

**IN THE MATTER OF** the Resource Management Act 1991

**AND**

**IN THE MATTER OF** Proposed Plan Change 94 Washer Road Business Park, an application by DL Marshall to the Western Bay of Plenty District Council to change the zoning of land at 66 Washer Road from Rural to Industrial

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**STATEMENT OF EVIDENCE OF IAN CARLISLE**

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**Introduction**

1. My name is Ian Carlisle. I am a Principal Transportation Engineer at Stantec NZ, in Tauranga, an international design and consulting professional services company.
2. I hold the qualifications of a Bachelor of Engineering (Honours) and a Master of Civil Engineering, both from the University of Canterbury. I am a Chartered Professional Engineer (CPEng), a Chartered Member of Engineering New Zealand (ENZ) and a member of the ENZ Transportation Group.
3. I have 37 years' experience in civil engineering and have specialised in traffic and transportation engineering for the last 31 years. I have worked for a government agency, local authority and as a consultant. In my role as a consultant, I have advised central and local government agencies and the private sector on traffic and transportation matters associated with developments and their potential impact on the surrounding road network.
4. The Transportation Assessment (TA) titled Washer Road Industrial Plan Change which was issued on 4 September 2019, was prepared under my direction.
5. I have read and am familiar with the submissions and the planner's report.

6. I have visited the site on numerous occasions most recently in May 2022. During my site visits I observed the surrounding transport network. My site visit observations informed my assessment and consequent transportation advice.

#### **Code of Conduct for Expert Witnesses**

7. I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from opinions that I express, and that this evidence is within my areas of expertise.

#### **Scope of Evidence**

8. My evidence will cover the following matters and summarises the TA without reproducing it in its entirety:
  - (a) The existing transportation environment;
  - (b) The assessment of traffic and transportation effects including mitigation measures;
  - (c) Transport related matters raised through submissions; and
  - (d) The planner's report.

#### **Executive Summary**

9. PC 94 proposes to rezone land on the east side of Washer Road, Te Puke, from rural to industrial zoning enabling 6.1 ha of developable area.
10. I have made several recommendations that relate to transportation provisions to support the plan change which will need to be incorporated into appropriate rules and these include: specific design of access to accommodate the design vehicles, construction of a shared path bridge on Station Road to provide linkage between Washer Road and Station Road facilities, extension of shared path on Washer Road to proposed site access, reversal of priority traffic flow on the single lane bridge and the intersection upgrade at the intersection of Cameron Road and Jellicoe Street.

11. I note that the identified existing network deficiencies should ideally be addressed regardless of the proposed plan change for the benefit of the wider community as well as the potential future activity within the plan change area.
12. The proposed re-zoned area will be subject to the District Plan rules for transportation including loading and manoeuvring and no additional rules are considered necessary in this respect.
13. In summary, on the basis of my assessment, together with the appropriate zone management controls to address recommended transport infrastructure, it is concluded that the proposal to zone change of land from rural to industrial is able to be managed in an appropriate way to ensure any effects on the adjacent road network are acceptable.

### **Existing Transportation Environment**

#### ***Site Location and Road Network***

14. Plan Change 94 encompasses part of 66 Washer Road (the “site”) in Te Puke of approximately 7 ha in area. The site is currently farmed and has three vehicle access points onto Washer Road.
15. Washer Road is located off the western end of Station Road. Station Road in turn links to the arterial network (Jellicoe Street) via Cameron Road at an intersection located immediately south of the East Coast Main Trunk railway line (ECMT). The local road network is depicted in Figure 1. A further connection between Station Road and Jellicoe Street is located to the east via Jocelyn Street.



Figure 1: Surrounding Road Network

#### Washer Road

16. Washer Road is generally formed as a rural road over approximately 650 m with a straight alignment. It has an open road speed limit apart from the first 110 m from the southern end where a 50 km/h limit is posted. Actual operating vehicle speeds are more likely to be closer to the urban limit.
17. Washer Road formed seal width varies from 6.5 m to 8.4 m. Along the southern part of the site frontage Washer Road has one traffic lane of approximately 3.3 m width in each direction, within a total sealed width of 6.9 m and grass berms on both sides. The wider section is adjacent to Eastpack packhouse where a wide shoulder on the west side is periodically used for parking.
18. A concrete footpath has been constructed along the eastern side of Washer Road from its southern end to the main entrance to the Eastpack site.

*Station Road*

19. Station Road has a sealed width of approximately 9.5 m east of a single-lane bridge over the Ohineangaanga Stream at the western end of Station Road, immediately before the curve where it joins Washer Road.
20. East of the single lane bridge Station Road is kerbed on the northern side over the full length and on the southern side east of Cameron Road.
21. A footpath is located on the north side of Station Road between the bridge and Malyon Street and on the south side east of Cameron Road having recently been extended to Jocelyn Street and beyond. There is currently no footpath connection between Station Road and Washer Road (including the single lane bridge).

*Cameron Road*

22. The section of Cameron Road north of Jellicoe Street is approximately 40 m long and includes a two-lane bridge over the ECMT. On the north side of the bridge the carriageway curves around to the east and continues as Station Road as the priority route. The western part of Station Road forms the minor leg of a T-intersection on the outside of this curve.
23. The bridge deck has lanes marked at 3.2 m northbound and 3.6 m southbound within an overall clear width of approximately 8.0 m. A narrow berm (about 0.7 m wide) is provided on the east side of the bridge which links the footpath on the south side of Station Road and the footpath on the north side of Jellicoe Street.

*Cameron Road / Jellicoe Street Intersection*

24. Cameron Road intersects with Jellicoe Street forming cross-roads with the Cameron legs offset by around 20 m. Right turn bays are marked on Jellicoe Street for both legs of Cameron Road.
25. In the vicinity of Cameron Road, Jellicoe Street has a single lane in each direction with a painted flush median. There is a footpath in the berm on both sides of Jellicoe Street providing a pedestrian connection to Te Puke CBD.

26. The intersection operation was observed in the evening peak around the time of a change in shift at the Eastpack facility. Drivers were observed to have difficulty finding gaps, particularly for the right-turn out of Cameron Road. The resulting queue on the north approach frequently extended back to the intersection with Station Road, preventing vehicles from turning right out of the minor Station Road leg. Additionally, once approximately three light vehicles were queued to turn right out of the minor Station Road approach left-turn traffic was blocked from proceeding. The queue on this approach was observed to extend back to the single-lane bridge twice during the observation period.
27. As a result of the difficulty in making a right turn out of Cameron Road, some drivers were observed to undertake a left turn onto Jellicoe Street followed by a right turn into one of the side streets in order to return to Jellicoe Street northbound. Additionally, the right-turning traffic was observed to frequently block the left-turn exit movement and stop-line delays of over a minute were observed.

### ***Public Transport***

28. The Route 20 bus service operates between Te Puke and Tauranga (Bayfair) hourly (approximately), 7-days a week. Te Puke bus stops are located at No 3 Road and Commerce Lane. There is also a daily bus service between Whakatane and Tauranga which stops in Te Puke.
29. The south end of Washer Road is approximately 1.3 km from the existing bus stops at No 3 Road and Commerce Lane which exceed ideal walking distance to a bus stop but is a feasible alternative to the car.

### ***Traffic Patterns***

30. Traffic data for the surrounding road network has been sourced from Council and is detailed in the TA.
31. I have updated the daily traffic volume estimates for the roads using Mobileroad website which indicates that the 2020 estimates of average daily traffic volume (ADT) are:

(a) Washer Road 497 veh/d

(b)	Station Road Single Lane Bridge	829 veh/d
(c)	Station Road East of Conifer Place	1,100 veh/d
(d)	Cameron Road (north)	2,268 veh/d
(e)	Jellicoe Street (west of Cameron Road)	19,683 veh/d

32. As an indication of peak hour traffic flows, reference has been made to peak hour traffic counts undertaken by Council at the intersection of Jellicoe Street and Cameron Road in December 2019. This survey data indicates peak hour traffic volumes on the Jellicoe Street approaches 1,780 veh/h in the morning peak and 1,861 veh/h in the evening peak with peak one way flow of 1,032 veh/h eastbound. On the basis of typical practical capacity<sup>1</sup> for an urban road, with interrupted flow conditions, the existing traffic flows exceed the practical capacity of the single lanes on Jellicoe Street at times. On this basis traffic flows would be expected to be unstable at times, with some delays.
33. A short survey of traffic movements at the intersections of Cameron Road with Station Road was undertaken, timed to occur at the end of a shift at the Eastpack facility on Washer Road in May 2019. The Eastpack carpark was full prior to the survey indicating the packhouse operation was at, or close to, peak staff numbers. Between 6pm and 6.30 pm, 141 veh peak were observed to exit from Washer Road (of which 9 were heavy vehicles) corresponding with the end of a shift, while 58 vehicles entered.
34. Approximately 54% of heavy vehicles turned right from Station Road towards Jellicoe Street.

### ***Road Safety***

35. I have updated the crash history included in the TA using the Waka Kotahi crash analysis database for the five-year period 2017 to 2021 inclusive for Washer Road and Cameron Road (north) including within 100 m of the intersections en-route.
36. Eight crashes were recorded for the period:

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<sup>1</sup> practical capacity to achieve a good level of service for an urban road with interrupted flow conditions in urban areas (i.e., with side roads, property access etc.) is generally considered to be approximately 900 veh/h per lane.

- (a) One no-injury crash on Washer Road involving a vehicle that failed to notice the end of the road.
  - (b) One minor injury on Station Road east of Cameron Road involving a single vehicle loss of control turning into Malyon Street.
  - (c) One no-injury crash on the curve between Cameron Road and Station Road recorded as a corner cutting.
  - (d) One minor injury on Jellicoe Street involving a pedestrian crossing from the south side in the dark and stopped in the central painted median.
  - (e) Four no-injury crashes at the intersection of Cameron Road and Jellicoe Street: one involved truck left turning in being undertaken by another; one involving two concurrent right turns out of side roads; one involving rear end of vehicle slowing for left turn onto the Cameron road bridge and one a right turn right side turning out of Cameron Road (south).
37. The four crashes at the intersection of Cameron Road with Jellicoe Street are consistent with the site observations of vehicles having difficulty in making turns at the intersection. However, the injury crash record is not atypical of an intersection in an urban environment with high volumes of traffic.

### **Proposed Activity**

38. Plan Change 94 is described in the TA. Subsequent to preparation of the TA, the plan change area has been amended and the total developable area is increased to 6.1 ha, from the previous 5.93 ha, and the development is now to be staged. The proposed site layout and access are shown on Figure 2. Access for industrial activities is proposed by way of a single crossing located around the middle of the proposed zone frontage. The existing farm entrance would remain for farm use only, until the land was required for industrial use.
39. Should future consideration be given to subdivision of the proposed industrial zone land, then any associated roads or vehicle accesses will be subject to further resource consent processes.



40. It is understood it is likely that the development will be implemented over a 5- to 10-year development horizon and as a result the traffic effects can be managed on a staged basis.

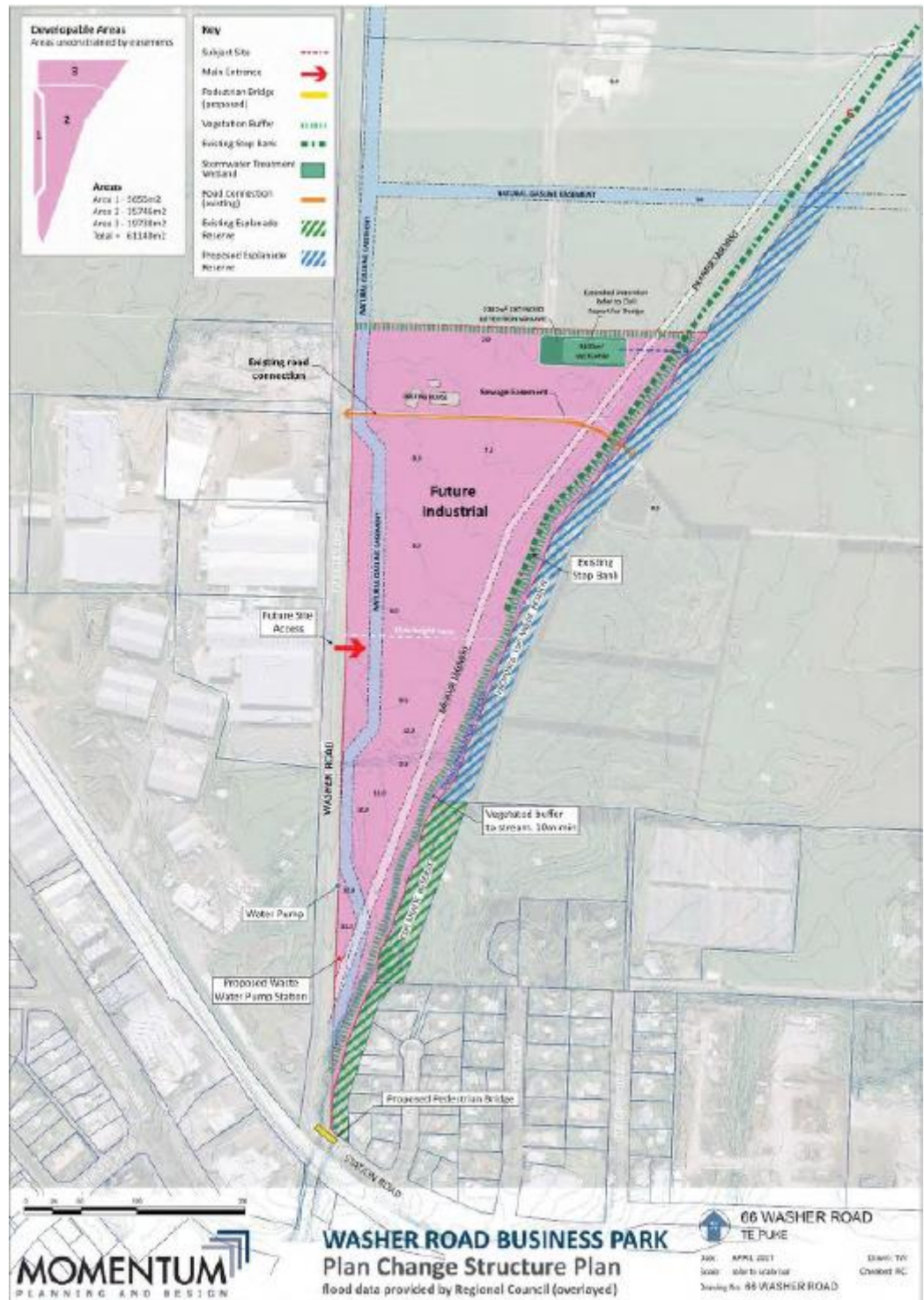


Figure 2: Proposed Structure Plan

### **Trip Generation and Distribution**

41. The basis of the trip generation and distribution for the potential activities enabled by the plan change are outlined in the TA.
42. Based on data associated with generally light to medium mixed use industrial areas, which are more intensive than expected to be developed on this site, the potential trip generation for the 6.1 ha developable area is 134 veh/h in the peak hour periods.
43. The peak traffic demand periods for industrial sites are typically around 07:30 to 08:30 and 16:30 to 17:30 plus or minus 30 min.

### **Traffic Effects**

#### ***Access Effects***

44. Access to the site is proposed by way of a single access point as indicated on Figure 2. The proposed access location meets the intersection separation and sight distance requirements of the District Plan<sup>2</sup>. No additional traffic loading is expected or proposed via the existing site access.
45. The proposed access location is approximately 100 m north of the main access to Eastpack and 70 m north of a truck entry-only and therefore separation to existing adjacent access locations is also considered adequate separation of associated zones of influence. As the access the proposed access is located north of the main carpark to Eastpack it is estimated that the traffic volumes on Washer Road at this location are significantly lower than at the southern end.
46. There is adequate existing shoulder on the western side of Washer Road to enable a through vehicle to pass a vehicle waiting to turn right into the site and to retain the shoulder free of parked vehicles it is recommended that a length of no-parking marking is installed over a distance of 60 m each side of the

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<sup>2</sup> Western Bay of Plenty Operative District Plan. Sight line requirement based on assessed operating speed of 70 km/h requiring 105 m on a local road.

proposed access. The proposed design and construction are recommended to comply with the Council's Development Code 2009 (or subsequent revisions) and appropriate to the design vehicle (including detailed design to accommodate the swept path of a semi-trailer heavy vehicle).

### ***Washer Road***

47. Washer Road has an existing peak hour flow of up to 290 veh/h at its southern end (based on observations). The additional flow associated with the plan change area, if it occurred concurrently with existing peaks, would increase the total flow to approximately 422 veh/h. While this is well within the capacity of the road, a relatively high proportion of heavy vehicle traffic is expected.
48. The TA acknowledged that ideally Washer Road would be widened by Council and to consider that work in Council's programme as part of any development contributions collected at time of development. Council has accepted that no widening is required as a direct consequence of this development.

### ***Station Road Single Lane Bridge***

49. The TA includes an assessment of the performance of the existing single lane bridge on Station Road based on both the existing traffic volumes observed at the end of a packhouse shift coupled with the additional peak hour volumes expected from PC 94. In summary, the addition of the proposed industrial area results in approximately 1 in 5 eastbound vehicles required to stop (previously 1 in 6 without PC94), with an average delay of 1.3 seconds (an increase of 0.2 s); and for westbound traffic approximately 1 in 2 vehicles would be expected to be stopped (compared with 1 in 3 prior to plan change, with a typical wait time of 5 s (an increase of 0.7s)).
50. Moreover, it is unlikely that the peak traffic period associated with the site will coincide with the peak period associated with the packhouse (which from observations is less than 30 minutes and, additionally, is a seasonal peak).
51. Currently the priority movement on the single lane bridge is eastbound. On occasions when the queue at the intersection of Station Road with Cameron Road extends back to the single lane bridge there is potential for drivers to enter the bridge without adequate space to exit which would in turn block the

opposing westbound movement. Reversal of the bridge priority to favour the westbound movement would require eastbound traffic to give way to opposing traffic and therefore minimise any queuing on the westbound lane.

52. Overall, it is concluded that the addition of traffic associated with the plan change, with coincident peak flows occurring on an infrequent basis, is not expected to unduly exacerbate existing delays at the single lane bridge in peak times.

### ***Intersection of Cameron Road and Jellicoe Street***

53. On the basis of observed traffic conditions, it appears that the intersection of Cameron Road and Jellicoe Street is currently operating beyond practical capacity at peak times, with long delays to both side roads, particularly the right turn movements. This was observed to result in drivers making poor choices when selecting gaps. Outside of the survey period it is expected that while side road demands may be lower, the volume of through traffic would be higher (2019 survey data indicates the evening peak hour on Jellicoe Street is between 16:45 and 17:45). Irrespective of the plan change, some form of intersection improvement to improve safety and efficiency warrants investigation. Any additional traffic from the site would exacerbate delays and queues at the intersection although it is highlighted that an alternative route to Jellicoe Street is possible via Station Road and Jocelyn Street.
54. Options which have been considered to improve the safety and efficiency of the intersection include a change in the form of the intersection such as a roundabout or traffic signals. An alternative measure which is likely to have a lower cost would be to consider closure of the intersection of Cameron Road with Jellicoe Street to all but left turn movements although this would require consideration of the other network wide implications and was discounted.
55. A concept design for a roundabout was included in the TA and a concept layout for a signalised intersection is appended to my evidence. The concept layout is based on maximising the number of lanes primarily within the existing carriageway using aerial photography, and therefore subject to survey, investigations, and detailed design.

56. Both a roundabout and signalised options are constrained by existing features including the bridge across the railway on Cameron Road and the bridge across the stream on Jellicoe Street (100 m west of Cameron Road). A signalised intersection generally requires more lanes than a roundabout to achieve the same level of service and hence more space. Both options require consideration to managing traffic speeds to address the safety of pedestrians at the intersection.
57. Council have advised a preference for a signalised layout to be consistent with likely future upgrade proposals for the Jellicoe Street corridor. It is understood Council and the applicant have also agreed to stage the recommended infrastructure improvements in line with development. While I support a staged approach in principle, I recommend that a control is included in the District Plan to define the level of development that may proceed prior to implementation of the intersection improvements and additionally implement activity management controls which enables the plan change to proceed in advance of any future improvements by Council. Such management controls could be set and included as a Travel Plan that is required as part of a zone rule which would require management of all vehicle movements.

### ***Pedestrians and Cyclists***

58. As described in the TA, there is an existing footpath on the eastern side of Washer Road from the Eastpack entrance to Bainbridge Avenue but no connection across the single lane bridge to the east. There is no current provision for cyclists on Washer Road or the adjacent street network.
59. To mitigate this existing issue, and provide for pedestrian and cycle movements associated with the Plan Change, it is proposed to construct a shared path on the northern side of the existing single lane bridge with connections to the existing paths on each side.

60. The existing shared pedestrian facility on Washer Road will also be extended northward to complete the linkage between the existing path and the proposed access to the plan change area.

### **Parking, Loading and Servicing**

61. Subsequent to the preparation of the TA, the District Plan has been amended to remove minimum parking requirements. While the developer of the site will likely wish to provide on-site parking, the effect of any shortfall would be to increase street parking on the adjacent street network. The improvements proposed above with respect to pedestrian linkages to Station Road will provide for any associated pedestrian demands from on-street parking to the site.
62. The proposed re-zoned area will be subject to the District Plan rules for transportation with respect to loading and manoeuvring. Assessment of individual lots or activities will be appropriate at the time of development to demonstrate compliance with the District Plan or, alternatively, a resource consent sought.

### **District Plan Policies and Rules**

63. The TA includes a table that considers the relevant transportation policies and rules of the District Plan, and concluded that with the proposed mitigation in place, the proposed plan change will be able to address the District Plan Policies and rules.

### **Submissions**

64. I have read the submissions with respect to PC94 and there are two submissions which include transport related matters.
65. The Eastpack submission outlines concerns with the capacity of the existing single lane bridge on Station Road and the intersection of Jellicoe Street and Cameron Road (supports a roundabout but seeks construction prior to development). I have outlined my assessment of the single lane bridge performance at paragraphs 49 to 52 and confirm my opinion that PC94 is not expected to unduly exacerbate existing delays at the single lane bridge in peak times. In response to consultation with Council the roundabout at the

intersection of Cameron Road and Jellicoe Street has been amended to a signalised layout. I concur that either the intersection improvements should be implemented prior to development or alternative management measures to control peak hour movements, until such time as it is constructed, to be included in the zone rules.

66. The submission from MC and HF Salt outlines similar concerns with respect to the single lane bridge and Jellicoe Street intersection which I have addressed in paragraph 65. I address the additional concerns below:
- (a) I concur with the submission with respect to the priority on the single lane bridge and have recommended at paragraph 51 that the priority is reversed with priority to westbound traffic.
  - (b) With respect to pedestrian safety, I highlight that the proposed shared path bridge will cater for pedestrian and cyclists throughout the day and will be safer than mixing with traffic, which includes heavy vehicles, on the existing single lane bridge.

### **Planner's Report**

67. I have read the planners report for PC94 with respect to transportation matters. The report addresses the matters described in the submissions which I have also addressed above.
68. The report notes the Council's preference for a signalised intersection at Jellicoe Street, rather than a roundabout, as other intersections along Jellicoe Street will in time be upgraded to signals, with the preferred option being to provide for the development and transportation upgrades to progress in a staged manner, and provide for much needed industrial land without significant impacts on the local transportation network.
69. The report requests the applicant to provide the concept intersection layout for traffic signals, and a concept plan is appended.
70. The report also suggests the intersection from Station Road (with Cameron Road) should be considered as part of the wider improvements with the intention of reversing priority. While Council has the ability to make changes

at this intersection at any time, I caution against such a proposal to change the priority movement at the intersection to favour traffic to and from Station Road west. Such a change would require vehicles turning from Cameron Road to Station Road east to yield to traffic from Station Road west with the potential to create queues on the departure leg of the proposed signalised intersection which could readily extend back to Jellicoe Street.

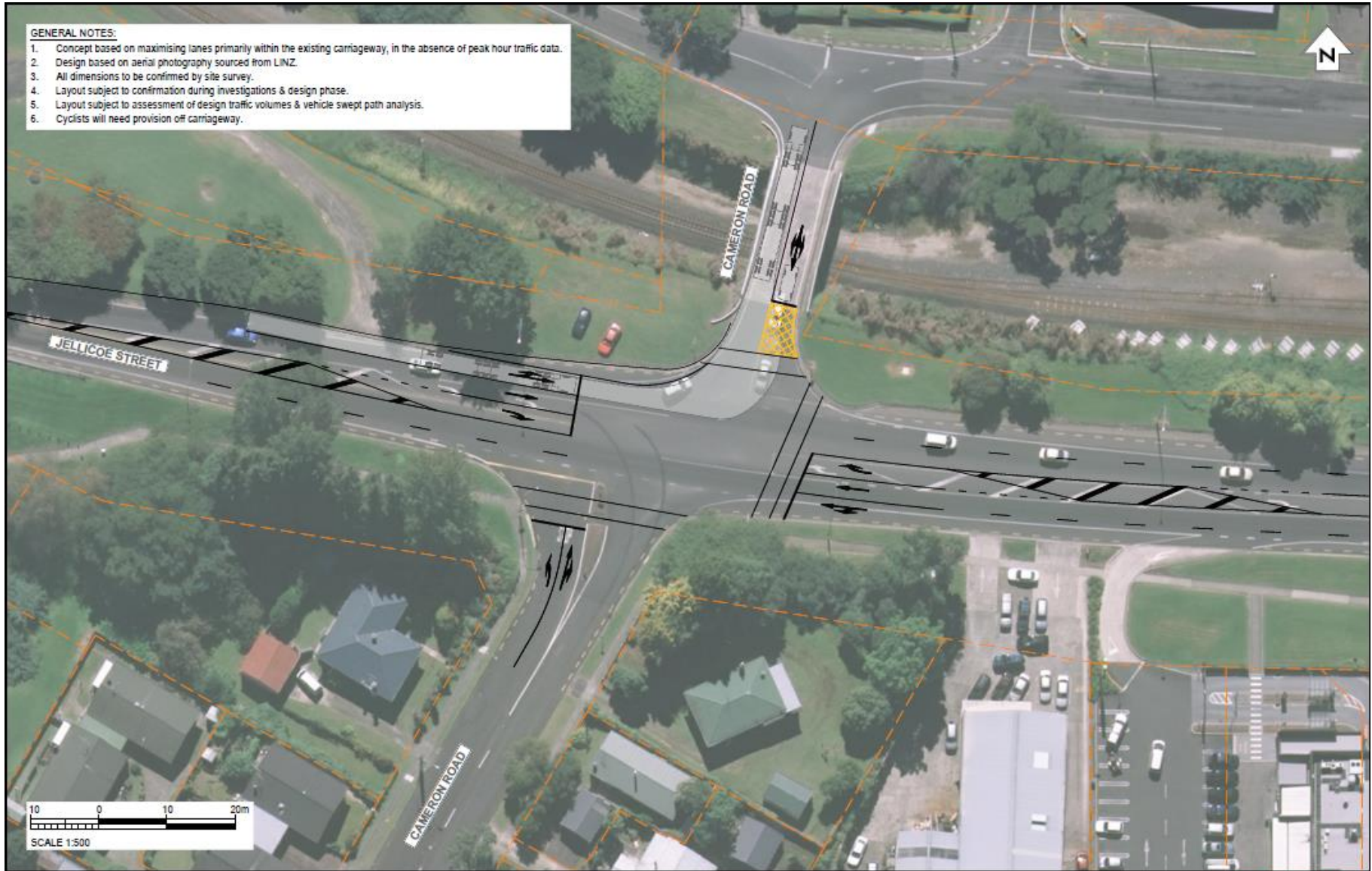
## **Conclusion**

71. In summary, on the basis of this assessment, together with the appropriate zone management controls to address recommended transport infrastructure, it is concluded that the proposal to zone change of land from rural to industrial is able to be managed in an appropriate way to ensure any effects on the adjacent road network are acceptable.

Ian Carlisle  
23 June 2022



# Appendix A: Intersection of Cameron Road and Jellicoe Street Concept Plan



- GENERAL NOTES:**
1. Concept based on maximising lanes primarily within the existing carriageway, in the absence of peak hour traffic data.
  2. Design based on aerial photography sourced from LINZ.
  3. All dimensions to be confirmed by site survey.
  4. Layout subject to confirmation during investigations & design phase.
  5. Layout subject to assessment of design traffic volumes & vehicle swept path analysis.
  6. Cyclists will need provision off carriageway.

REV	DATE	BY	DESCRIPTION
A	1/2/2022	ANJ	ISSUED FOR INFORMATION

JELlicoe STREET / CAMERON ROAD INTERSECTION, TE PUKE  
 CONCEPT LAYOUT PLAN

CURT LOGO



FOR INFORMATION

SCALE	1:500 @ A3	FIGURE NO.	1
DRAWN	ALEX JACOBSONSKI	DATE	21/05/2022
DESIGN	UNAVAILABLE	OF	A