IN THE MATTER OF the Resource Management Act 1991

AND

IN THE MATTER OF proposed private Plan Change 12 to the Waipā District Plan by Sanderson Group Limited and Kotare Properties Limited for the rezoning of Growth Cell T2 from 'deferred residential zone' to 'residential'

STATEMENT OF EVIDENCE OF MARK JOHN APELDOORN

TRAFFIC

15 March 2021

Introduction

1. My full name is Mark John Apeldoorn. I have the title Practice Leader: Transport Advisory Private Sector at Stantec NZ Ltd with responsibilities generally across the New Zealand and Australian Regions. I have 29 years' experience as a practising traffic and transportation engineer.

2. I hold a Bachelor's degree with honours in Civil Engineering, a postgraduate Certificate of Proficiency in Transportation Planning and a postgraduate Diploma in Business Management, all from the University of Auckland. I am a Chartered Professional Engineer (CPEng) New Zealand and Australia, a Fellow of Engineers New Zealand (FEngNZ), an International Professional Engineer (IntPE), a Member of Engineers Australia (MEA) and a Registered Professional Engineer Queensland (RPEQ).

3. I have worked as a local authority engineer and currently as a traffic engineering consultant. As a consultant, I have been engaged by local authorities and private interests to advise on traffic and roading development issues covering safety, management and planning matters of many kinds.

4. I have also advised extensively on traffic and transportation matters involving plan changes, designations, and resource consents in the Waikato Region and elsewhere.

5. Stantec was asked by Sanderson Group and Kotare Properties Ltd to describe and assess the traffic and transport matters pertaining to Proposed Plan Change 12 (PPC12) to the Waipa District Plan. I led the preparation of the Integrated Transportation Assessment (ITA) report for both PPC12 and the draft retirement village resource consent for the same site (October 2020).

Code of Conduct for Expert Witnesses

6. I am familiar with the Code of Conduct for Expert Witnesses (Environment Court Consolidated Practice Note 2014) and although I note this is a Council hearing, I agree to comply with this code. The evidence I will present is within my area of expertise, except where I state that I am relying on information provided by another party. I have not knowingly omitted facts or information that might alter or detract from opinions I express.

Scope of evidence

7. My evidence will summarise the following:

   (a) Summary of the ITA Report;

   (b) Non-compliance with District Plan Rule 16.4.2.5 (Access Separation);

   (c) Minor corrections to the ITA Report;

   (d) Relevant traffic strategies, plans, objectives and policy;

   (e) Submissions, with a particular focus on potential for increased traffic through T1;

   (f) The Council Officer's S42A report; and

   (g) My conclusions and recommendations.

8. I visited the site for the specific purpose of assessing the potential impact of the proposal on 24 March 2020 and on a number of occasions since.

Executive Summary

9. The proposed Structure Plan facilitates a combination of residential and retirement community development. At full development, the Structure Plan is expected to accommodate in the order of 310 to 360 standard residential dwellings and a retirement village with 98 villas and supporting care facilities.

10. The combined total traffic generation for the Structure Plan area is estimated to be in the range 2,950 to 3,350 vehicle movements per day (vpd) at 2035, ultimately distributed across Frontier Road, Pirongia Road and supporting local residential roads. The proposed initial southern release area comprising the retirement village and approximately 105 residential lots is assessed to generate in the order of 861 trips per day or about 95 trips in the peak hour[1].

11. A multi-modal transport network has been designed to support the Structure Plan with a low-speed, permeable network of roads and shared user paths. Future connection points have been modelled in SIDRA and shown to have more than adequate capacity to operate as single-lane priority-controlled intersections. Raised table treatments are recommended to support priority of new shared user paths on Pirongia Road and Frontier Road. Crossroad intersections within the Structure Plan area are recommended to be safely managed by way of low speed urban roundabouts.

12. The following external infrastructure upgrades are recommended to support the Structure Plan:

    (a) Upgrading of Frontier Road (northern side) and Pirongia Road to an urban cross-section along the T2 Structure Plan frontage, each commensurate with the establishment of access to the frontage road.

[1] I note these numbers are slightly lower than what was assessed in the ITA (Table 9-2 on page 20). This is because 113 lots were assessed in this area at the time the ITA was prepared. Further design work since then has reduced the number of lots to 101 making the assessment more conservative.

(b) Formed recessed parking on the northern side of the Frontier Road upgrade.

(c) Extension of the 50 km/h speed zone along Frontier Road supported by installation of a speed change gateway treatment with kerb build-outs, supporting landscaping and signage and establishment of a 60 km/h speed zone along Pirongia Road, both located west of the Structure Plan site boundary areas.

(d) Formation of a 3.0 m wide shared path on the site side of both Frontier Road and Pirongia Road to integrate with similar planned facilities linking towards the Te Awamutu town centre.

13. Overall, on the basis of these assessments and the proposed supporting infrastructure, I conclude that there are no traffic or transport reasons why the proposed plan change could not be approved.

Summary of ITA Report

14. The site location and road hierarchy context are described at Section 2 and Section 4.1 of the ITA. The site has two road frontages. Pirongia Road, a collector road along the northern boundary, and Frontier Road, a local road along the southern boundary.

15. The existing and planned future transport environment is described in Sections 4, 5, 6 and 7 of the ITA. The site is adjacent to the current western extent of the Te Awamutu (T1) urban growth area. Pirongia Road and Frontier Road have rural or mixed urban/rural cross-sections in front of the site, and more urban characteristics further toward the east.

16. Frontier Road has a 60 km/h speed limit along the site frontage, with a 50 km/h limit applying further east leading into the urban area. It has an 80 km/h

applying further west of the site's western boundary. Frontier Road has a mixed cross-section, with an urban standard footpath and kerb and channel on the southern side and a rural sealed shoulder and open drain on the northern side. Frontier Road carries an average daily traffic volume (ADT) of 1,654 vehicles per day (vpd).

17. Pirongia Road has a 50 km/h speed limit at the eastern end of the site frontage and this changes to 100 km/h further west. It has a rural cross-section with minimal sealed shoulders and open drains both sides. It carries an ADT of 2,271 vpd.

18. The existing footpath network in the area includes a path on the southern side of Frontier Road and a path on the northern side of Pirongia Road.

19. PPC12 proposes to bring forward the development potential of the Stage 1 area, the southern portion of the site with access to Frontier Road. Stage 2 remains beyond 2035 but has been included in the overall structure plan to ensure an integrated planning approach. Key transport features of the structure plan network include:

    (a) One new intersection on Pirongia Road and one new intersection on Frontier Road.

    (b) Three local road connections integrating with the T1 growth area.

    (c) A network of safe speed local roads, cul-de-sacs and private rights of way (ROW) to provide access to individual lots.

    (d) 3.0 m wide shared paths along the site frontage on both Pirongia Road and Frontier Road.

(e) A network of on and off-road paths throughout the site establishing connectivity to both road frontages and the T1 cell.

20. Frontier Road is proposed to be upgraded to an urban standard along the site frontage. As a result of the development the existing 50km/h speed limit is proposed to move further west, beyond the site frontage and the established residential properties on the southern side of the road. The proponent will need to work through this process with WDC, as the road controlling authority for Frontier Road. A gateway treatment with kerb build outs and signage is proposed west of 67 Frontier Road. This location has been selected as it can provide safe forward sight distance and not impede property access.

21. The Frontier Road cross-section is to be designed in consultation with WDC in due course. Initial consultation with WDC officers indicates the following core cross-section features:

(a) Retention of the existing 20 m legal width.

(b) Two 3.2 m wide traffic lanes.

(c) A 3.0 m wide shared path on the northern side.

(d) 2.2 m wide recessed on-street parking on the northern side.

(e) Retention of the existing kerbed urban carriageway edge on the southern side.

22. An upgrade of Pirongia Road is also proposed to support development of Stage 2. Initial advice received from WDC officers is that a reduction in speed limit may be considered however it will depend on how the environment develops into the future and whether that speed limit aligns with the land use environment at that time.

23. The Pirongia Road cross-section is also to be designed in consultation with WDC at the time of development, which will be post 2035. The core cross-section features are to include:

    (a) Retention of the existing 20 m legal width.

    (b) Two 3.5 m wide traffic lanes.

    (c) A 3.0 m wide shared path on the south side of the road from the western extent of T2 to the T1 intersection.

    (d) 1.5 m wide sealed shoulders and no on-street parking.

24. The proposed walking and cycling network has three connections to Frontier Road, two to Pirongia Road and three to the T1 cell. Inside the site there are a combination of on and off-road paths that provide for walking and cycling as a travel mode and as a recreational activity.

25. The paths provide for a range of accessible circuits around the local area, through the T1 and T2 growth areas. It is the intent that the retirement village site will be open to the public during day-time hours and its central boulevard paths and on-site cafe permit public access and movement.

26. The estimated traffic generation of the overall structure plan area is assessed in Section 9 of the ITA. The estimates are:

    (a) Up to 2,020 vpd and 220 vehicles per hour (vph) for the northern area.

    (b) 403 vpd and 48 vph for the retirement village.

    (c) 927 vpd and 102 vph for the southern residential area.

(d) Collectively generating about 2,946-3,350 trips per day or about 327 to 371 trips in the peak hour distributed across the network at 2035.

27. Network effects and intersection performance assessments are described at Section 10 of the ITA. These assessments have made allowance for the trip generation from T2, the trip generation from T1 and other background growth expectations.

28. The proposed intersections on Frontier Road and Pirongia Road have both been assessed and are able to be established in compliance with Austroads safe sight distance requirements for their respective speed environments.

Non-Compliance with District Plan Rule 16.4.2.5

29. Table 11-1 (page 26) of the ITA identifies an expected non-compliance with this District Plan rule. The rule requires vehicle entrances to be 20m and 30m away from intersections when they are on the minor (new subdivision road) and major road (Frontier Road) respectively. The corner lots within the southern subdivision, and the lots adjacent to them, may not be able to comply with these rules. This is common in residential settings where lot boundaries are often less than 20-30m.

30. It is my recommendation that where practical, corner lots around the proposed T2 intersection with Frontier Road be established with access on the new subdivision road. This road is proposed to meet Frontier Road at a raised table intersection, contributing to a safe and reduced speed environment for movement to and from the new side road. Some lots will have access to Frontier Road, which is to be formed with recessed parking areas, providing for enhanced driveway sightlines. Further, the lowered (50km/h) speed limit on Frontier Road together with a speed managed environment and gateway threshold will safely manage traffic speed in line with the available sight lines.

31. With these measures in place, it is my assessment that an appropriately safe property access environment can be achieved.

Corrections to the ITA

32. Section 9 of the ITA refers to Frontier Road as a collector road. Frontier Road is currently a local road. It becomes Rewi Street some 300m east of the site. Rewi Street is a collector road.

Officer's Report

33. I confirm I have read the Officer's Report (1 March 2021) and concur with its findings on traffic.

34. The report notes (at 1.9 on page 2) that Council's Transportation Manager and Development Engineers have confirmed that the ITA provides a relevant assessment of traffic effects, such that the plan change can proceed.

35. I agree with the position that detailed level effects can be appropriately assessed and mitigated as part of future land use and/or subdivision consents, with Council's Development Engineering team recommending appropriate conditions at that time.

Submissions

36. I have read and considered the submissions relating to traffic matters. I address two of the submissions individually and the others by topic in my evidence to follow.

Fonterra (23)

37. The Fonterra submission seeks clarification as to the directional distribution that has been assumed for traffic movements and the potential traffic effects on Alexandra Street that arise due to early release of the Structure Plan area.

38. In further engagement[2] Fonterra has confirmed that:

"*Fonterra's concerns are reduced by proposed Rule 15.4.2.92. Fonterra is not proposing to withdraw its submission at this stage but will provide a letter to be tabled at the hearing setting out that the specific transportation concerns have been addressed by the proposed rule.*"

39. Rule 15.4.2.92 effectively defers development of the northern half of the structure plan area until after 2035. By way of further clarification with specific reference to the trip distribution patterns that can be expected, I have undertaken some further survey and sensitivity analysis to more particularly describe the potential range of traffic demands to be expected on Pirongia Road, east of both the T1 and T2 Growth areas. Amendment of the directional turning trip distributions assumptions for the T2 area to weight up to 90% of the turning movements to/from the Te Awamutu town centre indicates a further 59 peak hour trips (two way total) could be redistributed to Alexandra Street. The total demand determined on this basis and due to the T2 area would therefore involve 178 peak hour two way trip, some travelling east to the town centre and some westbound, subject to the AM/PM directional distributions.

40. The addition of this incremental shift to the forecast traffic demands on Pirongia Road east of the T1 growth area intersection indicates peak directional flows on Pirongia Road of up to 372 veh/h eastbound in the AM and

[2] E-mail from Abbie Fowler (Associate, Mitchell Daysh) acting for Fonterra to John Olliver (BBO) dated Wednesday 10 February 2021, 3:30pm.

387 veh/h westbound in the PM peak hour period. This is indicatively in the order of just 41% to 43% of the practical capacity of the Pirongia Road traffic lanes at these times. The analysis indicates there will be significant surplus capacity remaining in the Pirongia Road corridor east of the T1 intersection beyond 2032 even with full development of the structure plan area.

Frontier Developments (12)

41. Seven points of this submission are described under the heading of Transport. I address these as follows:

42. Point 1. PPC12 does not require Pirongia Road to become a collector road. It is already a collector road in the WDC road hierarchy. Frontier Road is currently a local road that transitions into a collector road just west of Rewi Street, about 300m east of the site. Frontier Road across the site frontage and further west to Pirongia is classified as a local road at present.

43. The proposed physical form of each road has been determined in consultation with WDC. Specific cross section forms together with speed environment changes have been developed to produce appropriately safe traffic operating environments for the traffic volumes forecast.

44. The assessments set out in the ITA at page 22 evaluate the forecast traffic demands on each of Frontier and Pirongia Road frontages. On Frontier Road the daily traffic demands across both the T1 and T2 site frontages diminish the further west one travels. At the eastern edge of the T1 boundary the daily demands are assessed as up to 4,200 vehicles per day (vpd) at 2032. In my experience[3], this is well below traditional volume-based thresholds for collector roads which has typically been at or greater than 5,000 vpd. The

[3] In 2009/10 I was appointed by the Institution of Professional Engineers NZ (IPENZ) as its representative to a panel which reviewed NZS 4404, producing an updated NZS4404: 2010, New Zealand Standard, Land Development and Subdivision Infrastructure.

District Plan Road Hierarchy definitions[4] however do not specify traffic volume thresholds for any of the road hierarchy types but rather describe function and purpose characteristics. On these bases it is my assessment a collector road status change is not warranted on Frontier Road and the road cross section has been appropriately designed to safely and efficiently accommodate the forecast future demands.

45. A continuation of the collector road status for Pirongia is intended to be retained and the road cross section there is again, appropriate for that purpose and environment. In my assessment, the Pirongia Road improvement works will not be required until the Stage 2 development area forms an intersection with Pirongia Road.

46. Point 2. The submission is concerned with cycleway connectivity.

47. The walking and cycling network within the Structure Plan (ITA Figure 2.2, page 6) has been safely planned and designed considering both its value as a local asset and its integration with the future external network. The 3.0 m wide shared path does not terminate at the eastern side boundary of the Structure Plan, it continues to the north, connects to the local road network, and the walking and cycling networks in both T1 and T2 at this point.

48. A safe cycling route is shown to be established right through the Structure Plan area linking Frontier Road with Pirongia Road and also across the site frontage on Pirongia Road, providing for connectivity towards the Te Awamutu town centre. It utilises a range of formed off-road paths, low-speed local roads and off-road paths in reserve areas so as to minimise cycle interaction with the main traffic routes through the subdivision and establish a safe and continuous facility for cyclists and pedestrians. Overall a well-planned cycle and walking network is shown and located to enable it to be effectively integrated with

[4] Appendix T5 – Road Hierarchy, *Collector roads are roads that distribute traffic from local and collector roads to arterial roads, and are defined in this plan as the following roads:*

other city infrastructure, including that described in the Waipa District Walking and Cycling Strategy[5].

49. Point 3. The submission describes a concern in relation to the adequacy of 3.5m traffic lanes and cycle use.

50. Current, future district and proposed structure plan cycle facilities are described at section 4.2.3, 5 and 8.5 of the ITA. On both Frontier Road and Pirongia Road, the proposed cycling facility is to be established as a shared path that is physically and safely separated from the traffic carriageway. Within the structure plan key cycle routes have been designed to be predominantly off-carriageway. Within the structure plan road network, a safer 40km/h speed environment is to be established. Speed management measures such as raised table intersection crossings at both the Frontier and Pirongia Road interfaces, low radius curves, closely spaced and controlled (urban roundabout) intersection forms are to be implemented to enable cycling to occur safely within the carriageway space when that occurs.

51. Point 4. The submission suggests the Frontier Road shared path should be located on the southern side of the road corridor.

52. The Frontier Road shared path is shown on the northern (site) side of the road so that it integrates with the structure plan site frontage, correlates with the greatest potential user demand, can provide connected circuits and routes throughout both the T2 and T1 areas and so it is able to effectively establish linkages to and from the east towards the town centre and other relevant facilities. In this way the proposed facility provides to connect and integrate with a wider range of facilities such as the small retail centre to be established within the T1 area, the Anchor Park, Te Awamutu College as well as the town centre area and will be ideally positioned to link with any facility to be established across the T1 growth area frontages.

[5] Waipa Walking and Cycling Strategy 2008, Map 5: Te Awamutu Cycle Routes.

53. Point 5. The submission is concerned with public pedestrian accessibility along the western boundary of the retirement block.

54. Public accessibility and movement proposed within the Structure Plan is described in the ITA at section 8.1. The majority of the pedestrian and cycle paths will be on land that will vest in Council as either low speed environment roads or reserves.

55. The western boundary pedestrian link is combined with a proposed stormwater swale, making efficient joint use of this land. Although the part of the link that runs through the retirement village is on private land it is to be open to the public during daylight hours, along with other accessways through the village. For security reasons, access will not necessarily be available 24 hours a day. The details of the management of this part of the network, and public access through the retirement village more generally, are expected to be addressed as part of a subsequent resource consent.

56. Point 6. The submitter expresses a concern for lots having direct access to Frontier Road and Pirongia Road. It asserts Frontier Road is a collector road and seeks additional carriageway width and traffic calming if this is to occur.

57. Firstly, Frontier Road is classified as a local road only, not a collector road. The District Plan Appendix T5 – Road Hierarchy defines local roads as "*They are primarily designed for property access, with a secondary through function."*

58. Section 10.5 Road Safety Effects of the ITA describes that a rural/urban threshold is proposed at the western edge of the structure plan area to actively manage speed transitions at that threshold area. Carriageway widths have been kept to a minimum and parking across the structure plan threshold safely recessed from the through traffic carriageway lanes. Safe sight distances have been assessed and are able to be established in respect of these proposed

accessways. Collectively these features establish an appropriately local road environment within which property access can be safely established.

59. In relation to Pirongia Road, no direct property access is proposed to this collector road frontage, other than that which currently exists. There are vertical alignment elements to the Pirongia Road frontage that constrain where both road and/or property access can be safely located and these features have influenced the location of the structure plan intersection there. Notwithstanding this, there is no particular general reason, in my opinion, why direct property access cannot reasonably and safely be established on collector road frontages as is currently established along the existing urban frontages to Pirongia Road and Rewi Street east of the site. The District Plan does not contain rules expressly preventing this. Details of property access locations will be addressed through future resource consents for development of this land, post-2035.

60. Point 7. The submission is concerned the proposed carriageway formations do not adopt specifically the WDC roading requirements.

61. The form and comparative standard of structure plan roading is described at sections 8.2 of the ITA. The road cross-sections proposed have been designed on the basis of direction from and engagement with WDC Engineers. They have also been specifically designed to support a safer-speed traffic environment that minimises the potential for personal harm in the event of an incident. Suitable and appropriate space has been included for utilities, walking and cycling, potential future public transport servicing, vehicle movement and servicing. The structure plan outcome will be an area that produces an efficient utilisation of land and which safely provides for the demands expected to be generated.

Traffic Growth

62. Swarbrick (1), Houghton (5), McNamara and Galloway (16), Blackstock (17) and Phillips (19) raise concerns regarding increases in traffic volumes.

63. The T2 cell has been identified as appropriate for residential land use. PPC12 seeks only to bring forward development of the southern part of the site such that it can be developed now rather than beyond 2035.

64. Infrastructure upgrades, including urbanisation of Frontier Road are proposed to support the earlier than planned development. Pirongia Road would also be upgraded at the time the northern area is developed.

65. Mr Blackstock raises a specific concern about Alexandra Street. As I explained earlier at paragraph 44, I expect there to be limited demand for travel to and from the southern part of the T2 growth area via Pirongia Road/Alexandra Street. I have described the expected level of performance for Frontier and Pirongia Road as being in the order of 41% to 43% of practical capacity at 2032, having regard for wider regional growth effects. There is ample road network capacity to accommodate the proposal.

66. Development of the northern area, which is expected to increase volumes along that route (Alexandra Street), remains beyond 2035, in line with Council's planned growth strategy.

67. I also note that retirement villages generate less traffic per unit of land area than standard residential developments. In this case the proposed village is assessed as generating around 45% of the daily and peak hour movements that would be expected from a residential subdivision of the same area.

68. It can therefore be concluded that whilst PPC12 brings forward development within the T2 cell, the use of around one quarter of the area for a retirement

village reduces the overall quantum of traffic movements that would otherwise be expected from standard residential activity.

Vehicle Dependence

69. Mr Houghton (5) raises a concern about reliance on motor vehicles and lack of public transport and bicycle networks.

70. The structure plan includes a multi-modal transport network. Off-road shared user paths (walking and cycling) are proposed along both Frontier Road and Pirongia Road (as part of Stage 2). There is also a network of internal paths that provide north-south and east-west connectivity, whilst recognising the need for privacy within the retirement village.

71. Public transport services are currently limited in Te Awamutu but the potential for future services has been considered in the design of both Stage 1 and Stage 2. The local road connection through Stage 1 is able to accommodate bus services in future and a bus stop is to be incorporated outside the retirement village.

Sun Strike

72. Fraser and Wheeler (15) and Nicholl (28) raise concerns regarding sun strike on Frontier Road.

73. Sun strike occurs when the sun hits a windscreen and causes glare that makes it difficult for the driver to see ahead. It is most likely to occur when the sun is low (sunrise and sunset) and is most common in winter (May to August).

74. PPC12 is not able to change the orientation of Frontier Road or influence the occurrence of sun strike. It should be noted however that the proposed primary access point is located on a sloping section of road, where drivers are

not looking directly at the horizon. The orientation of the frontage is south-west to north-east, meaning drivers are not looking directly east or west.

75. For these reasons, the development of PPC12 does not result in an increased risk of sun strike. It remains an environmental risk that can occur around the network and is best managed by driver awareness and adjusting travel speed when visibility is limited. I note that the proposed upgrade of Frontier Road involves a speed limit reduction. This can be expected to contribute to a general improvement in safety, as lower speeds are recognised as reducing the risk of injury crashes.

Conclusion

76. I have assessed the transportation effects of Plan Change 12 and I have addressed the submissions relevant to traffic matters. It remains my conclusion, as I concluded in the Integrated Transportation Assessment, that there are no traffic or transport reasons why the proposed plan change could not be approved.

Mark Apeldoorn
15 March 2021