

**BEFORE INDEPENDENT HEARING COMMISSIONERS APPOINTED BY WAIPA
DISTRICT COUNCIL**

IN THE MATTER of the Resource Management Act 1991 (Act)

AND

IN THE MATTER of the hearing of applications by BBC Technologies Limited for Land Use Consent for a Rural Industry and Grass Ventures Limited for a Subdivision Consent at Lochiel Road, Rukuhia

BETWEEN **BBC TECHNOLOGIES LIMITED & GRASS VENTURES LIMITED**

Applicants

AND **WAIPA DISTRICT COUNCIL**

Consent Authority

**STATEMENT OF EVIDENCE OF ALASTAIR BLACK
ON BEHALF OF THE APPLICANTS**

(Traffic)

Dated: 24 November 2020

INTRODUCTION

1. My full name is Alastair James Black. I hold a Bachelor of Engineering degree (Civil, 2002) from the University of Canterbury. I am a Chartered Member of Engineering New Zealand (CMEngNZ) and a Chartered Professional Engineer (CPEng). I have worked in the transportation field for 18 years.
2. I am based in Hamilton and have worked for Gray Matter Ltd as a transportation engineer since March 2009. For two years prior to that I was a Project Engineer for the London Borough of Hammersmith and Fulham. For the previous six years I was a civil/transportation engineer with Opus International Consultants Ltd in Hamilton.
3. I am familiar with the transport issues arising in and around the Waikato, having provided advice to Waipa District Council ("Council") and other local authorities, Waka Kotahi NZ Transport Agency ("Waka Kotahi" or "NZTA") and developers on range of transport-related projects in the area. I have the following specific experience relevant to the matters within the scope and purpose of this statement of evidence:
 - (a) Consultant civil/transportation engineer for Road Controlling Authorities assisting in the review of consent applications including quarries, industrial, intensive farming, commercial, childcare and residential developments within wider Waikato region;
 - (b) Consultant civil/transportation engineer for developers, landowners and local authorities preparing traffic impact assessments for development proposals including quarries, intensive farming, rest homes, museums, childcares, schools, commercial and residential developments;
 - (c) Consultant project manager for Hamilton City Council and NZTA for the Southern Links Investigation relating to a Notice of

Requirement for 32km of proposed arterial road network to the south of Hamilton with a study area including SH21 Airport Road; and

- (d) I have completed the NZTA Road Safety Engineering Workshop and have led safety audits on urban and rural improvement projects for local roads and state highways.

EXPERT CODE OF CONDUCT

- 4. I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses in the Environment Court, Practice Note (2014), and agree to comply with that Code of Conduct. I state where I have relied on the statements of evidence of others for my assessment. I have not omitted to consider material facts known to me that might alter or detract from my opinions.

OVERVIEW OF EVIDENCE

- 5. I have been engaged by BBC Technologies Limited and Grass Ventures Limited (“the Applicant”) to provide traffic engineering advice in relation to their Land Use and Subdivision Consent Applications to establish and operate an office and research facility including outdoor growing areas at 35 Lochiel Road and 236 Airport Road, Hamilton (“Application” or “Project”). I directed preparation of and reviewed the ‘*326 Airport Road, Proposed Research Centre, Integrated Transport Assessment*’ (Issue 1, 2 June 2020) (“ITA”) for the Application which can be found at Appendix E to the Assessment of Environmental Effects for the Application.
- 6. I prepared the two ITA Addendums dated 29 June 2020 and 28 August 2020 (Issue 2). The initial ITA Addendum was superseded by Issue 2. In this statement where I refer to the “ITA Addendum” I am referring to Issue 2 (28 August 2020).

7. My scope of my evidence includes:
 - (a) A summary of the Project;
 - (b) Summary of the transport effects as set out in the ITA and mitigation proposed by the Applicant;
 - (c) Responses to transport matters raised in Council's s42A Report;
 - (d) Responses to concerns raised in submissions received in opposition to the Application; and
 - (e) Comments on the draft proposed conditions of consent as set out at Appendix G to the s 42A report.
8. In preparing this evidence I have reviewed the following:
 - (a) The submissions received in opposition to the Application; and
 - (b) Council's s42A Report prepared by Todd Whittaker dated 16 November 2020.

EXECUTIVE SUMMARY

9. The Applicant seeks to establish and operate an office and research facility including outdoor growing areas at 35 Lochiel Road and 236 Airport Road, Hamilton. This will generate 840veh/day and 170veh/hr.
10. As described in the ITA, the Project will have an effect on the operation of intersections along SH21, primarily by increasing delays for right-turn movements from the side roads. Taking into account the sensitivity analysis for gap acceptance, I consider that the adverse efficiency effects are acceptable.
11. The potential adverse effects at the SH21/ Lochiel Road intersection are mitigated by constructing a right turn bay at the SH21/ Lochiel Road intersection and improving the sight distance by vesting land to NZTA.

12. My review of the transport environment indicates that the current traffic volumes on SH21 are lower than previously modelled. My review indicates there is 10 years' reserve capacity, and that the risk of intersection upgrades being required earlier than previously expected appears low.
13. I confirm the conclusion of my ITA and ITA Addendum that the traffic effects on the surrounding environment are acceptable provided that appropriate conditions of consent are included that require construction of a right-turn bay at the SH21/ Lochiel Road intersection including provision of appropriate sight distance, upgrading the affected section of Lochiel Road and constructing an appropriate vehicle crossing. In my opinion the draft consent conditions at Appendix G to the s 42A Report, subject to some minor amendments set out in my evidence, are appropriate in so far as they relate to traffic.

SUMMARY OF THE PROJECT

14. The key matters of the Project relevant to my assessment of transport effects are:
 - (a) That there will be an increase in trips at the SH21/ Lochiel Road intersection by 840veh/day and 170veh/hr;
 - (b) There will be approximately 258 parking spaces provided on site;
 - (c) That the proposal will have an effect on the operation of intersections along SH21, primarily by increasing delays for right-turn movements from the side roads.
15. Mitigation of the potential adverse effects associated with the Project is recommended through infrastructure improvements as set out in the Applicant's Proposed Conditions attached at Annexure D to Mr Chrisp's Evidence. These improvements include:

- (a) Constructing a right turn bay at the SH21/ Lochiel Road intersection, including detailed design and post-construction safety audits (refer to Condition 17c));
 - (b) Improving sight distance at the SH21/ Lochiel Road intersection, including vesting a portion of land with Waka Kotahi to ensure the sightlines are maintained in perpetuity (refer to Condition 17c));
 - (c) Upgrading the affected portion of Lochiel Road to provide for the expected increase in traffic (refer to Condition 18);
 - (d) Constructing the vehicle crossing so that it accommodates heavy vehicles (refer to Condition 18);
 - (e) A Construction Management Plan (refer to Condition 17i)); and
 - (f) A Travel Demand Management Plan (refer to Condition 17k)).
16. The activity-specific assessment of trip generation indicates the site could generate approximately 840veh/day. Peak hour trips are likely to be approximately 170veh/hr with peak hours occurring during the morning at 7:30am – 8:30am and during the evening between 5:00pm - 6:00pm when office staff arrive and depart the site.
17. Maximum parking demand will occur when the 172 office staff and 67 day shift staff are on-site. This results in parking demand of 239 spaces assuming that all staff arrive in their own vehicle. With 258 spaces provided, there is a surplus of 19 parking spaces.

Traffic Modelling

18. The ITA Addendum details the traffic modelling that has informed my assessment of effects from the proposal. This provides:
- (a) Description of the existing and future traffic volumes on SH21;

- (b) Intersection modelling for:
 - (i) SH21/ Lochiel Road intersection;
 - (ii) SH21/ Raynes Road intersection;
 - (iii) The future SH21/ Airport/ Titanium Park roundabout
 - (c) Review of the crash triggers for:
 - (i) SH21/ Raynes Road intersection;
 - (ii) The future SH21/ Airport/ Titanium Park roundabout
19. The traffic modelling is based on the Waikato Regional Transportation Model (“WRTM”) and tests the scenarios as discussed in the ITA Addendum.
20. In developing the traffic modelling for this Application I relied on the Memorandum of Agreement (“MOA”) between Waka Kotahi and the WRAL Group for the delay and crash triggers for the various intersection improvements and on the *Waikato Regional Airport Ltd and Titanium Park Limited, Hamilton Airport Central and Southern Development Precincts, Integrated Transport Assessment (Issue 4, April 2018)* and accompanying trip generation spreadsheet both prepared by BBO to support Plan Change 10 for the Hamilton Airport Central and Southern Development Precincts.
21. I note that the MOA requires biennial monitoring of the delay triggers. It is unclear if this monitoring is being completed. We have not reviewed any monitoring reports.
22. I understand that the MOA has been amended to incorporate traffic arising from the Meridian 37 Comprehensive Development Plan (“CDP”). I have not reviewed those amendments to the MOA.

Summary of the Traffic Modelling and Effects

23. Since the MOA was confirmed the WRTM has been updated which has reduced the future traffic volumes predicted on the state highway network. This impacts on the years at which infrastructure improvements were previously expected to be needed (e.g. improvements may be delayed by approximately 3 years due to the lower traffic volumes).
24. In 2041 and with Southern Links in place, the WRTM expects 10,000veh/day on SH21. Traffic from the Project represents an increase of approximately 8% or 1-2 years growth at the current rate of 5.5%.
25. The following figure shows the modelled traffic volumes on SH21 at 2019 and 2041, along with the current traffic volumes. A larger version is provided at **Attachment 1** to my evidence.

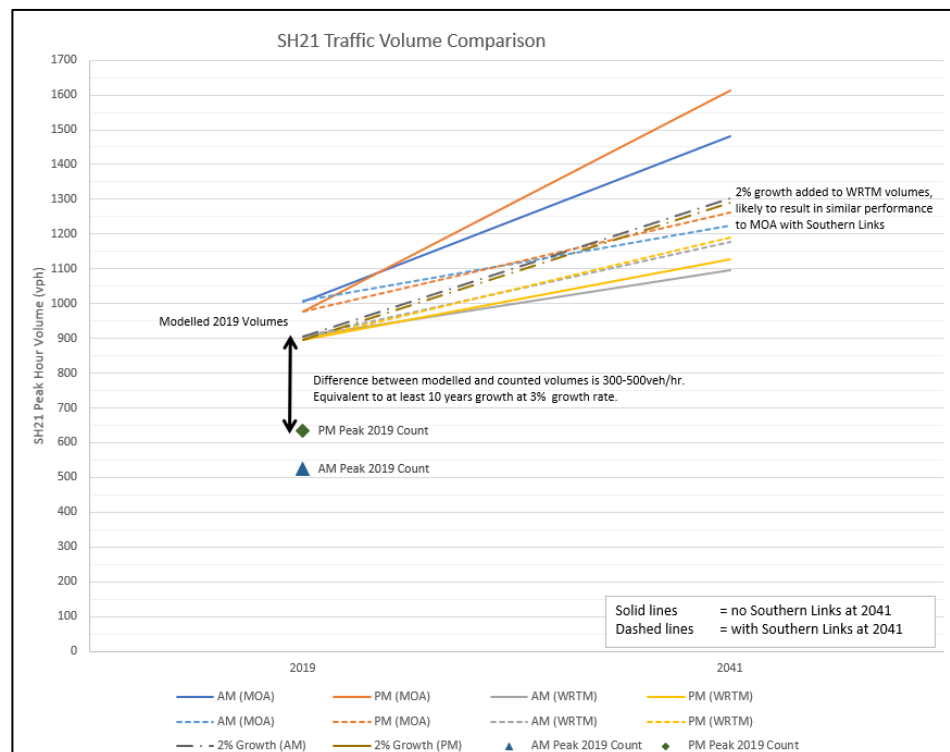


Figure 1: SH21 Peak Hour Comparison

26. The current peak hour traffic volumes on SH21 are 300-500veh/hr lower than modelled. A difference of 300veh/hr (or 30%) equates to an additional 10 years' reserve capacity for equivalent performance at 3% growth annually and significantly longer at 1% growth. This indicates that

the intersection improvements required by the MOA are likely to be required later than expected when the MOA was developed.

27. The analysis of effects at the SH21/ Lochiel Road and SH21/ Airport/ Titanium Park intersections concludes that intersection performance is sensitive to small changes in traffic patterns (both volume and direction) and the gap acceptance parameters used.
28. As congestion occurs, it is reasonable to expect that employees will likely modify their travel behaviour. For example; working from home, starting and finishing slightly earlier or later to avoid the peak period, carpooling to reduce the number of vehicle movements, or using an alternative route that avoids turning right at the Lochiel Road intersection.
29. My assessment of effects at the SH21/ Raynes Road intersection concluded that:

“...the proposal will increase delay for vehicles turning right out of Raynes Road, with the effect greater in the AM peak. When considering the sensitivity analysis for gap acceptance, we consider the performance acceptable. The additional traffic is equivalent to 3-6 years growth at 2%. However, ..., the current traffic volumes indicate there is 10 years reserve capacity so the risk of the upgrade being required earlier than previous expected appears low.

30. Crash prediction modelling is provided in the ITA Addendum. The proportional increase in predicted crash rates is similar to the proportion of traffic added. The Lochiel Road intersection is performing better than predicted and with the Applicant's proposed improvements to sight distance there is no reason to expect a disproportionate increase in adverse safety effects.
31. The airport access is currently performing worse than expected. The development traffic is generally expected to be passing the airport access (rather than turning) and is unlikely to have a noticeable impact on the crash triggers for the airport access intersection.

32. In summary, the proposal will have an effect on the operation of intersections along SH21, primarily by increasing delays for right-turn movements from the side roads. The scale of the effects will depend on how accurately the transport models have predicted traffic growth, the direction of travel along SH21 and driver behaviour in modifying the gap acceptance values. Taking into account the sensitivity analysis for gap acceptance, I consider that the adverse efficiency effects are acceptable.
33. My review of the transport environment indicates that the current traffic volumes on SH21 are lower than previously modelled. This indicates there is 10 years' reserve capacity, and that the risk of intersection upgrades being required earlier than previous expected appears low.

COUNCIL'S S42A REPORT

34. I have reviewed the s42A Report and address specific matters that are raised in the following sections of my evidence. Mr Whittaker states that *"I am satisfied that the adverse effects on the roading network will be appropriately managed"*. I agree with his view.
35. The s42A Report discusses effects on 8 Lochiel Road relating to traffic noise and headlights. The assessment of traffic noise effects and effects from headlights are outside my area of expertise and I offer no comments on those matters.
36. I have reviewed the technical memo of Mr Bryan Hudson. He discusses vehicle tracking and vehicle crossing design. I consider that these matters can be addressed through the conditions requiring detailed design review by Council and safety audits.
37. I agree with Mr Hudson's view that *"the BBC additional traffic generation is unlikely to impact the temporary traffic management arrangements put in place on event days which have historically been successful in dealing with event and local traffic."*

38. I have reviewed the technical memo of Mr Tony Coutts and have no comments on his assessment.

SUBMISSION OF WAKA KOTAHI NZ TRANSPORT AGENCY

39. I have reviewed the Waka Kotahi submission and their proposed conditions. I support the inclusion of their proposed conditions.

SUBMISSION OF WAIKATO REGIONAL AIRPORT LTD AND TITANIUM PARK LTD (“THE WRAL GROUP”)

40. The joint submission by the WRAL Group, comprising the Waikato Regional Airport Ltd (“WRAL”) and Titanium Park Ltd (“TPL”), is concerned that the additional traffic from the BBC Technologies proposal will bring forward the timing of upgrades at the SH21/ Raynes Road intersection.

41. In the ITA Addendum (Section 8) I considered the effects of additional traffic at the SH21/ Raynes Road intersection and concluded that:

“...the proposal will increase delay for vehicles turning right out of Raynes Road, with the effect greater in the AM peak. When considering the sensitivity analysis for gap acceptance, we consider the performance acceptable. The additional traffic is equivalent to 3-6 years growth at 2%. However, ..., the current traffic volumes indicate there is 10 years reserve capacity so the risk of the upgrade being required earlier than previous expected appears low.”

42. This conclusion has been accepted by Waka Kotahi (the relevant Road Controlling Authority).

SUBMISSION OF NZ FIELDAYS SOCIETY INC AND KAIPAKI PROMOTIONS LIMITED (“THE SOCIETY”)

43. The Society submissions raises the following transport related concerns:

- (a) Cumulative effects of development on the network including trip distribution and the capacity of SH21;

- (b) Effects on traffic management and safety effects during small and large events at the Mystery Creek site; and
- (c) Concerns about effectiveness of the Travel Demand Management Plan.

44. I address each matter below.

Cumulative Effects

- 45. My ITA Addendum provides details on the traffic modelling that assesses the wider transport effects of the Activity. This assessment builds upon the traffic modelling used to assess effects of development by the WRAL Group and also used the latest WRTM. That assessment is summarised in paragraphs 23 to 33 of my evidence.
- 46. The trip distribution from the Project (60% to/from the east) is consistent with the assumptions made to inform the MOA and is considered appropriate for this Application.
- 47. I consider that my assessment has appropriately considered the existing and expected transport environments and assesses the effects of cumulative development.

Effects During Events

- 48. Based on my experience of visiting the Fieldays event, current queuing and traffic management on SH21 extend east of the Lochiel Road intersection. As set out in the ITA Addendum¹ the impact of the additional traffic at the SH21/ Lochiel Road intersection may require additional stop/go control to let vehicles into and out of Lochiel Road more frequently than has occurred to date. Given the current physical extent of the current traffic management and duration over multiple days, the effect of additional stop/go control appears very small.

¹ ITA Addendum, Section 11 Fieldays and Ashton Block.

49. As discussed at paragraph 36 and 37 of my evidence, Mr Hudson's view is that the BBC Technologies traffic is unlikely to impact the temporary traffic management arrangements for events. I agree with Mr Hudson.

Travel Demand Management (TDM)

50. Travel Demand Management Plans ("TDM Plans") and travel planning are accepted methods to influence travel behaviour through a wide range of techniques. The aim is to promote sustainable travel behaviour through widening travel choice and reducing reliance on the car. It can range from city-wide options to influence parking behaviour and encourage the use of public transport to activity specific management plans. Options for travel demand management are illustrated in the following figure.

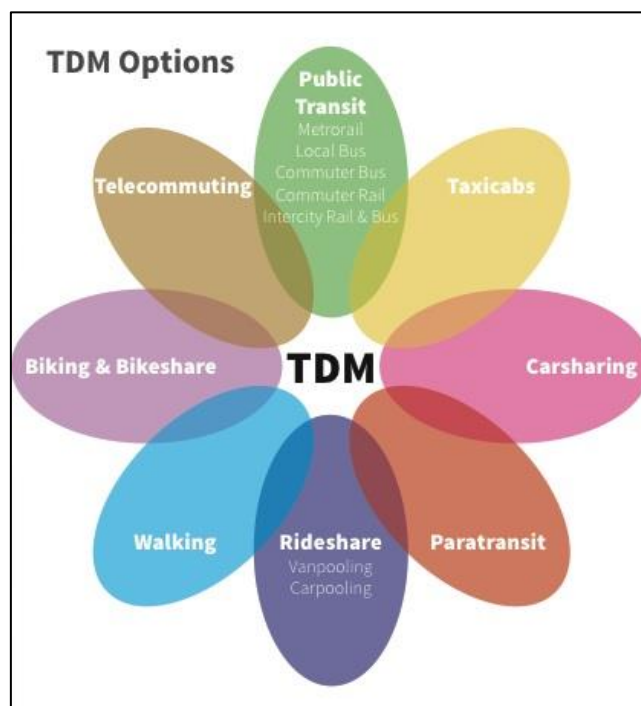


Figure 2: TDM Options²

51. Waka Kotahi supports the inclusion of a condition requiring a TDM Plan. For the Activity this could include:
- (a) Carpooling and ride sharing;
 - (b) Promoting remote working for staff; and

² <https://mobilitylab.org/about-us/what-is-tdm/>

- (c) Messaging to staff about upcoming events at Mystery Creek so people can make informed decisions on the time and route of travel to/from work.
52. I support the use of a TDM Plan for the proposed activity to help staff make informed decisions on travel to the site. This would be useful when large events such as Fieldays occur and measures such as carpooling and remote working will have benefits for BBC Technologies staff and event traffic management.

LATE SUBMISSIONS OF MR AND MRS CLARK

53. The late submissions of Mr and Mrs Clark are identical and raise the following transport related concerns:
- (a) Traffic volumes and the size of some vehicles;
 - (b) Safety for right-turns at the SH21/ Lochiel Road intersection; and
 - (c) Traffic noise.
54. Lochiel Road is currently 5.8m wide. As discussed in the ITA³, I recommend that Lochiel Road is widened to safely accommodate the increase in traffic. The proposal is to widen Lochiel Road to a 7m carriageway with 0.75m unsealed shoulders between SH21 and the proposed vehicle crossing (approximately 100m). This is consistent with the District Plan standard for a local road in the rural zone.⁴
55. As discussed in the ITA⁵, to accommodate vehicle tracking by a semi-trailer vehicle the vehicle crossing needs to be approximately 14m wide as shown on the site plan. The vehicle crossing width will be confirmed with vehicle tracking during detailed design.

³ ITA, Section 3.6 Lochiel Road and Section 5.3 Proposed Site Access

⁴ Waipa District Plan, Appendix T4 – Criteria for Public and Private Roads

⁵ ITA, Section 5.3 Proposed Site Access.

- 56. Design approval by Council provides the appropriate opportunity for the vehicle crossing layout and vehicle tracking to be reviewed prior to construction.
- 57. I have addressed issues relating to safety at the SH21/ Lochiel Road intersection at paragraph 30 of my evidence.
- 58. The assessment of traffic noise effects and effects from headlights are outside my area of expertise and I offer no comments on those aspects of their submission.

SUBMISSION OF PETER ANNEGARN

- 59. Mr Annegarn's submission raises broad concerns with the proposal, but there are no specific transport matters identified in the submission.

PROPOSED CONDITIONS

- 60. I have reviewed the draft conditions at Appendix G of the s42A Report and consider them appropriate, in so far as they relate to traffic, subject to some amendments which I recommend are adopted by the Commissioners. For completeness, my recommended amendments are shown in tracked changes at Annexure D to Mr Chrisp's evidence.
- 61. I recommend the following changes to Condition 18 relating to the Lochiel Road upgrade and vehicle entrance. I have amended item (b) to reflect that vehicle tracking is only necessary at the proposed vehicle crossing and do not believe that a common services trench is required as a result of this Application. I believe it is necessary to specify the proposed cross-section for Lochiel Road as this is not clearly identified on the drawings.

The consent holder shall submit Design/Construction plans for Lochiel Road widening upgrade. The Design/Construction plans shall be submitted to Council for acceptance prior to carrying out any construction work required by this consent. All work associated with the council road shall be designed to the

acceptance of the Council Team Leader – Development Engineering, and at the consent holder’s expense. The submitted plan shall include, but is not limited to:

- (a) *Widening Lochiel Road to 7m sealed carriageway with 0.75m sealed shoulders;*
- (b) *Pavement design;*
- (c) ~~*Traffic curve*~~ *Vehicle tracking analysis at the proposed vehicle crossing;*
- (d) *Proposed and existing entrance details;*
- (e) *Longitudinal sections;*
- (f) *Disposal of stormwater including all structures and erosion control;*
- ~~(g) *Common services trench;*~~
- (h) *Surface treatments; and*
- (i) *Road marking/ signage.*

- 62. Condition 22 requires the consent holder to maintain a public road for an extended period until the second coat seal is completed which could be 6-12 months after construction of works on Lochiel Road. I consider that Condition 22 should be deleted.
- 63. Condition 23 requires Council approval for design and construction of a private car park by Council. The risk of a poorly designed and constructed car park is the Applicant’s risk. Design and construction of the vehicle crossing is covered in Conditions 18-21. I consider that Condition 23 should be replaced with a condition that limits Council involvement to confirmation that the car park layout complies with District Plan requirements including vehicle tracking analysis and parking delineation dimensions.

CONCLUSION

64. In summary:

- (a) The Project will generate 840veh/day and 170veh/hr;
- (b) The potential adverse effects at the SH21/ Lochiel Road intersection are mitigated by constructing a right turn bay at the SH21/ Lochiel Road intersection and improving the sight distance by vesting land to NZTA;
- (c) The Project will have an effect on the operation of intersections along SH21, primarily by increasing delays for right-turn movements from the side roads. Taking into account the sensitivity analysis for gap acceptance, I consider that the adverse efficiency effects are acceptable.
- (d) My review of the transport environment indicates that the current traffic volumes on SH21 are lower than previously modelled. This indicates there is 10 years reserve capacity, and that the risk of intersection upgrades being required earlier than previous expected appears low.

65. I confirm the conclusion of my ITA and ITA Addendum that subject to conditions requiring construction of a right-turn bay at the SH21/ Lochiel Road intersection including provision of appropriate sight distance, upgrading the affected section of Lochiel Road and constructing an appropriate vehicle crossing the traffic effects on the surrounding environment are expected to be acceptable.



Alastair Black
Dated 24 November 2020

ATTACHMENT 1: SH21 Traffic Volume Comparison

