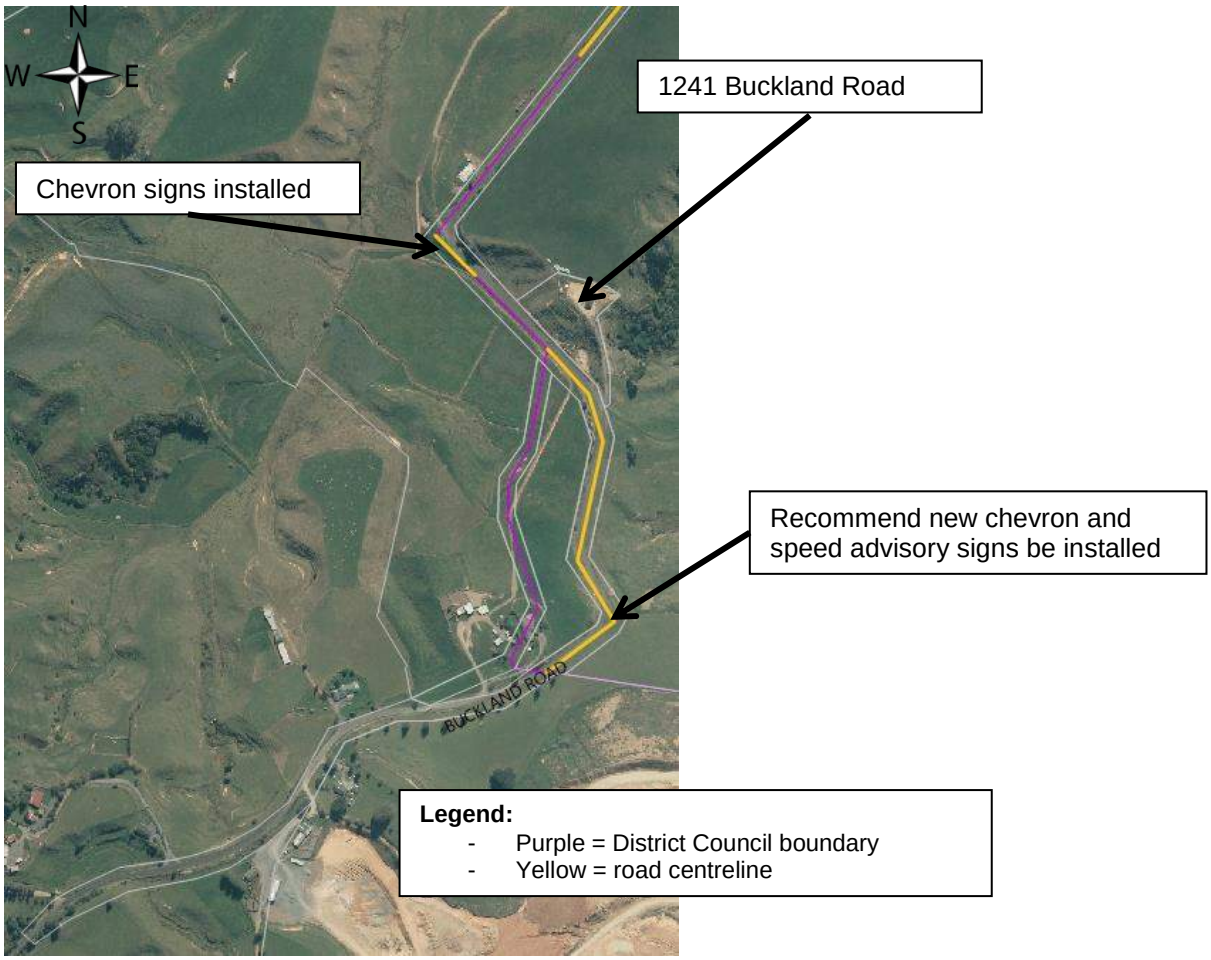

Figure 11: Additional Chevron and Speed Advisory Signs

3.5. Private Entrances – 385 and 399 Buckland Road

Submitters have raised concerns about the safety of access at the vehicle entrances to 385 and 399 Buckland Road. The crossings are located on either side of a vertical curve. The vertical curve and bank on southern side of the road restrict the available sight distance. This results in the following issues:

- Risk of rear-end crashes, particularly when eastbound vehicles are waiting to turn right into 385 Buckland Road. The vertical curve obscures the turning car from other eastbound traffic; and
- Poor sight distance increases the risk when turning right out of both entrances.

[7] www.roadsafetyrisk.co.nz

Looking Left (approx. 65m)	Looking Right (approx. 140m)
	

Table 4: Sight distance at 385 Buckland Road

Looking Left (approx. 110m)	Looking Right (approx. 45m)
	

Table 5: Sight distance at 399 Buckland Road (140m sight distance required)

The sight distances described in the table above are based on the sight lines remaining within the road reserve. Greater sight distance is available across the adjacent paddocks but this could be affected by vegetation or development within that property.

The NZ Transport Agency's Crash Estimation Compendium (First Edition, Amendment 1, 01/06/2018) (Section 7.5) provides a methodology for the assessment of intersection crashes that takes into account deficiencies in sight distance for right-turn movements out of a side road. The conflicting flow crash models are typically used where there is a high proportion of traffic volumes. So while the models may not directly applicable to lower volume vehicle crossings, they do provide a methodology that allows that scale of the potential effects and benefits of improving sight distance to be assessed.

For an 85th%ile operating speed of 70km/h, the MPDC Development Manual requires 140m safe intersection sight distance (SISD) be provided in each direction. The available sight distance are equivalent to operating speeds of 40km/h (65m SISD) and 30km/h (45m SISD) rather than stopping. Stopping Sight Distance (SSD) for 70km/h is 92m.

The Crash Estimation Compendium method uses the sum of the sight distance in both directions. The existing vertical crest and bank on Buckland Road currently limits sight distance at 399 Buckland Road to a sum of approx. 155m, a deficiency of 125m. The sum of the deficiency at 385 Buckland Road is approx. 35m. As shown below, the proposed increase in traffic increases the crash rate for right-turns out of 399 Buckland Road by approx. 12%. No mitigation is proposed as part of the application.

Providing compliant visibility decreases the injury crash rate for right-turn crashes by approx. 300%. Improving the sight distance would also reduce the risk of rear-end and other turning crashes. There appear to be potentially significant benefits for these residents from improving the sight distance.

Scenario	Major Road Flow (q_1) (veh/day) [8]	Turning flow (q_5) (veh/day)	Actual SISD	Visibility Deficiency (V_D)	Injury Crashes per Year (% change)
Consented	245veh/day	10veh/day	155m	-125m	0.00011
Proposed volumes with no change to sight distance	530veh/day	10veh/day	155m	-125m	0.00012 (-12%)
Proposed volumes with complying sight distance	530veh/day	10veh/day	280m	0m	0.00002 (300%)

Table 6: Crash Rate Assessment based on Visibility Deficiency at 399 Buckland Road

Improving the sight distance is likely to require both cutting back the slope on the southern side of the road and lowering of the crest curve. Simply cutting back the slope will not achieve complying sight distance.

Based on our preliminary design, it appears that lowering the road by 1-2.2m will be required to achieve complying sight distance. The works will also require service relocations (overhead power lines), regrading the driveway to 399 Buckland Road and resolving property impacts. We understand that the affected landowners are prepared to make land available to improve the sight distance. Council has estimated the costs of lowering this section of Buckland Road by 0.9m as $125,000, but this excludes service relocations and regrading the driveways.

Other options to improve safety could include relocating the vehicle crossings or combining the two crossings. This would likely require an easement arrangement or access lot to be created.

Convex mirrors are an option to improve sight distance in some situations but have limitations. Visibility can be limited by rain or at dawn or dusk, there is slight distortion of images, and difficulty in determining distance, depth and speed. Wellington City Council only allows mirrors to be used as a last resort and they can only be installed in areas with 50km/h speed limit or less[9]. Guidance from South Australia[10] and Queensland[11] highlights similar concerns (including that vehicles can appear on the wrong side of the road) and do not allow mirrors to be installed within the road or on roads with speed limits greater than 60km/h. The speed limit on Buckland Road is likely to remain 60km/h

[8] Traffic volumes for q1 only considers Hobbiton related traffic and relies on information provided on page 24 of the ITA.
[9] https://wellington.govt.nz/~/media/services/consents-and-licenses/encroachments/files/road-mirror-procedures.pdf
[10] https://www.dpti.sa.gov.au/__data/assets/pdf_file/0017/40148/Operational_Instruction_2_2.PDF
[11] https://www.tmr.qld.gov.au/-/.../Traffic.../Traffic...Road...manual.../Volume2Part4.pdf...

or higher and it is unclear if convex mirrors installed at these vehicle crossings would provide 140m sight distance.

The Applicant should provide additional information and a concept design showing how complying sight distance could be achieved at these vehicle crossings.

3.6. Pull Off Areas

Several submissions highlighted concerns with tourists stopping at in appropriate locations to take photos of the scenery and animals. This creates a crash risk if vehicles are parked inappropriately, e.g. at curves or narrow sections of the road.

Due to the vertical and horizontal alignment, it is not desirable to have vehicles parking on the side of Buckland Road, especially if people get out of the vehicle to take photos. As recommended in the ITA no stopping signs and markings have been installed along much of the Buckland Road. No stopping is currently limited to the northern side, as we understand tourists are more likely to stop when departing the site.

While it is undesirable to have vehicles stopping randomly along Buckland Road, providing dedicated pull off areas should encourage better behaviour and reduce the risk of a crash. One pull-off area has been provides at the Hobbiton threshold (CH4540). Another is shown on the drawings at CH3750 but has not been constructed (due to insufficient funding being provided int eh current MOU). No signage is provided indicating the location of the existing pull off area and tourists may not be aware of its purpose.

It would be desirable to provide another pull-off opportunity and appropriate signage.

3.7. Hobbiton Entrance

Submissions identified a number of issues and potential infrastructure improvements at the Hobbiton site entrance.

Issue and Relief Sought	Discussion
Lack of visibility at the exit from Hobbiton.	The Applicant's ITA (Section 4) indicates that complying sight distance is achieved at both vehicle crossings based on operating speeds of 50-70km/h. No further mitigation improvements are required. Providing a lower speed limit would assist in reducing the risk of a crash.
Provide judder bars at both ends of the Hobbiton site.	The use of judder bars on a rural road is not considered appropriate, especially given the current 100km/h speed limit. The thresholds either side of Hobbiton have recently been upgraded with additional signs and markings which should reduce travel speeds. Reducing the speed limit over this 670m length would reinforce the thresholds and improve road safety by reducing the risk of crashes occurring.

Issue and Relief Sought	Discussion
Provide a pedestrian crossing at the Buckland Road frontage of the Hobbiton site.	Based on the proposed activities there is no need for pedestrians to cross Buckland Road. However, we understand that some pedestrians do cross Buckland Road to take photos which increases the risk of a crash, especially if they stand in the road to take photos. Vehicle travels speeds have a significant influence on the outcome of crashes. A pedestrian hit at 30km/h has a 5% chance of dying, compared with a 40% risk of death at 50km/h. Hit at 70km/h, 96% of pedestrians will die[12]. Based on the increase in visitor numbers, there appears to be a risk that more pedestrians will cross or stand on Buckland Road. The ITA has not addressed this increased risk and additional mitigation is required. The risk of crashes involving pedestrians could be mitigated by: = Lowering travel speeds past Hobbiton. However, this requires a separate bylaw process and cannot be relied on as mitigation; = Providing additional signage and/or barriers to prevent pedestrians leaving the site; = Clearly identifying an appropriate location for visitors to take photos within the site; or = Providing a dedicated crossing facility that connects to an appropriate location for visitors to take photos from the northern side of Buckland Road.
Ingress and egress to/from the Hobbiton site and the crossing of traffic between the Shire's Rest and the Movie Set Site are along a 400m section of Buckland Road between two blind corners. It is estimated that busses could cross Buckland Road up to 140 times per day, at a frequency of up to one crossing every 4.8 minutes. This together with the increased volume of traffic has implications on wear and tear to the road, and road safety.	For 20 February 2019, the Hobbiton booking site indicates there will be 47 tours including 38 tours departing Hobbiton, seven tours from Matamata i-site and two departing from Rotorua. This excludes any pre-arranged private tour operators who arrive by their own bus. The busiest period appears to be between 2-4pm when there are 11 scheduled tours resulting in 22 movements or one every 5.5mins. The submitter indicates a similar crossing frequency of one every 4.8mins. The crash data indicates there has been three reported crashes within a 500m radius of Hobbiton of which none involved a bus and one was inside the car park. Our understanding is that the frequency of tours in any one day will not increase but that the peak summer season may extend to provide additional capacity. Having a large number of buses crossing Buckland Road for a private activity is not consistent with the Safer Journeys strategy or Vision Zero. A formal intersection (e.g. grade separation, roundabout, etc) is desirable and would be consistent with the vision to reduce deaths and serious injuries. We note that the current operation has not resulted in any reported crashes and the incremental effect of the proposal appear acceptable. Outside of this planning process, Hobbiton will have a primary duty of care under health and safety legislation to ensure a safe workplace for their employees and customers/visitors. This includes as far as is reasonably practicable, provide and maintain a work environment that is without health and safety risks.

[12] https://www.nzta.govt.nz/resources/nz-pedestrian-profile/6/#64

Issue and Relief Sought	Discussion
Construction of an underpass between the Shire's Rest and the Movie Set Site.	While an underpass would avoid some of the movements, buses would still need to arrive and depart from Matamata so it would not eliminate turning vehicles on this section of Buckland Road. Construction of a vehicle underpass would likely require reconfiguration of the road network and parking within the Shire's Rest site at significant cost. This is likely to be beyond what is considered reasonably practicable.

Table 7: Discussion of Submitter Issues at Hobbiton Entrance

3.8. SH29/ Hopkins Road Intersection

As described above NZTA is implementing an Intersection Speed Zone on SH29 aiming at reducing risk at this intersection. Submitters are seeking a roundabout. Any larger scale improvements, such as a roundabout, would be subject to further assessment and approval by NZTA and MPDC.

3.9. Rangitanuku Road

The submission by Derrys Farm Ltd seeks improvements to Rangitanuku Road, including:

- Require the addition of a right turn bay on SH29 (southbound) into Rangitanuku Road; and
- Widening Rangitanuku Road in order to prevent accidents caused by drivers unused to NZ road rules and single lane roads.

Rangitanuku Road is a narrow local road located in both the MPDC and South Waikato districts. Mobileroad.org records the estimated 2018 traffic volume as 200veh/day (MPDC) and 265veh/day (SWDC). In January 2019, MPDC recorded the traffic volume as 334veh/day with 85th %ile speeds of 82km/h (southbound) and 92km/h (northbound). The width varies from 4.7-6.7m.

There were two non-injury crashes at the SH29 intersection and two crashes (one minor injury, one non-injury) along Rangitanuku Road in the period 2013-2018. The crashes on Rangitanuku Road were both single vehicle loss of control crashes. The crashes at the SH29 intersection involved turning or slow moving vehicles being struck from behind.

Given the low traffic volumes on Rangitanuku Road (322veh/day), it is unlikely to meet the warrants to provide a right-turn bay on SH29. Improvements to create a right-turn bay at the SH29/ Rangitanuku Road intersection are limited by the adjacent bridge. This intersection falls within the scope of the SH29 Pairere to Tauriko Business Case developed by NZTA. We understand that development of the recommended programme is not complete but is likely to include minor safety improvements.

We do not support the use of Rangitanuku Road as a route for Hobbiton traffic and understand that google travel directions between Rotorua and Hobbiton now avoid this route. Travel information provided to tour operators should require them to use recommended travel route to/from Rotorua via the state highway network. Options to improve this include erecting additional signage at the southern end of Rangitanuku Road indicating "Narrow winding route, not suitable for campervans".

Provided good travel information and access/ticket agreements are provided to visitors and tourist companies, the use of Rangitanuku Road by Hobbiton traffic should be low. Council's should consider improvements to widen the narrowest sections of Rangitanuku Road as part of future pavement rehabilitation projects.

If traffic on Rangitanuku Road increases it will be necessary to install signage at the SH5/SH28 intersection and the SH28/Rangitanuku Road intersection to encourage traffic to use the safer state highway network. This would require additional consultation with NZ Transport Agency and South Waikato District Council. The travel information provided to tour operators should require them to use the recommended travel route to Rotorua via the state highway network.

3.10. Speed Management

Several submitters have raised travel speeds as an issue. Speed management improves road safety by reducing the risk of a crash occurring, and can significantly lower the risk of serious injury if a crash does occur.

Council can only change a speed limit through a formal bylaw process. In 2016, after early engagement with the community Council decided not to proceed with a bylaw change that would have reduced the speed limit on Buckland Road. Based on the submissions received as part of this process there appears to be a greater level of support for a change in the speed limit.

Based on Safer Journeys Risk Assessment Tool, a speed limit of 60km/h appears appropriate. However, previously an 80km/h limit was considered on Buckland Road (east) and it would be appropriate to review the corridor prior to further public engagement on speed management and potential review of the One Network Road Classification (ONRC). This could include introducing a lower speed limit past the site accesses.

Given the tourism nature of the activity, I support Council reviewing the speed limit on the affected routes. This would require discussions with Waipa DC as part of Buckland Road (west) and Karapiro Road are located in that district.

A bylaw review typically takes 4-6 months and including the following steps:

- Carryout early public engagement on speed management;
- Prepare a Statement of Proposal;
- Council resolve to amend the Bylaw and process with public consultation;
- Public notification and public consultation;
- Hearing of submissions; and
- Council adoption of revised Bylaw.

Council elections occur in October 2019 will impact on the ability to review the bylaw in 2019.

3.11. Effects within Matamata

We considered the potential parking effects in our earlier review and concluded that road safety effects are unlikely to be noticeable and that the increase in visitors will result in longer periods of peak parking demand. The increase in parking demand could be mitigated by providing additional off-street parking, but there appear to be few options for additional parking.

3.12. Visitor Cap

The NZTA submitted on the visitor cap as follows:

> *Mitigation measures outlines in the ITA have been adequately incorporated into the Plan Change provisions. However, the Agency is concerned that if the visitor cap exceeds the expected maximum of 650,000 visitors per year / 387,000 vehicle movements per year, that the safety at the State Highway 29/ Hopkins Road intersection and State Highway 27/ Firth*

Street intersection will be compromised. Proposed Performance Standard 1.1.8 states that visitor numbers (excluding visitors attending events as defined in the DCP) shall not exceed 3,500 visitors per day which equates to 1,227,500 visitors per year, thus exceeding the 650,000 cap. To ensure that the safety on the above mentioned intersections is not compromised, the Agency seeks that a 387,000 cap is placed on vehicle movements to ensure that the 650,000 visitors per year as assessed in the ITA is not exceeded. Given that effects on the transport network are related to the number of vehicles, not the number of visitors, a limit on vehicle numbers is a more appropriate measure.

The Applicant has proposed a cap based on visitor numbers. Using a number of assumptions this has been converted to trip generation of the purpose of assessing the transport effects. A cap on visitor numbers is straight-forward to record and report through ticket sales. However, there is a risk that the transport effects may change if the assumptions on travel behaviour change and potentially misses an opportunity to incentivise increases in vehicle occupancy. For example:

- If a higher proportion of visitors arrive by car (rather than bus) the number of trips will increase potential changing the scale of the transport effects.
- If more visitors arrive by Buckland Road (west) there is an increased risk of safety effects on this route.

Currently the trip generation of 387,000 trips/year used in the ITA excludes trips generated by events. Any change to a cap based on trip generation would need to:

- update the trip generation and ITA to include these trips. As the frequency and scale of events is unclear this could be challenging; or
- only consider trips within a specific time period, e.g. tour operating hours. However, this risks including trips related to event set-up and may miss staff trips if they arrive early/ depart late; or
- Limit trips generated by all activities, including events to 387,000veh/year and 2,084veh/day.

A cap on trip generation will likely require the Applicant to carryout on-going traffic counts of Buckland Road to record trips generated by the site and exclude trips to other properties on Buckland Road. Automatic telemetry counts are one option for this type of traffic counts.

From a transportation perspective, the effects are directly related to the trip generation of the proposal. The greater the number of trips, the higher the risk of adverse effects occurring. Restricting activities at the site by the number of visitors does not take into account any change in vehicle occupancy or vehicle type. Providing a limit based on vehicle numbers is a more appropriate measure.

3.13. Summary

The following table summarises the key transport submission topics, summarises our discussion and indicates whether we consider if further mitigation is required.

Topic	Submitter Concerns and Discussion	Reviewer's opinion on whether further mitigation is required to manage effects?
Buckland Road (east)	• Not all proposed works completed (refer ITA, Appendix B) • Amenity effects at 21 Buckland Road	Yes • Applicant should complete planned infrastructure upgrades • Install no-stopping signs and markings adjacent to 21 Buckland Road (to mitigate amenity effects)

Topic	Submitter Concerns and Discussion	Reviewer's opinion on whether further mitigation is required to manage effects?
Puketutu Road/ Buckland Road Intersection	• Intersection difficult to see, and people miss the intersection • Concern about sign location and messaging • Loss of control crashes	Yes • Further mitigation required to improve intersection conspicuity and layout, e.g. splitter island or intersection realignment.
Buckland Road (west)	• Lack of delineation at out of context curves and along the route • Increasing use by visitors, traffic volumes have doubled since 2014	Yes • Install chevron and speed advisory signs near 1241 Buckland Road • Install centreline along length of Buckland Road (west), this will require line marking within Waipa DC • Travel information identifying the preferred route should be supplied to staff and deliveries
Private entrances – 385 and 399 Buckland Road	• Poor sight distance • Increased risk of rear-end and turning crashes	Yes • Improvements to sight distance are required to mitigate the crash risk. This appears likely to require lowering of Buckland Road.
Pull-off Areas	• Risk of crashes when tourist park at in appropriate locations to take photos • Well designed and signed pull off areas should reduce the risk	Yes • Only one of the two pull off areas proposed in the ITA has been constructed. • Recommend that signs are erected indicating location of pull-off areas
Hobbiton Entrance and Underpass	• Risk of pedestrian crashes when crossing the road • Increase in bus movements between the two precincts • Submitter request for underpass • Construction of an underpass would likely required reconfiguration of the site at significant cost. Likely to be beyond what is considered reasonably practicable.	Yes • Applicant should provide further mitigation of pedestrian crash risk by improving barriers to pedestrians crossing the road and providing designated photo opportunities. • Setting speed limits requires bylaw change by Council and is beyond the scope of this application. We recommend that Council consider a slower speed restriction at the Hobbiton entrance.
SH29/ Hopkins Road Intersection	• High crash rate	No • NZTA implementing Intersection Speed Zone to address crash risk. No further mitigation by applicant required.
Rangitanuku Road	• Improvements to SH29/ Rangitanuku Road intersection (e.g. right-turn bay) • Widening of Rangitanuku Road sought.	No • Provided good travel information is provided to staff, visitors and tourist companies, the use of Rangitanuku Road by Hobbiton traffic should be low. • No mitigation by applicant required.

Topic	Submitter Concerns and Discussion	Reviewer's opinion on whether further mitigation is required to manage effects?
Speed Management	• Submitters seek speed limits of 80km/h or lower • Changing speed limits requires a change to Council bylaw outside of the plan change process.	Yes • Setting speed limits requires bylaw change by Council and beyond scope of this application. • We support Council reviewing speed limits on affected roads including a slower speed restriction at Hobbiton entrance. • No mitigation by applicant required.
Effects within Matamata	• Effects covered in our earlier review • Increased parking demand over a longer period.	No • No mitigation by applicant required.
Visitor Cap	• NZTA prefer a cap based on trip generation, rather than visitors • The transport effects are directly related to the trip generation. • Restricting activities at the site by the number of visitors does not take into account change in vehicle occupancy or vehicle type (car vs bus).	Yes • Agree a cap on the activity is required • Providing a limit based on vehicle numbers is a more appropriate measure. • The ITA assessed trip generation excluding trips generated by events. Therefore the cap should be set at 387,000veh/year and 2,084veh/day

Table 8: Transportation Submission Summary

4. EVALUATION OF TRAFFIC IMPACTS

4.1. Traffic Impacts

Based on the ITA we consider the potential adverse traffic related effects are likely to include:

- Efficiency effects along the various routes to the site;
- Safety effects at the site accesses;
- Potential for parking shortfalls in peak periods resulting in safety effects (parking and pedestrians on Buckland Road);
- Safety effects at intersections along the various routes to the site;
- Safety effects at other vehicle crossings, particularly along Buckland Road.
- Potential for increased number of traffic movements during the hours of darkness associated with the accommodation and park-over activities;
- Potential for increased traffic on Rangitanuku Road leading to an increased crash risk;
- Increased rate of pavement deterioration, particularly along Buckland Road, but potentially Puketutu Road; and
- Increased visitor numbers to the Matamata i-site increasing parking demand in the nearby area.

The following table provides an updated summary of the transportation effects and their significance.

Transportation Effect	Significance	Comments
Efficiency due to increase in traffic. Most likely to be noticeable on Buckland and Puketutu Roads. May be some additional delay at affected intersections but unlikely to be significant	Most noticeable as localised effects on users of Buckland Road and Puketutu Road.	Change in road classification and speed limit desirable due to increase traffic and function as access to important tourist facility.
Vehicle site access: - potential for increase in crashes at the three vehicle crossings. - Low risk of additional delays	Localise effects at vehicle crossings	Recent changes to vehicle crossings (November 2016) appear appropriate Additional threshold treatments complete Council should consider lower speed limit at Hobbiton (in addition to lowering the limit on Buckland Road)
Pedestrian safety – we are aware that some visitors do walk onto Buckland Road to photograph the Hobbiton sign and Shires Rest building, creating a safety risk	Localised safety effects	Undesirable and unsafe to have pedestrians walking on the road Could be reduced by providing designated photo locations within the property or providing additional barriers. Further assessment and mitigation required. Council should consider lower speed limit at Hobbiton as part of wider speed management
The expected parking surplus is 16 spaces. The consequences of a parking shortfall are potentially significant including cars parked on the narrow berm, pedestrians walking or crossing Buckland Road.	Potential effects on other road users if on-street parking occurs	Consent should regularly monitor parking demand Applicant should identify future parking areas for expansion

Transportation Effect	Significance	Comments
Safety effects at other intersections	Effects on other road users	NZTA implementing Intersection Speed Zone at SH29/ Hopkins Road Further improvements at Buckland Road/ Puketutu Road are required, e.g. changes to signs and construction of a splitter island.
Increased risk of adverse safety effects at other vehicle crossings	Moderate risk of localised effects at neighbouring property accesses Risk highest at 385 and 399 Buckland Road.	No specific assessment of risk completed. Landowners do not support convex mirrors proposed at 385 and 399 Buckland Road. Additional works (road lowering) required to improve sight distance.
Risk of crashes when tourist park at in appropriate locations to take photos.	Increased potential for crashes along Buckland Road	Well designed and signed pull off areas should reduce the risk Only one of the two pull off areas proposed in the ITA has been constructed. Recommend that signs are erected indicating location of pull-off areas
Accommodation and park-over activities may result in additional traffic movements during hours of darkness	Increased potential for crashes along Buckland Road and at intersections	Flag lighting at entry required when accommodation activities established.
Increased traffic on Rangitanuku Road	Increase risk of safety effects	Increase traffic on low volume, narrow road is undesirable. Manage through tour operator information and potentially additional signage.
Pavement deterioration – additional traffic requires additional pavement thickness (21mm)	Effects on Council maintenance	Mitigation through payment for additional material considered appropriate Fee assessed in the ITA did not include trips related to events. If events are included in revised trip generation cap, pavement fee would require reassessment.
Effects within Matamata - Increase for parking near bus stop - Less parking available for other visitors to Matamata - Parking demand overspills to other nearby streets requiring visitors to walk further and cross more roads	Road safety effects likely to unnoticeable Increase visitors result in longer periods of peak parking demand	Could be mitigated by providing additional off-street parking, but there appear to be few options for additional parking.

Table 9: Preliminary evaluation of traffic impacts

An on-going monitoring and reporting framework is required to monitor trip generation of tours, trip generation of events held outside tour hours, parking demand an provision of information to tour operators. We would prefer annual reporting of monitoring.

4.2. Further Mitigation

Following our review of the submissions we consider that the additional mitigation is required. The applicant should:

- Complete the Recommended Safety Improvements for Buckland Road proposed in the ITA (Appendix D). For example, only one of the pull off areas proposed in the ITA has been constructed, the truck signs have not been removed and some line marking at the site has not been complete.
- Erect appropriate motorist service signs in advance of the pull-off areas.
- Install no-stopping markings and signs adjacent to 21 Buckland Road for a minimum of 140m on Puketutu Road and 600m on Buckland Road.
- Design and construct further improvements to improve consipicuity of the Buckland Road/ Puketutu Road intersection. As a minimum, this should include reviewing effectiveness of a splitter island, line marking, signage and lighting.
- Install chevron and speed advisory signs near 1241 Buckland Road.
- Install centreline along length of Buckland Road (west), noting that this will require line marking within Waipa DC.
- Design and construct improvements to provide 140m sight distance at the vehicle crossings to 385 and 399 Buckland Road to mitigate the crash risk. This is likely to require lowering of Buckland Road.
- Reduce the risk of pedestrian crashes at the Hobbiton site accesses by providing additional signage, improving barriers to pedestrians crossing the road or providing designated photo opportunities within the site.
- Provide additional travel information to staff to ensure that staff and deliveries use the preferred Buckland Road (east) route when travelling to and from the site. Travel information should specifically state that Rangitunuku Road should be avoided.

4.3. Proposed Plan Provisions and Standards

4.3.1. General

If MPDC chooses to accept the proposed Development Concept Plan, it should be subject to additional infrastructure improvements and performance standards that include maximum trip numbers, minimum car park numbers, minimum standards for site access, and a framework for managing travel to events at the site.

We have reviewed the proposed plan provisions and standards and apart from the comments below have no further amendments.

4.3.2. Activity/ Trip Generation Cap

As discussed in Section 3.12 above, we support a cap on activity at the site. From a transportation perspective, the effects are directly related to the trip generation of the proposal. The greater the number of trips, the higher the risk of adverse effects occurring. Restricting activities at the site by the number of visitors does not take into account any change in vehicle occupancy or vehicle type. Providing a limit based on vehicle numbers is a more appropriate measure.

The ITA provides trip generation of 387,000 trips per calendar year and 2,084 trips per day excluding trips generated by events. Therefore, an updated trip generation cap may be required from the Applicant, or the rules structured to exclude trips relating to events outside normal tour hours.

The effects of trip generation (and pavement effects) beyond 387,000 trips per calendar year and 2,084 trips per day has not been assessed in the ITA. We support the trip generation caps (Plan Provisions 7. k) and l) of 387,000 trips per calendar year and 2,084 trips per day.

4.3.3. MOU Amendments

The MOU should be updated to include the infrastructure improvements identified in this review. These works are summarised in Section 3.13 and Section 5.2 of this report.

5. CONCLUSION

5.1. Transportation Impacts

The expected trip generation of the proposal, excluding events held outside normal operating hours, is:

- An average of 1,060veh/day based on 650,000visitors/year. This is an increase from 490veh/day expected by the existing consent for 300,000visitors/year;
- Peak traffic of 2,100veh/day when there is 3,500visitors/day; and
- Approx. 350veh/hr.

The expected trip generation represents a significant increase (approximately 40%) to the current traffic volume on Buckland Road. There will also be an increase in traffic along Puketutu Road and the associated SH29 intersection. There appear to be potential adverse transportation effects including:

- Efficiency effects along the various routes to the site;
- Safety effects at the site accesses, including the risk of pedestrian being struck;
- Potential for parking shortfalls in peak periods resulting in safety effects (parking and pedestrians on Buckland Road);
- Safety effects at intersections along the various routes to the site;
- Safety effects at other vehicle crossings along Buckland Road, particularly at 385 and 399 Buckland Road;
- Potential for increased number of traffic movements during the hours of darkness associated with the accommodation and park-over activities and more frequent events;
- Potential for increased traffic on Rangitanuku Road leading to an increased crash risk;
- Increased rate of pavement deterioration along Buckland Road and Puketutu Road; and
- Increased visitor numbers to the Matamata i-site increasing parking demand in the nearby area.

The increased traffic on Buckland Road (east) means that the corridor meets the ONRC criteria for a Primary Collector. We would support a change in the ONRC that recognises its function as it provides access to a nationally significant tourist destination. A change in the ONRC would mean that a higher level of service with increased maintenance costs would be expected. There are options that would enable Council to recognise the change in function of Buckland Road (east) and fund increased maintenance and safety improvements through:

- General rates;
- Targeted rate for the property that specifically provide for higher maintenance costs and safety improvements; and
- Enhanced Financial Assistance Rate (FAR) from NZ Transport Agency for maintenance and improvements to Buckland Road; and
- Grants from tourism organisations.

We recommend that Council consider mechanisms for funding higher levels of service expected on a Primary Collector road.

5.2. Summary

The proposed mitigation to provide additional travel information to visitors through signage, marking, ticketing information and navigation aids should assist in managing the road safety risk to an acceptable level by improving route selection and safety along the affected routes. However, not all of the mitigation identified in the ITA (Appendix D) has been carried out.

Following our review of the submissions, we consider that additional mitigation and infrastructure improvements is required. The applicant should:

- Complete the Recommended Safety Improvements for Buckland Road proposed in the ITA (Appendix D). For example, only one of the pull off areas proposed in the ITA has been constructed and the truck signs have not been removed.
- Erect appropriate motorist service signs in advance of the pull-off areas.
- Install no-stopping markings and signs adjacent to 21 Buckland Road for a minimum of 140m on Puketutu Road and 600m on Buckland Road.
- Design and construct further improvements to improve consipicuity of the Buckland Road/ Puketutu Road intersection. As a minimum, this should include reviewing effectiveness of a splitter island, line marking, signage and lighting.
- Install chevron and speed advisory signs near 1241 Buckland Road.
- Install centreline along length of Buckland Road (west), noting that this will require works within Waipa DC.
- Design and construct improvements to provide 140m sight distance at the vehicle crossings to 385 and 399 Buckland Road to mitigate the crash risk. This is likely to require lowering of Buckland Road.
- Reduce the risk of pedestrian crashes at the Hobbiton site accesses by improving barriers to pedestrians crossing the road or providing designated photo opportunities within the site.
- Provide additional travel information to staff to ensure that staff and deliveries use the preferred Buckland Road (east) route when travelling to and from the site. Travel information should specifically state that Rangitunuku Road should be avoided.

With appropriate performance standards, the transportation effects of the proposal could be managed to be acceptable. If MPDC chooses to accept the proposed Development Concept Plan, it should be subject to additional infrastructure improvements and performance standards that include maximum trip numbers, minimum car park numbers, minimum standards for site access, and a framework for managing travel to events at the site.

A monitoring and reporting framework is required to monitor trip generation of the site including tours and events held outside tour hours, parking demand and provision of information to tour operators, deliveries and staff.

APPENDICES

Appendix A: Crash Information 2013-2018

Rangitanuku Road

Crash road	Dist	Direction	Side road	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	fatal	severe	minor
SH 29	10	W	RANGITANUKU ROAD	201431146	31/01/2014	Fri	17:03	Car/Wagon1 EDB on SH 29 hit rear end of Car/Wagon2 stopped/moving slowly	Dry	Bright sun	Fine	T Junction	Nil	0	0	0
RANGITANUKU ROAD	100	S	SH 29	201543863	15/08/2015	Sat	6:41	Van1 NDB on RANGITANUKU ROAD lost control; went off road to left, Van1 hit Embankments	Wet	Overcast	Mist or Fog	Nil (Default)	Unknown	0	0	0
RANGITANUKU ROAD		I	CARMICHAEL ROAD	201614878	7/08/2016	Sun	15:00	Car/Wagon1 NDB on Rangatunuku Rd lost control; went off road to left, Car/Wagon1 hit Cliffs	Dry	Bright sun	Fine	T Junction	Nil	0	0	3
SH 29		I	RANGITANUKU ROAD	201836840	9/04/2018	Mon	16:30	Truck1 EDB on SH 29, MATAMATA, MATAMATA-PIAKO hit rear of Car/Wagon2 EDB on SH 29, MATAMATA, MATAMATA-PIAKO turning right from centre line	Dry	Overcast	Fine	T Junction	Stop	0	0	0

Total Casualties:	3
Total Crashes:	1
Total Non-injury Crashes:	3

Buckland Road (East)-Plain English Report

Crash road	Dist	Direction	Side road	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	fatal	severe	minor
BUCKLAND ROAD	3190	W	PUKETUTU ROAD	201325765	25/12/2013	Wed	13:10	Car/Wagon1 WDB on BUCKLAND ROAD lost control turning right, Car/Wagon1 hit Fences	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	1
HOPKINS ROAD	20	S	PUKETUTU ROAD	201338141	13/09/2013	Fri	3:05	Car/Wagon1 SDB on HOPKINS ROAD lost control; went off road to left	Wet	Dark	Fine	Nil (Default)	Unknown	0	0	0
BUCKLAND ROAD	3200	W	PUKETUTU ROAD	201339290	21/10/2013	Mon	15:05	Car/Wagon1 WDB on BUCKLAND ROAD lost control turning right, Car/Wagon1 hit Cliffs	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0
BUCKLAND ROAD	1000	W	PUKETUTU ROAD	201511468	17/03/2015	Tue	13:31	Car/Wagon1 WDB on BUCKLAND ROAD hit Car/Wagon2 headon on straight	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	1	2
BUCKLAND ROAD	1720	W	PUKETUTU ROAD	201513329	27/03/2015	Fri	7:55	SUV1 EDB on BUCKLAND ROAD hit parked veh, SUV1 hit Stationary Vehicle	Wet	Bright sun	Heavy rain	Nil (Default)	Nil	0	0	1
Z CPK	4020	E	MATHIESON ROAD	201616620	7/10/2016	Fri	15:00	SUV1 NDB on Buckland hit PEDESTRIAN	Dry	Overcast	Fine	Nil (Default)	Unknown	0	1	0
BUCKLAND ROAD	4320	E	MATHIESON ROAD	201653342	22/11/2016	Tue	15:45	Van1 SDB on Buckland Road lost control; went off road to left, Van1 hit Fences, Ditches	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0
BUCKLAND ROAD	4100	E	MATHIESON ROAD	201752480	28/10/2017	Sat	11:50	Car/Wagon1 WDB on Buckland Road hit rear end of Car/Wagon2 stopped/moving slowly	Wet	Overcast	Light rain	Nil (Default)	Unknown	0	0	0
PUKETUTU ROAD	60	N	HOPKINS ROAD	201812858	16/03/2018	Fri	14:00	Car/Wagon1 NDB on Puketutu road lost control on curve and hit Car/Wagon2 head on	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	1
BUCKLAND ROAD	4960	N	MATHIESON ROAD	201830139	2/01/2018	Tue	16:45	Car/Wagon1 EDB on Buckland Rd lost control turning left, Car/Wagon1 hit Fences	Wet	Overcast	Light rain	Nil (Default)	Unknown	0	0	0

Total Casualties:	7
Total Crashes:	6
Total Non-injury Crashes:	5

Buckland Road (West)-Plain English Report

Crash road	Dist	Direction	Side road	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	fatal	severe	minor
SH 1N		I	KARAPIRO ROAD	201332924	19/05/2013	Sun	13:39	Van1 SDB on SH 1N lost control turning right, Van1 hit Traffic Islands, Poles	Wet	Overcast	Light rain	T Junction	Give way	0	0	0
BUCKLAND ROAD	900	W	TODD ROAD	201439808	23/06/2014	Mon	17:20	Car/Wagon1 WDB on BUCKLAND ROAD lost control turning right, Car/Wagon1 hit Fences, Ditches	Dry	Twilight	Fine	Nil (Default)	Unknown	0	0	0
KARAPIRO ROAD	700	W	WHITEHALL ROAD	201450829	14/12/2014	Sun	20:28	Car/Wagon1 SDB on KARAPIRO ROAD lost control turning right, Car/Wagon1 hit Fences	Wet	Twilight	Light rain	Nil (Default)	Nil	0	0	0
BUCKLAND ROAD	3000	E	TODD ROAD	201516707	10/09/2015	Thu	20:30	Car/Wagon1 SDB on BUCKLAND ROAD lost control turning left, Car/Wagon1 hit Fences, Poles	Wet	Dark	Light rain	Nil (Default)	Nil	0	0	1
BUCKLAND ROAD	1000	E	MATHIESON ROAD	201535600	1/04/2015	Wed	6:50	Car/Wagon1 NDB on BUCKLAND ROAD lost control turning right, Car/Wagon1 hit Fences	Dry	Twilight	Fine	Nil (Default)	Nil	0	0	0
BUCKLAND ROAD	2700	S	MATHIESON ROAD	201543096	16/06/2015	Tue	13:15	Car/Wagon1 NDB on BUCKLAND ROAD lost control turning right, Car/Wagon1 hit Cliffs	Dry	Bright sun	Fine	Nil (Default)	Nil	0	0	0
BUCKLAND ROAD	3500	E	MATHIESON ROAD	201549678	18/09/2015	Fri	17:01	Truck1 EDB on BUCKLAND ROAD lost control turning right, Truck1 hit Cliffs, Ditches	Dry	Bright sun	Fine	Nil (Default)	Nil	0	0	0
BUCKLAND ROAD		I	KARAPIRO ROAD	201550002	18/12/2015	Fri	12:29	Van1 EDB on BUCKLAND ROAD hit Car/Wagon2 turning right onto AXROAD from the left	Dry	Bright sun	Fine	T Junction	Give way	0	0	0
SH 1N		I	KARAPIRO ROAD	201552022	23/05/2015	Sat	15:00	Car/Wagon1 EDB on SH 1N hit Car/Wagon2 turning right onto AXROAD from the left	Wet	Overcast	Heavy rain	T Junction	Give way	0	0	0
KARAPIRO ROAD		I	WHITEHALL ROAD	201611767	14/02/2016	Sun	14:50	Motorcycle1 WDB on KARAPIRO ROAD lost control turning left	Dry	Bright sun	Fine	T Junction	Nil	0	1	0
KARAPIRO ROAD	450	E	WHITEHALL ROAD	201619440	18/06/2016	Sat	6:30	Car/Wagon1 WDB on KARAPIRO ROAD lost control turning right, Car/Wagon1 hit Poles, Ditches	Wet	Dark	Mist or Fog	Nil (Default)	Unknown	0	0	1
KARAPIRO ROAD	80	E	WHITEHALL ROAD	201632544	5/01/2016	Tue	15:07	Car/Wagon1 EDB on KARAPIRO ROAD lost control turning right, Car/Wagon1 hit Poles	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0

Crash road	Dist	Direction	Side road	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	fatal	severe	minor
SH 1N		I	KARAPIRO ROAD	201635760	28/02/2016	Sun	21:40	Car/Wagon1 EDB on SH 1N hit Car/Wagon2 turning right onto AXROAD from the left	Dry	Dark	Fine	T Junction	Give way	0	0	0
SH 1N		I	KARAPIRO ROAD	201646113	4/08/2016	Thu	17:20	Car/Wagon1 NDB on tirau road lost control turning right, Car/Wagon1 hit Fences	Wet	Overcast	Light rain	T Junction	Stop	0	0	0
BUCKLAND ROAD	1790	W	MATHIESON ROAD	201715163	17/06/2017	Sat	16:35	Motorcycle1 WDB on Buckland Road lost control turning right, Motorcycle1 hit Fences, Poles	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	1	0
BUCKLAND ROAD	220	E	TAOTAOROA ROAD	201716389	17/07/2017	Mon	8:20	Car/Wagon1 EDB on Buckland road lost control turning left, Car/Wagon1 hit Fences, Water	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	1
KARAPIRO ROAD	700	E	WHITEHALL ROAD	201718419	15/10/2017	Sun	2:34	Van1 EDB on Karapiro Road lost control turning right, Van1 hit Poles	Dry	Dark	Fine	Nil (Default)	Unknown	0	0	1
SH 1N		I	KARAPIRO ROAD	201719215	15/11/2017	Wed	15:15	Truck1 SDB on SH1 hit Car/Wagon2 turning right onto AXROAD from the left	Dry	Overcast	Fine	T Junction	Stop	0	1	0
BUCKLAND ROAD	1430	S	MATHIESON ROAD	201732520	11/02/2017	Sat	15:00	Car/Wagon1 NDB on Buckland Road lost control on curve and hit Other2 head on, Car/Wagon1 hit Cliffs	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0
BUCKLAND ROAD	1680	N	TODD ROAD	201736742	6/04/2017	Thu	6:29	Car/Wagon1 WDB on BUCKLAND ROAD hit obstruction, Car/Wagon1 hit Other	Wet	Overcast	Fine	Nil (Default)	Unknown	0	0	0
BUCKLAND ROAD	1680	N	TODD ROAD	201736743	6/04/2017	Thu	6:29	Car/Wagon1 EDB on BUCKLAND ROAD hit obstruction, Car/Wagon1 hit Other	Wet	Overcast	Fine	Nil (Default)	Unknown	0	0	0
SH 1N		I	KARAPIRO ROAD	201749253	11/09/2017	Mon	19:32	Van1 SDB on Tirau road hit turning Car/Wagon2	Dry	Dark	Fine	T Junction	Give way	0	0	0
KARAPIRO ROAD	10	E	SH 1N	201751017	22/09/2017	Fri	9:40	Car/Wagon1 EDB on KARAPIRO ROAD hit Van2 parking/unparking	Dry	Bright sun	Fine	T Junction	Give way	0	0	0
BUCKLAND ROAD	1060	W	MATHIESON ROAD	201755500	20/11/2017	Mon	22:30	Car/Wagon1 WDB on Buckland Road lost control turning left, Car/Wagon1 hit Fences	Dry	Dark	Fine	Nil (Default)	Unknown	0	0	0
KARAPIRO ROAD	110	W	WHITEHALL ROAD	201810133	1/01/2018	Mon	20:02	Car/Wagon1 WDB on Karapiro rd lost control turning left, Car/Wagon1 hit Fences, Trees	Wet	Twilight	Light rain	Nil (Default)	Unknown	0	0	1
KARAPIRO ROAD	170	N	SH 1N	201810238	3/01/2018	Wed	12:20	Motorcycle1 WDB on Karapiro road lost control; went off road to left.	Wet	Overcast	Heavy rain	Nil (Default)	Unknown	0	0	2
BUCKLAND ROAD	3450	W	MATHIESON ROAD	201810805	31/01/2018	Wed	11:55	Motorcycle1 NDB on Buckland Road lost control turning right, Motorcycle1 hit Cliffs	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	1

Crash road	Dist	Direction	Side road	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	fatal	severe	minor
KARAPIRO ROAD		I	WHITEHALL ROAD	201830814	6/01/2018	Sat	12:30	Car/Wagon1 WDB on Karapiro Rd lost control turning left, Car/Wagon1 hit Ditches	Wet	Overcast	Light rain	T Junction	Give way	0	0	0
BUCKLAND ROAD	630	S	MATHIESON ROAD	201832502	16/02/2018	Fri	16:30	Car/Wagon1 NDB on Buckland cutting corner hit Car/Wagon2 head on	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0
KARAPIRO ROAD		I	BUCKLAND ROAD	201836965	4/04/2018	Wed	14:30	Car/Wagon1 EDB on Karapiro Rd hit Car/Wagon2 turning right onto AXROAD from the left	Dry	Overcast	Fine	T Junction	Give way	0	0	0
BUCKLAND ROAD		I	KARAPIRO ROAD	201838335	4/05/2018	Fri	12:00	Truck1 EDB on Karapiro Road hit Car/Wagon2 turning right onto AXROAD from the left	Dry	Bright sun	Fine	T Junction	Give way	0	0	0
											Total Casualties:			11		
											Total Crashes:			10		
											Total Non-injury Crashes:			21		

Hobbiton 500m Radius-Plain English Report

Crash road	Dist	Direction	Side road	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	fatal	severe	minor
Z CPK	4020	E	MATHIESON ROAD	201616620	7/10/2016	Fri	15:00	SUV1 NDB on Buckland hit PEDESTRIAN	Dry	Overcast	Fine	Nil (Default)	Unknown	0	1	0
BUCKLAND ROAD	4320	E	MATHIESON ROAD	201653342	22/11/2016	Tue	15:45	Van1 SDB on Buckland Road lost control; went off road to left, Van1 hit Fences, Ditches	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0
BUCKLAND ROAD	4100	E	MATHIESON ROAD	201752480	28/10/2017	Sat	11:50	Car/Wagon1 WDB on Buckland Road hit rear end of Car/Wagon2 stopped/moving slowly	Wet	Overcast	Light rain	Nil (Default)	Unknown	0	0	0
											Total Casualties:			1		
											Total Crashes:			1		
											Total Non-injury Crashes:			2		

Buckland-Puketutu Intersection (250m Radius)

Crash road	Dist	Direction	Side road	ID	Date	Day of week	Time	Description of events	Surface condition	Natural light	Weather	Junction	Control	fatal	severe	minor
PUKETUTU ROAD	150	N	BUCKLAND ROAD	8703801	17/06/1987	Wed	21:15	Car/Wagon1 NDB on PUKETUTU ROAD lost control turning right, Car/Wagon1 hit Trees	Dry	Dark	Fine	Nil (Default)	Nil	0	0	2
PUKETUTU ROAD		I	BUCKLAND ROAD	201438469	11/06/2014	Wed	9:15	Car/Wagon1 NDB on PUKETUTU ROAD lost control turning left, Car/Wagon1 hit Fences	Wet	Overcast	Light rain	T Junction	Give way	0	0	0
BUCKLAND ROAD		I	PUKETUTU ROAD	201446679	25/10/2014	Sat	12:00	Car/Wagon1 NDB on BUCKLAND ROAD lost control turning left, Car/Wagon1 hit Fences	Dry	Bright sun	Fine	T Junction	Give way	0	0	0

Total Casualties:	2
Total Crashes:	1
Total Non-injury Crashes:	2