

**Before the Hearings Panel
At Waimakariri District Council**

Under Schedule 1 of the Resource Management Act 1991

In the matter of the Proposed Waimakariri District Plan

Between **Stream 12C submitters requesting Large Lot residential
Zoning (RRLZ)
No. 250
No. 158
No. 8
No. 299**

And **Waimakariri District Council**

**Statement of evidence of Mark Gregory on behalf of Waimakariri District
Council, Transportation Planning**

Date: 18th April 2024

INTRODUCTION:

- 1 My full name is Mark Andrew Gregory. I am employed as a Principal Transport Planner at WSP New Zealand.
- 2 I have prepared this statement of evidence on behalf of the Waimakariri District Council (**District Council**) in respect of technical related matters arising from the submissions and further submissions on the Proposed Waimakariri District Plan (**PDP**).
- 3 Specifically, this statement of evidence relates to the matter of Submissions relating to rezoning from rural to Large Lot residential (LLRZ) including four submissions named in paragraph 9.
- 4 I am authorised to provide this evidence on behalf of the District Council.

QUALIFICATIONS AND EXPERIENCE

- 5 I hold the qualifications of Master of Engineering in Transportation (University of Canterbury, 2016) and BA (Hons) Planning with Transport (University of the West of England, 2007). I am a Chartered Transportation Planning Professional (CTPP).
- 6 I have worked for WSP as a Principal Transport Planner for two years, having previously been employed as a Transport Network Planner for Christchurch City Council for nine years. I have fifteen years' experience in the transport planning and engineering field, including considerable experience in preparing and assessing transport assessments, assisting formal hearing processes on multiple occasions and substantial contributions to the Christchurch District Plan Review (2015 – 18).
- 7 I am a Chartered Member of the Institute of Highways and Transportation, as a Chartered Transportation Planning Professional (CTPP). I am the vice chair of the Engineering New Zealand Transport Group national committee, a member of the national committee for

Transportation Modelling and a Board Member of the Trips Database Bureau, since 2017.

8 I have had assistance from the following people in forming my view while preparing this evidence:

8.1 Shane Binder, Senior Traffic Engineer, who has provided advice relating to WDC transportation projects, and the Long Term Plan (LTP).

Code of Conduct

9 I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing my evidence and will continue to comply with it while giving oral evidence before the Environment Court. My qualifications as an expert are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

SUMMARY

10 My statement of evidence addresses the following submissions in Table 1 from a transportation perspective. The submissions are seeking rezoning to Large Lot Residential Zone (LLRZ).

Table 1: Submissions reference

Submission No.	Submitter name	Site
250	Fiona Aston	25 Ashley Gorge Road
158	Andy Carr	308 Cones Road
8	Andrew McAllister	Tram & Two Chain Rd (Block A and Block B)
299	Crichton Group Developments	145 & 167 Gladstone Road

11 I support the rezoning requested in submissions 250, 158 and 299, subject to conditions. I support the rezoning request in submission 8 in part.

12 My reason for support includes:

12.1 For 25 Ashley Gorge Road (#250), the site is already identified as a preferred growth area. I support the request, but not on the grounds of the concept Outline Development Plan (ODP) provided, because of a lack of both internal connectivity and connectivity with the town ship and specific activities. I would recommend the development of an alternative ODP, which makes greater provision for connectivity / future connections to the town, and internal network connectivity.

12.2 For 308 Cones Road (#158), I support the rezoning request, subject to addressing the narrow road width of Cones Road which currently does not meet the Operative Plan requirements for a rural road and therefore requires modification to meet the requirements of a residential context. Other circumstances, such as capacity at key intersections, and proposed local improvements to active travel infrastructure support a favourable assessment outcome.

12.3 For 145 and 167 Gladstone Road (#299), I support the rezoning, but on condition that Gladstone Road is modified to meet the requirements of a residential context. I also recommend deferring outcomes relating to the design standard of the main site access on Gladstone Road until more information is available as to local road network changes following the Woodend Bypass. I further recommend modifying the proposed ODP to include a future road connection to Copper Beech Road.

12.4 For Tram and Two Chain Road (#8), I support the rezoning request for Block A, but on condition that vehicle access directly to or from Tram Road is prohibited. There are specific safety issues on Tram Road, including a number of high-risk intersections, including Two Chain Road. Whilst safety management works are scheduled in the Long Term Plan, in my opinion development should only be supported where it avoids resulting in further safety effects. Alternative site access is available via Two Chain Road. I also recommend an alternative ODP which demonstrates a connected internal network of roads.

12.5 For Tram and Two Chain Road (#8), I do not support the rezoning request for Block B. My reasons for this include:

12.5.1 A reliance on direct access to Tram Road. Unlike Block A, there are no alternative vehicle access points.

12.5.2 An internal network outcome shown on the concept ODP which demonstrates no future network connectivity. Development of future parcels of land in this manner would result in disconnected networks, and specific effects and lost opportunities associated with this outcome.

INVOLVEMENT WITH THE PROPOSED PLAN

13 I have been involved in the PDP since December 2023.

SCOPE OF EVIDENCE

14 My statement of evidence addresses potential transportation effects arising from submissions seeking rezoning to Large Lot Residential. The effects relate to impacts on the receiving environment, as well as the

planning outcomes of the proposal itself, such as connectivity, level of service and accessibility.

15 The scope of my evidence does not extend to policy alignment matters.

GENERAL ASSESSMENT – ACCESSWAYS

16 A common theme in the four submissions suggests accessways are intended to be increasingly relied upon to provide access, presumably as a lower cost option than the provision of a road. In terms of high usage of accessways (laneways), I have two concerns:

16.1 Private accessways generally operate as shared areas, and tend not to enjoy amenities comparable to a road environment, such as planting which can improve the quality of the environment by providing shade, visible amenity, and other benefits associated with psychological health and wellbeing.

16.2 There is also a demonstrable hazard associated with children in conflict with vehicles on shared accessways, and specific design outcomes identified to avoid this outcome, including avoiding the overreliance of private accessways in subdivision design¹. Other design responses would include clear segregation of outdoor living areas (play areas) from locations which accommodate vehicles.

17 Furthermore, accessways are not vested in Council, meaning that upkeep and maintenance will be required of the community. The Christchurch City Council Infrastructure Design Standard (IDS Part 8, Roading), Section 8.12 recommends a balance of the 'long term

¹ Safekids New Zealand (2011) Safekids New Zealand position paper: Child driveway run over injuries. Auckland: Safekids New Zealand.

maintenance costs for the residents against the benefits of providing access through a vested road.’

- 18 The Operative Plan (Chapter 30, Utilities) provides instances where accessway are managed - for example making provision for 3 – 6 dwellings to be accessed via a right of way, including the required width (Table 30.3), and specifies the outcome of common ownership (30.6.1.15).
- 19 The District Plan Review provides an opportunity to place limits around the use of accessways for access.

ASSESSMENT OUTCOMES

25 Ashley Gorge Road and 650 Bay Road, Oxford (Submission #250)

- 20 The combined sites, of 50.9 ha could yield 80 dwellings. Based on 8 – 10 vehicle movements per day per dwelling,² the proposal could generate 640 - 800 vehicle movements per day, or approximately 70 - 80 vehicles per peak hour.
- 21 I agree with the findings of the traffic report (summarised in Mr Carr’s evidence, paragraph 13), that the scale of trip generation would not warrant efficiency concerns to the road network.
- 22 The key areas of my assessment are:
- 22.1 Safety, noting the receiving network includes a section of High Street signed at 70 km/h, which is potentially unsuitable for safely supporting an increasing residential context.

² NZTA, 2011, Research Report 453

- 22.2 Connectivity, noting that the proposal represents a significant extension to Oxford, and the local transport network. Ms Aston's evidence (paragraph 2) indicates the inclusion of the site as a 'preferred rural residential growth direction'.³ Therefore, the ODP should be expected to facilitate a level of network connectivity to the adjoining township.
- 22.3 The level of service and safety associated with the internal network. The 'possible' subdivision layout indicated in Ms Aston's evidence, Figure 5, includes a significant number of properties served by accessways, and some accessways potentially serving multiple properties. This suggests a reduced level of service for future residents.
- 23 The site adjoins High Street, which is signed as 70 km/h for a length of approximately 150 m of the site perimeter. I note Mr Carr's crash analysis (evidence of Mr Carr paragraph 13) and concur with his findings, but I note that the change in land use and increased movement activity (including pedestrians and cyclists) could change the context of the road environment. It is usually preferable for residential streets to be signed as 50 km/h (or in some cases 30 km/h).
- 24 I recommend that a speed limit review is undertaken as part of a subsequent subdivision consent process. The work could be supported by a suitably qualified person on behalf of the Applicant. The outcome of this review cannot be determined in this assessment, and would be decided by third parties (i.e. WDC Road Controlling Authority and NZTA Waka Kotahi).
- 25 The ODP concept (Ms Aston's evidence, Figure 5) represents an insular network, with little penetration from the southern direction. I note the

³ Waimakariri Rural Residential Development Strategy

Oxford town centre is within 1 km to the south, and the Oxford Area School is within easy walking distance of the site. The site is predominantly accessible via High Street and Bay Road, to the east and west of the site, respectively. An alternative ODP might give more consideration to network integration, including potentially providing a continuous connection through the site.

- 26 Proximity of the site to the Oxford Area School provides an opportunity to increase active travel demands by providing access. The school includes a role of 520 students (Years 1-13). Education activities attract a high proportion of walking and cycling, especially where access and infrastructure are available. This includes rural communities.⁴
- 27 The concept ODP (ibid) also indicates substantial access provided via accessways, and not via roads designed in accordance with the Operative Plan (Chapter 30). I also note the ODP shows a potential connection along the northern perimeter, but that the ownership of this land is currently unknown, meaning that availability of such a connection could not be relied upon.
- 28 I therefore support the submission seeking rezoning, providing that an alternative ODP is developed which makes greater provision for connections and allowing future connections to the town, as well as demonstrating internal network connectivity.

308 Cones Road and 90 Dixons Road, Ashley (Submission #158)

- 29 The combined sites of 25.1 ha would yield approximately 45 dwellings. Based on 8 – 10 vehicle movements per day per dwelling,⁵ the proposal

⁴ Mandic et.al, 2023: Examining the transport to school patterns of New Zealand adolescents by home to school distance and settlement types. Journal of transport and health

⁵ NZTA, 2011, Research Report 453

could generate 360 - 450 vehicle movements per day, or approximately 40 - 50 vehicles per peak hour.

- 30 My analysis of traffic demand data⁶ indicates adequacy of the local network to accommodate these demands. I concur with Mr Carr's evidence on this matter.
- 31 The concept ODP shows connectivity to the wider network at four locations, including an active travel link. Shane Binder, Senior Transport Engineer at WDC, advises that the WDC 2021-31 Long Term Plan (LTP) includes extension of the shared path between the Ashley Bridge and Fawcett Road. Mr Carr's assessment (paragraph 7.2.2) proposes that the unsealed verge of Cones Road could be used by cyclists to connect to the site.
- 32 Mr Carr does suggest that cyclists would use the site, although specifies a 'maximum' cycling distance of 3 km, although does not cite a source for this value. The town centre is located 4 km away. Mr Carr describes how the value of 3 km was developed prior to the widespread use of e-bikes, which have the capacity to extend distances cycled. I would add that e-bikes are thought to constitute more than half of the sale of all new bikes (Via Strada, 2020)⁷ and that riders of e-bikes are thought to exert approximately 60% of effort compared to conventional cycles⁸. These factors would suggest that the proposed site is within range of Rangiora town centre by cycle.
- 33 Cones Road, east of Dixons Road, is narrow with a sealed width of 5.5 m, not meeting the minimum requirements of the operative plan

⁶ MobileRoad.org

⁷ Axel Downard-Wilke (2020) Predicting electric micro-mobility sales in NZ.
<https://viastrada.nz/e-bike-sales>

⁸ NZTA, Monetised Benefits and Cost Manual

for a rural road, of 6 m.⁹ It is relied upon to serve all access (including cycling). Mr Carr acknowledges the shortfall in width¹⁰ in paragraph 8.2.1.1 of his report. He concludes that the 'the level of increase (in traffic) is not sufficient to justify changes to the current road layout.'

34 Effects associated with the width of the road are associated with safety and maintenance impacts. The impacts of construction traffic, and ongoing servicing by heavy vehicle would exceed the available width required to avoid running on the shoulder, which will break the edge of the seal and further degrade the navigable width.

35 The shoulders are to be relied upon for facilitating active travel.¹¹ There is no mention of how existing drainage performs, or how this would impact on the availability of the shoulder, or the alternative access available were the shoulder to be inundated.

36 Cones Road is signed as 100 km/h, with an observed 85th percentile vehicle speed of 68 km/h in the vicinity of the site.¹² A crash at this speed involving vehicles hitting pedestrians or cyclists would almost certainly result in death.¹³ I note that there are no suitable cycle connections north of Fawcetts Road, for a distance of approximately 1 km to the site.

37 I also consider the ability to support further growth sites on Cones Road, and the potential for a precedent to be set in terms of how the necessary upgrades to Cones Road would be achieved.

⁹ WDC DP Chapter 30 (Utilities and Traffic Management), Table 30.1

¹⁰ Evidence

¹¹ Transport Assessment, Mr Carr, para 7.2.2

¹² Transport Assessment, Mr Carr, para 3.2.3

¹³ Mackie Consulting 2011: https://www.bikeauckland.org.nz/wp-content/uploads/2018/09/Mackie-Research-Report_Speed-vs-injury-risk.pdf

38 I have considered the design standard of Austroads¹⁴ (the pre-eminent design guidelines for roads in Australia and New Zealand), in addition to the requirements of the District Plan.¹⁵ I draw the conclusion that the existing width is not sufficient to support the proposed rezoning based on:

38.1 The existing traffic demands on Cones Road is approximately 1,500 vehicle per day (vpd); the proposal could add approximately 400 vpd, or a 25% increase.

38.2 Austroads (ibid) Table 4.5 would suggest a sealed width for traffic lanes of 7 m with sealed shoulders for a road carrying between 1,000 – 3,000 vehicles per day. Austroads values are not always adopted in District Plan, which vary in accordance with local circumstances. The Operative Plan standard is 6 m; further departure from this standard should be carefully considered for reasons of safety set out above.

38.3 The proposal would add active travel traffic. Much of the existing traffic using Cones Road would likely originate from outside the active travel catchment serving Rangiora (as is set out in paragraph 31). Therefore, the rezoning would change the context of how Cones Road is used.

38.4 This could include creating demand to connect to the shared path at Fawcetts Road (1 km south). Extending north of Fawcetts Road may not have been included in the LTP, given the existing absence of households within the bike-able catchment of Rangiora.

¹⁴ Austroads, 2021, Guide to Road Design Part3: Geometric Design

¹⁵ WDC DP Chapter 30 (Utilities and Traffic Management), Table 30.1

38.5 I consider the proposed rezoning to LLUZ from the proposed RLZ I to be a step change. The Rural Chapter s32 report sets out the transition from general rural zone towards RLZ as providing a 'more intensive pattern of land use and buildings.' To rezone to LLUZ would be to take another step towards intensification. In my opinion, there is uncertainty about the appropriateness of the road width to accommodate this step change. The step change effectively means more traffic, and more mixing of alternative modes such as cycling, which are currently unlikely to be using the route and therefore not reflected in crash outcomes.

39 In my opinion, the upgrade of Cones Road east of Dixons Road extending to the site access, would result in avoiding some of the potential safety and maintenance effects associated with both the increase in traffic and addition of active travel demand associated with the residential traffic.

40 I therefore support the rezoning request, providing that the section of Cones Road, between Dixons Road and the site be modified to a suitable standard such as that included in the operative plan.

Tram Road / Two Chain Road, Block A, Swannanoa (Submission #8)

41 The ODP indicates 28 dwellings. Based on 8 – 10 vehicle movements per day per dwelling,¹⁶ the proposal could generate 224 - 280 vehicle movements per day, or approximately 23 - 30 vehicles per peak hour.

42 My analysis of the traffic demand data¹⁷ indicates peak hour flows on Tram Road of 200 – 300 vehicles per hour, and therefore has adequate capacity to support additional traffic. I note Mr Carr's assessment of

¹⁶ NZTA, 2011, Research Report 453

¹⁷ MobileRoad.org

transportation effects,¹⁸ but conclude that while the proposal could be accommodated, I recommend measures to avoid or mitigate potential effects, especially relating to road safety.

43 Tram Road is identified as having a particular safety context, in a Route Assessment prepared for WDC and received by Elected Members on 17 November 2020. The report recommends a significant programme of works, some of which are currently scheduled in the Long Term Plan (LTP), aimed at addressing safety at a corridor level, and specifically to better support development growth. This includes transforming some of the intersections in the corridor, including roundabouts, and addressing 'run off road' crash hazards, such as power poles.

44 I note Mr Carr's Traffic Impact Assessment which concludes that the 'crash history in the vicinity of the sites does not indicate that there would be any adverse safety effects from the proposal'.¹⁹ I agree with Mr Carr's observation of the crash records, but note the differences between his analysis period (2018 – 2023) and the findings published in the Route Assessment for the period 2014 – 2020, the latter finding two injury crashes. I note that crash history is not always a reliable indicator in assessing safety and is not relied upon alone in practice. Underlying hazards can be slow to be 'revealed', especially at lower traffic locations where the probability of conflict is lower. Crash frequency can also be 'peaky' in distribution, and history does not take into account the effects of development, such as increased demands and more points of conflict. I note that Mr Carr's crash analysis period included the Covid pandemic, and long periods of irregular travel patterns and activity. Using a mix of history and crash modelling, the Tram Road Route Assessment considers the Tram Road / Two Chain Road intersection as high risk, with a recommended treatment.

¹⁸ Summarised in evidence of Mr Thompson, para 76

¹⁹ Integrated Transport Assessment, Mr Andy Carr, paragraph 9.

- 45 The Two Chain Road intersection itself, which abuts Block A, is identified as a high-risk intersection. The recommended treatment is for Rural Interactive Advanced Warning Signage (RIAWS). RIAWS is the name for the digital signs which flash up a lower speed limit when there is a vehicle present on the side road, such as at Main North Road (SH1) / William Street, between Kaiapoi and Woodend.
- 46 The ODP concept indicates some sections directly abutting Tram Road. My recommendation is to avoid direct access to Tram Road, preferring property access via an internal network instead.
- 47 Alternative options to address potential safety effects, for example, lowering the speed limit, could undermine the role of Tram Road as a rural arterial road, connecting distant communities together. The New Zealand transport Agency (NZTA) has published a tool which assists in considering design and operation outcomes for roads, based on its hierarchy and 'place function'. Known as the 'One Network Framework' (ONF), Figure 1 provides example of how road categories can be defined.

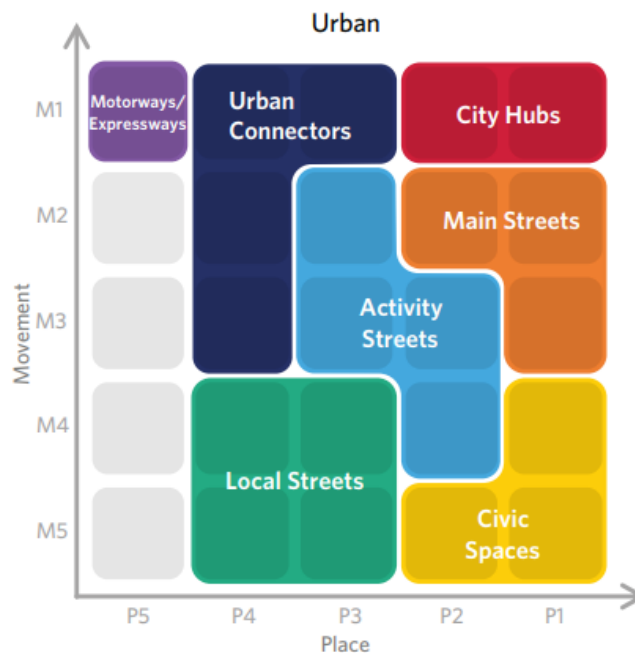


Figure 1: One Network Framework (ONF) approach to defining the transport network, and subsequently anticipated outcome

48 Figure 2 indicates the outcome for Tram Road, as a rural connector. It has a low place function with Block A surrounded largely by open land. An appropriate development response would be to restrict direct access to Tram Road, which would otherwise necessitate speed management or other measures which would undermine the primary function of providing connection between rural communities.

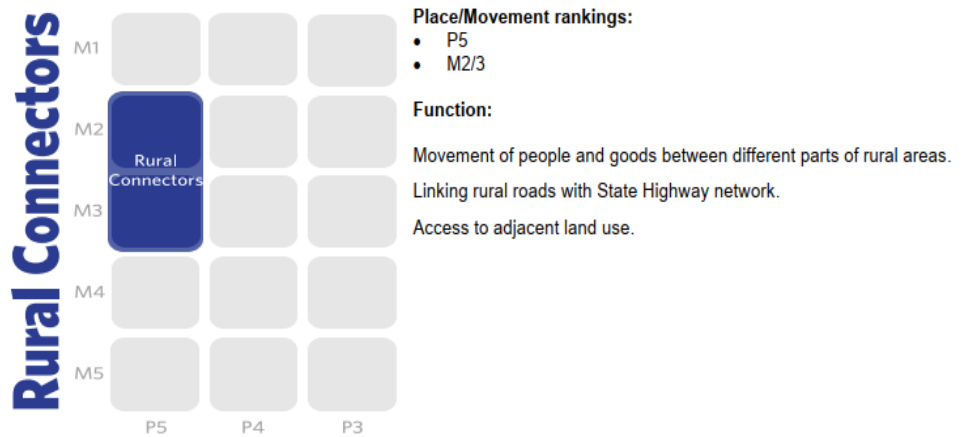


Figure 2: ONF outcome for Tram Road at the site

49 For completeness, the ONF classification would be different further east in Swannanoa, which is more built up and therefore supporting a higher 'place function'.

50 The Route Assessment and subsequent programme would reflect some of the outcomes sought by the ONF, including speed treatment (such as roundabouts) further east where there is a more prevalent place function, and opting for RIAWS at Two Chain Road intersection, which represents balance towards improving safety whilst retaining the higher movement function. In my opinion, limiting direct access to Tram Road would be consistent with this strategy.

51 The ODP indicates an intersection location 340 m west of the Two Chain Road intersection, which is less than the required 800 m in the

operative plan.²⁰ Given the safety and movements contexts described above, I do not recommend supporting a non-complying intersection location.

52 I therefore support the rezoning request providing an alternative ODP is prepared, which demonstrates:

52.1 Avoidance of any direct access to Tram Road

52.2 Provision for future east-west road connections

52.3 Inclusion of a connected internal road network, minimising use of private laneways (for reasons set out in paragraphs 16 to 19)

52.4 Future proof an active travel connection towards Swannanoa.

Tram Road / Two Chains Road, Block B, Swannanoa (Submission #8)

53 The ODP indicates 37 dwellings. Based on 8 – 10 vehicle movements per day per dwelling,²¹ the proposal could generate 296 - 370 vehicle movements per day, or approximately 30 - 40 vehicles per peak hour.

54 The background of my safety concerns identified within the Tram Road corridor is similar as for Block A, specified above in paragraphs 43-45.

55 Unlike Block A, Block B does not have access to an alternative road.

56 The Block B context is slightly different. Whilst the prevailing speed limit is 100 km/h, there is a school and preschool, and a School Speed

²⁰ WDC DP Chapter 30 (Utilities and Traffic Management), Table 30.7

²¹ NZTA, 2011, Research Report 453

Zone in place. (That is, like RIAWS, a lowered speed limit indicated on a digital sign, at the start and end of the school day).

- 57 The context of Tram Road at Block B (defined in part by the ONF, see paragraph 47), is slightly different to the frontage of Block A. There is potentially a higher 'place function' due to the presence of Swannanoa school, (with a roll of 289 students)²² and a pre-school. The development of Block B could further 'move the dial' towards favouring a more place-based intervention, such as a speed limit review. However, the school speed zone treatment may already constitute the appropriate response to the existing environment.
- 58 Whilst speed is associated with harm and severe outcomes in crashes, if properly managed it is also associated with mobility and access.
- 59 The primary role of Tram Road is in connecting distant communities, such as Oxford. Reductions in speed to accommodate developments should weigh up the 'costs' against the benefits of development. Whilst I have not done this in detail, 37 dwellings would not likely be of a scale to justify such a change, especially where alternative development sites are available, which would not require such changes on Tram Road to avoid effects, such as Block A.
- 60 Furthermore, the outcome of speed limit review would be ultra vires, relying on consultation with affected communities. A proposed reduction in speed at the location of Block B would not constitute extension of an existing speed management area, it would be in isolation.
- 61 If Block B were supported, it would require works to accommodate an intersection layout to accommodate separation of turning traffic from faster moving traffic, including a specification included in the operative

²² <https://ero.govt.nz/institution/3547/swannanoa-school>

District Plan²³. In the case of a 100 km/h road, the extent of design requirements may exceed the frontage, including the frontage of the Swannanoa School site.

- 62 The concept ODP also includes a layout which does not make allowances for future connections to neighbouring sites. Should neighbouring sites develop similar ODPs, the legacy will be a disconnected network.

145 – 167 Gladstone Road, Woodend (Submission #299)

- 63 The sites include a combined 22.72 ha (17.2 ha considering the Woodend Bypass designation), with an anticipated yield of 28 dwellings.

- 64 Based on 8 – 10 vehicle movements per day per dwelling,²⁴ the proposal could generate 224 - 280 vehicle movements per day, or approximately 23 - 30 vehicles per peak hour.

Capacity of Main North Road (SH1) and relevance of Woodend Bypass

- 65 My assessment of the current network in Woodend would indicate a lack of capacity for any further growth in traffic. This is based on more than 20,000 vpd²⁵ using Main North Road through Woodend. Additional traffic would turn onto Main North Road, through gaps in flow. The availability of suitable and safe gaps defines capacity for turning movements. At flow rates exceeding 20,000 vehicles per day, it is unlikely there would be any available capacity (assuming safe and appropriate gap selection).

²³ WDC DP Chapter 30 (Utilities and Traffic Management), Figure 30.7

²⁴ NZTA, 2011, Research Report 453

²⁵ Data supplied by WDC Transportation staff

66 The evidence of Mr Gallot (paragraph 13) states that Main North Road 'appears to be already operating at or above capacity during peak periods.' However, he concludes that the development traffic would be less than the existing fluctuations of flow on the route, and therefore could be acceptable.

67 I disagree with this on grounds that:

67.1 Fluctuation can be lower and higher, and therefore the overall outcome of adding development will be a net increase in traffic. There is no alternative route from Woodend.

67.2 There are specific safety impacts associated with gap selection on a route at capacity not taken into effect in Mr Gallot's assessment. Research²⁶ links the relationship between delay, gap acceptance and crash outcomes. Based on this research, the size of the gap accepted reduces after each 'rejected' gap. For right turn movements, whilst the safe gap is 7 seconds, the first accepted gap would be 6.25 seconds. After rejecting four gaps, the gap accepted was observed to be 2.25 seconds. This implies risk taking. For reference, using first principles, I estimate that the probability of a gap of 7 seconds under existing conditions on Main North Road would be 2% (1 in 50).

67.3 Mr Gallot has included a crash analysis of the Main North Road corridor through Woodend. It includes a period 2019 – 2023. Taking it at face value, there are 54 reported crashes in the period, of which approximately 30% result in injury, and includes 3 death or serious injury (DSI) crashes.

²⁶ Tupper et.al (2011); Connecting Gap Acceptance Behaviour with Crash Experience

67.4 Therefore, in my opinion there is not sufficient capacity on Main North Road to accommodate growth in traffic, without increasing crash risk.

68 The Woodend Bypass is predicted to transform the receiving environment. Mr Gallot includes information²⁷ from 2014 that the bypass would redirect '80% of the 14,000 vehicles that currently pass through the town each day.' Since 2014, traffic has increased significantly, including additional development within the town. From a cursory glance at the Canterbury traffic forecasting tool, which includes the bypass in a future year scenario, I would suggest the bypass will divert two thirds of traffic.

69 For completeness, to apply the same first principles method from paragraph 67.2, the probability of the same gap availability rises from 2% to 27%. Whilst this is not detailed modelling, it would correspond to a 'good' level of service, based on industry criteria.

70 Further, a possibility of reverse sensitivity in association with the Woodend Bypass has been assessed by an acoustic engineer, and the outcomes detailed in section 100 of Ms Brown's Planning evidence. This is a matter for the New Zealand Transport Agency to consider in its own submission.

Assessment of ODP and connectivity

71 Gladstone Road is identified as a collector road in the District Plan, between Main North Road and Copper Beech Road, located 250 m west of the approximate location of the site intersection identified on the ODP. West of Copper Beach Road, Gladstone Road facilitates a cross section suitable for supporting movement in a residential zone, including a shared path for pedestrians and cyclists. East of Gladstone

²⁷ Evidence of Mr Wayne Gallot, para 46

Road (in the vicinity of the site), the cross section immediately reverts to a rural context of 5.4 m sealed width and informal access for pedestrian and cyclists.

72 Mr Gallot sets out the existing environment in detail in paragraphs 20-26, which I agree with.

73 The proposed rezoning would change the use of land from a rural / rural lifestyle to a Large Lot Residential context, therefore changing the requirements of supporting infrastructure including the Gladstone Road connection. There are also future network changes anticipated but not considered by Mr Gallot. For example, the inclusion of a Gladstone Road overpass also allows the possibility of developing a future road connection to Pegasus, and the development of a 'Woodend North – South Collector Road' currently identified in the Long Term Plan, for 2034 implementation.

74 The concept ODP includes a single road running south from Gladstone Road. The alignment, if extended south beyond the site through a future development scenario, could eventually link up with Woodend Beach Road.

75 The intersection onto Gladstone Road is located approximately 250 m west of the proposed crest of the Woodend Bypass overpass. The facilitation of the overpass could constrain sight distance. However, I agree with Mr Gallot's assessment²⁸ that adequate sight distance would be available. However, I disagree with the adoption of an intersection design standard at this stage, including the 'simple T-intersection design' stipulated by Mr Gallot in paragraph 67, on grounds of possible future network changes (I mention in paragraph

²⁸ Evidence of Mr Wayne Gallot, para 66

73). The design standard of the intersection could be determined at a subsequent planning stage.

76 The ODP also indicates walking and cycling linkages with possible future connections to Copper Beech Road. The outcomes of connectivity to the west relies on the development of the parcels of land and continuation of these linkages.

77 The indication of a single road corridor suggests a network of cul-de-sac accessways facilitating property access. An alternative ODP outcome could include a connected road network, also providing a better level of service to future residents, as I have set out in paragraphs 16 through to 19.

CONCLUSION

78 For each of submission, I have identified specific effects to be avoided or mitigated. I therefore recommended:

25 Ashley Gorge Road and 650 Bay Road, Oxford (Submission #250)

79 For the submission relating to 25 Ashley Gorge Road and 650 Bay Road, Oxford, I support the proposed rezoning from a transportation perspective, but not on the basis of the ODP supplied.

80 In summary, reasons include a lack of connectivity with the township, and a lack of connectivity within the site, set out in paragraphs 18 – 28.

81 I recommend an alternative ODP is prepared to address:

81.1 Direct, multi modal connectivity between the site and Oxford town centre, noting the context of the proposal as a significant urban extension in the context of the town.

81.2 An internal layout which provides good levels of service and avoids over reliance on private accessways.

81.3 As part of a subsequent subdivisions consent process, a speed limit review on High Street – Ashley Gorge Road be investigated by a chartered Transport Engineer or Transport Planner, on behalf of the Developer, and recommendations made to the road controlling authority.

308 Cones Road and 90 Dixons Road, Ashley (Submission #158)

82 I recommend that the proposal could result in road safety effects, noting the cross section of Cones Road. These effects relate to the width of the sealed carriageway being 0.5 m narrower than the equivalent rural road standard.

83 The proposed LLRZ would change the operational context of the road, introducing more traffic (the equivalent of a 25% increase) and active travel demands.

84 In my opinion, effects relating to safety can be mitigated or avoided through changes to the cross section of the road, to facilitate the design outcomes anticipated by the operative plan.

85 I recommend that the submission request could be granted, on condition of a rule which requires upgrading of Cones Road.

Tram Road / Two Chains Road, Block A, Swannanoa (Submission #8)

86 My view is that the proposal could result in effects relating to safety, noting the specific safety context of Tram Road. My assessment is set out in paragraphs 41-51.

87 The Tram Road Route assessment (see paragraph 43) has identified specific hazards and risks in the Tram Road corridor relevant to

planning decisions. The network purpose of Tram Road is specifically to connect distant communities, and the programme of works funded through the LTP is to support this ongoing function with an expectation of continued growth on the corridor. The proposed Rural Intersection Advanced Warning Signage scheme at the Two Chain Road intersection is an example of how this is managed. It focusses on safety needs, in those moments of need, whilst retaining the primary operation of the corridor at other times.

88 In my opinion, development should respond to the specific needs of the corridor, such as the needs to minimise and better manage vehicle conflict points, and avoid outcomes which would undermine efforts to improve safety.

89 On this basis, I advise that Block A has an alternative network access onto Two Chain Road, avoiding the need to introduce further conflict points onto Tram Road.

90 Therefore, I recommend the introduction of a rule which would prohibit any vehicle access to Tram Road.

91 In redrafting the ODP, I would also recommend seeking an outcome which includes a connected internal road network.

Tram Road / Two Chain Road, Block B, Swannanoa (Submission #8)

92 The ODP provided does not make provision for any future network connection to surrounding sites. If neighbouring sites developed in the same way, the long-term legacy would be a disconnected network. Disconnected networks are associated with vehicle dependency, higher vehicle kilometres travelled (VKTs), and limited community cohesiveness.

93 The proposal also requires direct access to Tram Road. For reasons specified above (for Block A), direct access to Tram Road is an outcome which undermines efforts to improve safety.

94 I do not support the proposal. The site would be better considered within a wider ODP covering neighbouring sites, and with greater capacity to avoid and mitigate transport network effects.

145 – 167 Gladstone Road, Woodend (Submission #299)

95 Based on my assessment set out above, my opinion is that no further growth should be supported without the Woodend Bypass in place, due to a lack of capacity in the existing receiving network, and associated safety consequences.

96 There is a high degree of certainty that the Woodened Bypass is to proceed given the NZTA Waka Kotahi’s published funding priorities for Canterbury, placing it ‘first.’²⁹

97 The Woodend Bypass includes a Gladstone Road overpass, and therefore likelihood of a Gladstone Road connection with the Pegasus subdivision.

98 Based on these uncertainties, I recommend against adopting the Transportation Assessment recommendation of specifying a ‘basic T intersection’ to the site, noting that future flows passing the site may require a different design response. I recommend deferring assessment of intersection design to a subsequent planning stage.

99 I also note a service gap which would result on Gladstone Road, noting that the design of Gladstone Road (east of Copper Beech Road) is of a rural standard and not designed to accommodate residential outcomes,

²⁹ State Highway Investment Proposal 2024–34 (nzta.govt.nz)

such as demand for active travel. I recommend a rule requiring the development of Gladstone Road to the standard anticipated for a residential context,

100 The ODP includes potential future connections to Copper Beech Road, but for active travel modes only. I recommend seeking that one of these be a road connection.

101 In summary, I recommend the following rules or conditions in response to submission #299:

101.1 That approval be conditional on the implementation of the Woodend Bypass.

101.2 That Gladstone Road shall be upgraded between Copper Beech Road and the full extent of the site frontage, to include road design attributes identified in Table 30.1 of the Operative Plan (or equivalent rules in the revised District Plan).

101.3 That the ODP include future west-east road connections, serving future connections to Copper Beech Road.

Date: 18/04/2024



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