Before the Selwyn District Council

under: the Resource Management Act 1991

in the matter of: Proposed Private Plan Changes 81 and 82 to the Operative District Plan: Dunns Crossing Road, Rolleston

and: **Rolleston Industrial Developments Limited** and **Brookside Road Residential Limited**
Applicant

Statement of Evidence of Nicholas Fuller (Transport)

Dated: 26 August 2022

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STATEMENT OF EVIDENCE OF NICHOLAS FULLER

INTRODUCTION

1 My full name is Nicholas Peter Fuller.

2 I am a Senior Transport Engineer at Novo Group Limited and have worked on resource management transport planning and engineering projects for over 20 years. My experience during this time includes development planning, preparing Traffic and Transport Assessments for resource consents, preparation of Project Feasibility and Scheme Assessment Reports for Council's and the New Zealand Transport Agency.

3 My qualifications include a Bachelor of Engineering (Honours) in Civil Engineering.

4 I prepared the Integrated Transport Assessments (*ITA*) that were submitted as part of the Plan Change 81 and Plan Change 82 applications.

5 I am familiar with:

5.1 The plan change application by Rolleston Industrial Developments Limited to rezone approximately 28 hectares of rural land in Rolleston to Living MD (*PC81*); and

5.2 The plan change application by Brookside Road Residential Limited to rezone approximately 110 hectares of rural land in Rolleston to Living MD and Business 1 (*PC82*).

6 I refer to these together as the Proposed Plan Changes, and Rolleston Industrial Developments Limited and Brookside Road Residential Limited together as the Applicants.

7 The Proposed Plan Changes provide for a total of 1,670 residential sites plus two commercial sites located to the west of Dunns Crossing Road, west of Rolleston. This is illustrated in **Figure 1**, which includes other Plan Change sites in Rolleston for context.

Figure 1: Plan Change Site Locations
[Sourced from SDC website]

CODE OF CONDUCT

8 Although this is not an Environment Court hearing, I note that in preparing my evidence I have reviewed the Code of Conduct for Expert Witnesses contained in Part 7 of the Environment Court Practice Note 2014. I have complied with it in preparing my evidence. I confirm that the issues addressed in this statement of evidence are within my area of expertise, except where relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

9 My evidence will address the following:

9.1 Transport effects of the Proposed Plan Changes;

9.2 Development timing in relation to intersection upgrades;

9.3 Integration of the Proposed Plan Changes with the surrounding transport network;

9.4 Response to Submitters' concerns; and

9.5 Response to matters raised in Council's Section 42A reporting.

SUMMARY OF EVIDENCE

10 As a summary of my evidence:

10.1 I consider that the transport effects of the Proposed Plan Changes on the transport network will be acceptable, subject to the construction of intersection upgrades and the deferral rules proposed within the Outline Development Plans (ODPs) that limit the amount of development that could occur prior to the critical upgrades being completed;

10.2 Traffic modelling is inconclusive regarding the operation of the SH1 / Dunns Crossing Road intersection with the traffic generated by the Proposed Plan Changes. The modelling indicates that this intersection may be operating over-capacity on the Dunns Crossing Road approach in the AM peak hour. However, I consider this to be typical of urban road networks at peak times and therefore acceptable;

10.3 Furthermore, I consider there is potential that the traffic modelling may be overly robust as the traffic generation rate (particularly in the AM peak) is higher than survey data I have for residential sites in Selwyn. I also anticipate there may be a shift towards living and working in Rolleston, as well as home working that would also reduce traffic generation from residential activities;

10.4 The Proposed Plan Changes have the ability to integrate with extended passenger transport services, should Environment Canterbury choose to do so; and

10.5 The internal transport network and external upgrades provide the ability to accommodate walking and cycling within the site and on the wider network.

11 Accounting for the above, I conclude the Proposed Plan Changes are acceptable from a transport perspective. I note that Council's transport reviewer also considers the effects of the Plan Changes to be acceptable.

TRANSPORT ENVIRONMENT

Existing Environment
Road Network

12 The road hierarchy in the vicinity of the Proposed Plan Changes is illustrated in **Figure 2**.

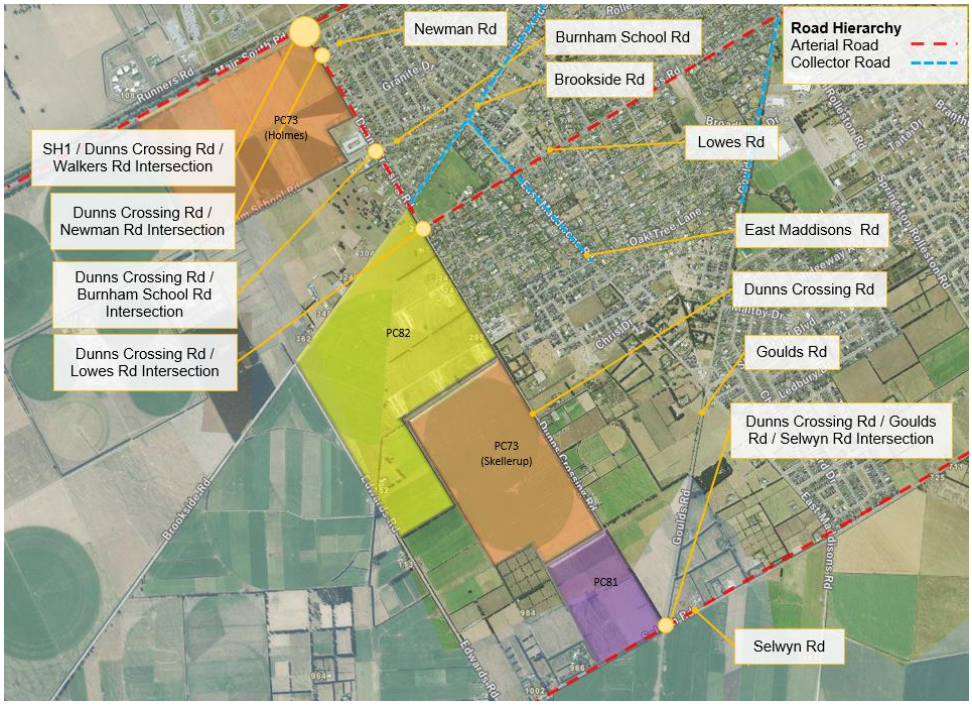

Figure 2: Existing Road Hierarchy

13 The application sites will take access from Dunns Crossing Road. This road is currently classified as an Arterial Road between Lowes Road and State Highway 1 (*SH1*), although this downgrades to a *Local Road* south of Lowes Road. It is understood that Dunns Crossing Road forms part of a wider Arterial route and the full length of this road is proposed to be reclassified as an Arterial Road under the Proposed District Plan.

14 SH1 is also classified as an Arterial Road. The SH1 / Dunns Crossing Road / Walkers Road intersection is a priority controlled cross-road that is currently operating poorly in terms of traffic capacity and safety.

15 Newman Road, Granite Drive and Burnham School Road are all *Local Roads* that have a focus on providing property access. Brookside Road (east of Dunns Crossing Road) is a *Collector Road*, which has the function of balancing property access with accommodating through traffic.

16 Lowes Road is classified as an Arterial Road. This road provides an east-west connection through Rolleston between Dunns Crossing Road and Weedons Ross Road.

17 Selwyn Road is an Arterial Road that provides an east-west connection at the southern boundary of Rolleston. This road has an intersection with Goulds Road in close proximity to the Dunns

Crossing Road / Goulds Road intersection, which will connect the future Arterial route around Rolleston.

18 Brookside Road (west of Dunns Crossing Road) and Edwards Road are both *Local Roads*. Whilst Brookside Road is sealed, Edwards Road is an unsealed road that runs between Brookside Road and Ellesmere Junction Road / Selwyn Road.

Passenger Transport

19 Route 5 currently turns at Lowes Road / East Maddisons Road, as illustrated in **Figure 3**. This brings the service to the boundary of the PC82 site. This service travels from Rolleston to Christchurch City and to New Brighton every 30 minutes on weekdays and weekends.

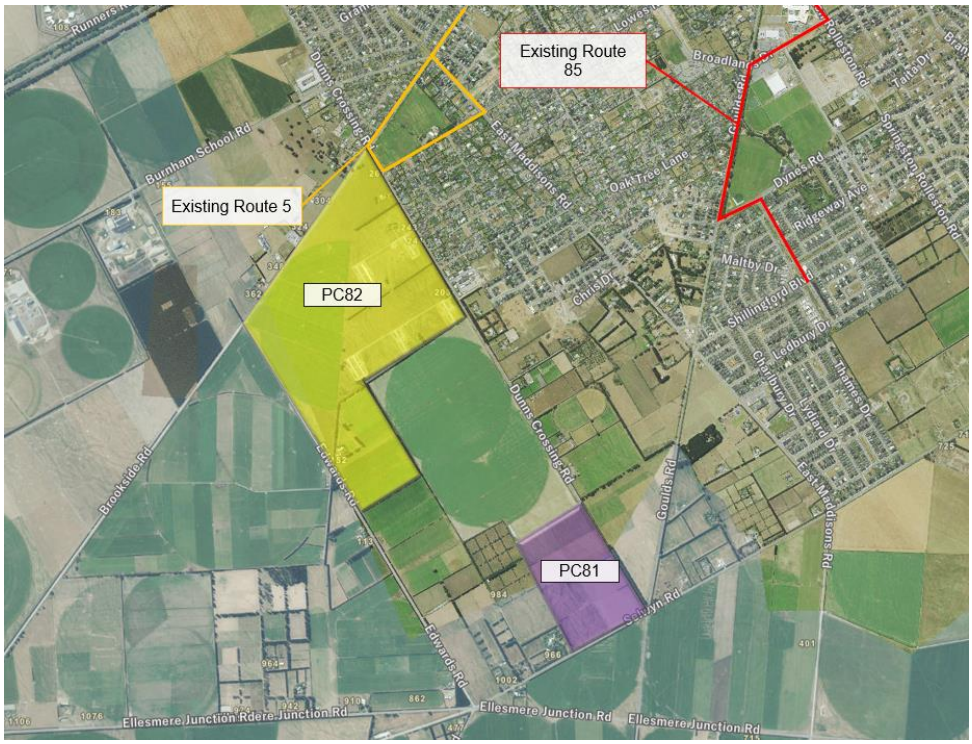

Figure 3: Existing Bus Routes

20 **Figure 3** also illustrates the route travelled by the Route 85 bus service, which currently starts and ends in the Faringdon subdivision. This service travels between Rolleston and Christchurch City and is an express service designed to get residents quickly between the two locations in the AM and PM peak periods, with three services in a one-hour period in both peaks.

Future Environment

Waka Kotahi Rolleston Upgrades

21 Waka Kotahi are undertaking a programme of transport improvement projects in Rolleston, as illustrated in **Figure 4**. These

works are funded under the New Zealand Upgrade Programme (*NZUP*) and has led to the funding of these works, in conjunction with Selwyn District Council (*SDC*) and KiwiRail. Broadly, the package includes the following:

21.1 A fly-over (of SH1 and the rail line) from Rolleston Drive to Jones Road. The fly-over will include pedestrian and cycle facilities; and

21.2 A new roundabout at the SH1 / Dunns Crossing Road / Walkers Road intersection (see **Figure 5**). Discussions with Waka Kotahi have indicated this will be complete in 2024.

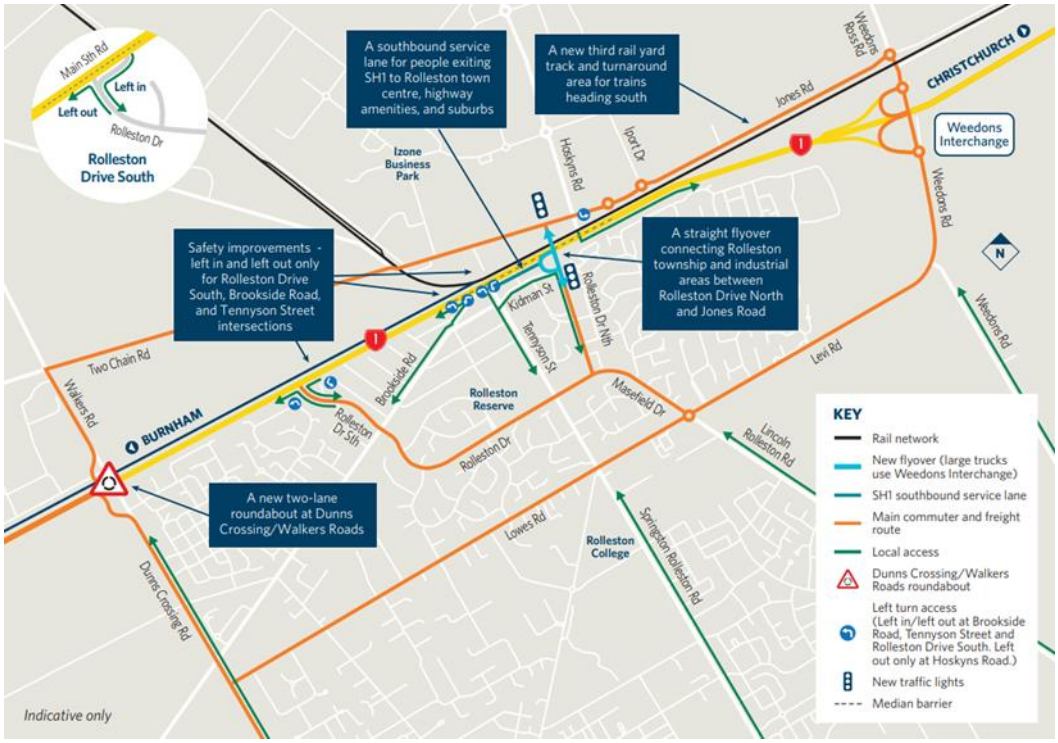

Figure 4*: Rolleston Transport Improvements*

[Sourced from Waka Kotahi Consultation Material]

Figure 5: SH1 / Dunns Crossing Road / Walkers Road Improvements

[Sourced from Waka Kotahi Consultation Material]

Selwyn District Council Long Term Plan

22 The following projects are listed in the Selwyn District Long Term Plan for the upcoming ten-year period and beyond:

22.1 Brookside Road seal extension from Edwards Road to Burnham Road (2030 / 2031);

22.2 Goulds Road / East Maddisons Road roundabout (2029 / 2030);

22.3 Burnham School Road / Dunns Crossing Road traffic signals (2032 / 2033); and

22.4 Lowes Road / Dunns Crossing Road roundabout (2035 / 2036).

Transport Improvements Summary

23 The above transport improvements indicate that significant planning is already in progress within Rolleston to upgrade the road network. These upgrades are planned and funded.

THE PROPOSED PLAN CHANGE AREAS

Plan Change 81

24 PC81 facilitates up to 350 residential lots and would have a peak hour traffic generation of approximately 315 vehicle movements per hour and a daily generation of 2,870 vehicles. The ODP has been amended to accommodate feedback in Council's Section 42A report and illustrates (a copy is included in the evidence of Mr Compton-Moen):

24.1 Primary road connections to Dunns Crossing Road and Selwyn Road;

24.2 A primary road linkage to the north (to connect with the Skellerup block of PC73);

24.3 Indicative pedestrian and cycle links;

24.4 Road frontage upgrades;

24.5 An area of land set aside for the upgrade of Selwyn Road / Goulds Road intersection to a roundabout; and

24.6 An urban / rural gateway on Selwyn Road at the western end of the Plan Change site.

25 **Table 1** sets out the timing of development at the Plan Change 81 site relative to the provision of transport infrastructure. This has also been updated since the Applications were notified to account for Council's Section 42A report recommendations.

26 Given the assessment has been undertaken on the basis of 350 residential dwellings at this site, a Rule is proposed in the ODP text requires an Integrated Transport Assessment to be prepared to confirm that the traffic effects are acceptable if this number is exceeded.

Table 1: Plan Change 81 Transport Network Upgrades

Upgrade Required	Timing	Anticipated Funding Mechanism
SH1 / Dunns Crossing Rd / Walkers Rd Intersection works commence.	Prior to earthworks commencing in the ODP areas.	Works already funded by Waka Kotahi.
Dunns Crossing Rd / Burnham School Rd Traffic Signals	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	Developer agreement (as in the LTP for 2032/2033 and also required for Plan Change 73).
Dunns Crossing Rd / Lowes Rd	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	To be delivered by PC82 or brought forward by developer agreements noting it is in the LTP for 2035/2036.
Goulds Rd / Dunns Crossing Rd / Selwyn Rd Upgrade	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	Developer agreement as also required for Plan Change 70.
Road Frontage Upgrades (including gateway thresholds)	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	Developer constructed.

Plan Change 82

27 PC82 provides for up to 1,320 residential lots, which are anticipated to generate 1,188 vehicle movements per hour in the peaks and 10,824 vehicle movements per day. In addition, two local commercial zones are proposed.

28 The ODP for this land has been updated to account for Council's Section 42A recommendations and illustrates the following (refer to the evidence of Mr Compton-Moen for a copy of the ODP):

28.1 A primary road east-west connection between Dunns Crossing Road and Edwards Road;

28.2 A primary north-south connection between Brookside Road and land to the south (PC73);

28.3 An upgrade requirement for the Dunns Crossing Road / Lowes Road intersection, including a fourth arm / extension of Lowes Road to the west;

28.4 Road frontage upgrades to Dunns Crossing Road, Brookside Road and Edwards Road. The Edwards Road upgrade would extend from Brookside Road to Selwyn Road;

28.5 Indicative internal pedestrian / cycle network and indicative pedestrian crossing points of Lowes Road and Dunns Crossing Road;

28.6 An urban / rural gateway on Brookside Road at the western end of the Plan Change site; and

28.7 An urban / rural gateway on Edwards Road at the southern end of the Plan Change site.

29 **Table 2** sets out the timing of development at the Plan Change 82 site relative to the provision of transport infrastructure (again updated to reflect the Council's Section 42A recommendations).

30 Given the assessment has been undertaken on the basis of 1,320 residential dwellings at this site, a Rule is proposed in the ODP text requires an Integrated Transport Assessment to be prepared to confirm that the traffic effects are acceptable if this number is exceeded.

Table 2: Plan Change 82 Transport Network Upgrades

Upgrade Required	Timing	Anticipated Funding Mechanism
SH1 / Dunns Crossing Rd / Walkers Rd Intersection works commence.	Prior to earthworks commencing in the ODP area.	Works already funded by Waka Kotahi.
Dunns Crossing Rd / Burnham School Rd Traffic Signals	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	Developer agreement (as in the LTP for 2032/2033 and also required for Plan Change 73).
Dunns Crossing Rd / Lowes Rd	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	To be delivered by PC82 or brought forward by developer agreements noting it is in the LTP for 2035/2036.
Goulds Rd / Dunns Crossing Rd / Selwyn Rd Upgrade	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	Developer agreement as also required for Plan Change 70.
Road Frontage Upgrades (including gateway thresholds)	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	Developer constructed.
Realignment of Brookside Rd at Dunns Crossing Rd.	Prior to issue of a completion certificate shall be issued under section 224 of the Act (other than for a boundary adjustment or creation of an allotment solely for utility purposes) in the ODP area.	Developer constructed.
Road upgrade to Edwards Rd (Brookside Rd to Selwyn Rd).	Prior to establishment of any vehicle crossing, access or road connection to Edwards Road or Brookside Road from the ODP area.	Developer constructed.
Edwards Rd / Ellesmere Junction Rd Intersection Upgrade	Prior to establishment of any vehicle crossing, access or road connection to Edwards Road or Brookside Road from the ODP area.	Developer constructed.

ASSESSMENT OF EFFECTS

31 The traffic effects of the Proposed Plan Changes have been assessed using the 2033 Rolleston Micro-Simulation Traffic model made available by the Council. That model was run by Abley (as outlined in the evidence of Mr Blackmore) and is understood to include all proposed plan changes in Rolleston, including PC81 and 82 (as well as Plan Change 73). Although I understand the base model is considered to represent a future year of 2033, the inclusion of the Rolleston Plan Changes (including Plan Changes 81 and 82) leads to the future year represented in the model being beyond 2033, although I am not qualified to estimate what year may reasonably be represented. I do note that the Waka Kotahi submission on Plan Change 80 stated that *the applicant's PC80 modelling is showing more 2033 base traffic than in the Waka Kotahi NZUP 2038*. The Applicants model included Rolleston Plan Changes up to Plan Change 80[1], so it could be assumed that the basis of traffic modelling for Plan Changes 81 and 82 is beyond 2038.

32 The model includes the roading connections proposed within these Plan Changes. The most recent set of model results (as contained in the evidence of Mr Blackmore) also includes the following intersection assumptions regarding the upgrade of the transport infrastructure in Rolleston (in close proximity to the Plan Change sites):

32.1 SH1 corridor improvements consistent with Waka Kotahi consultation material dated June 2022. This includes a dual-lane roundabout at SH1 / Dunns Crossing Road and a left in / left out intersection at Rolleston Drive (south);

32.2 Dunns Crossing Road / Selwyn Road (upgraded so that Dunns Crossing Road meets Selwyn Road at a roundabout with Goulds Road meeting Dunns Crossing Road at a T-intersection);

32.3 Dunns Crossing Road / Lowes Road (three-leg roundabout in the base model upgraded to a dual land four-leg roundabout with the Plan Changes);

32.4 Dunns Crossing Road / Granite Drive is traffic signal controlled; and

32.5 Dunns Crossing Road / Burnham School Road (upgraded to traffic signals).

33 The outcome of the traffic modelling is that the road network is generally predicted to operate satisfactorily within the Proposed Plan

[1] Plan Changes 64, 66, 70, 71, 73, 75, 76 and 78.

Changes included. The exception to this is the Dunns Crossing Road approach to SH1 during the morning peak and the consequential effects on the Dunns Crossing Road intersection with Newman Road. The traffic modelling predicts that the Dunns Crossing Road approach to SH1 will operate at Level of Service F[2] and with average delays of 97 seconds.

34 Accounting for this output in the traffic model, I have subsequently created an intersection model of the proposed SH1 / Dunns Crossing Road intersection that uses the proposed layout as tabled by Waka Kotahi in the Plan Change 73 Hearing (a more detailed version than the schematic plan in **Figure 5**). Contrary to the results of the Micro-Simulation Traffic model, this intersection model indicates that the proposed roundabout can satisfactorily accommodate the predicted traffic volumes. The outputs of this modelling are included in **Appendix 1**. As such, the operation of this intersection may be better than predicted by the Micro-Simulation Traffic model.

35 On the worst-case basis of the Micro-Simulation Traffic model being correct, I consider that the operation of the SH1 / Dunns Crossing Road intersection is acceptable given the issues are related to peak periods and the modelling represents a year that appears to be beyond 15 years in the future (a view shared by Mr Blackmore). I also note that the methodology of measuring delay is not solely attributed to queuing, but is a comparison between free flow conditions (including time taken on preceding links) and the time take to travel the same route on the more congested network with the background plus Plan Change traffic. This means that an element of delay is associated with a reduction in vehicle speeds from free flow conditions, without vehicles being stopped.

36 In my experience, the level of congestion predicted to occur at this intersection is consistent with that of other urban locations during peak periods. This is something that becomes tolerated by drivers. The proposed roundabout at this location also provides a safer arrangement than other intersection forms (such as the existing cross-roads) and this reduces the potential effects that driver frustration has on road safety.

37 I consider that the operation of the Dunns Crossing Road / Newman Road intersection will also be acceptable. The traffic modelling indicates that the delay at this location is anticipated to increase as a result of the Plan Changes, although a level of congestion is to be expected during peak periods. There are also alternate routes these vehicles could take to avoid the delays.

[2] Where Level of Service A is considered excellent operation, Level of Service E is approaching capacity and Level of Service F is over-capacity.

38 Further to the above, I consider there is potential that the traffic modelling may have overstated the traffic generation assumed with the residential Plan Change sites. This is because:

38.1 A peak hour traffic generation rate of 0.9 vehicles per dwelling has been adopted for all residential Plan Changes in Rolleston (approximately 7,379 dwellings), whereas lower rates have been observed elsewhere in Selwyn. Notably, AM peak hour traffic generation rates of 0.6 vehicles per dwelling and 0.76 vehicles per dwelling have been counted in Lincoln and West Melton respectively (this being a change of 16-33%);

38.2 The expansion of employment areas to the north of SH1 will provide further opportunities for Rolleston residents to live closer to where they work, internalising more traffic within Rolleston and reducing trips into / out of the area; and

38.3 Work-from-Home practices may become more accepted (including working from home on occasional days rather than permanently) thereby reducing traffic volumes[3].

39 Whilst I cannot quantify the effect of the above, these indicate that the traffic effects of the proposed residential Plan Changes (extending beyond solely Plan Changes 81 and 82) may be less than currently predicted.

40 Furthermore, additional modelling has been undertaken of potential solutions to provide additional capacity at the SH1 / Dunns Crossing Road intersection (as set out in the evidence of Mr Blackmore). This includes:

40.1 Inclusion of an additional SH1 roundabout at SH1 / Rolleston Drive south to provide an additional access to / from the State highway and reduce reliance on the Dunns Crossing Road roundabout; and

40.2 Traffic signals at the SH1 / Dunns Crossing Road intersection.

41 Whilst I understand that Waka Kotahi are not currently amenable to these options, they remain potential solutions to provide additional capacity should the need arise upon completion of the Plan Changes sought in Rolleston.

42 Overall, I consider that the operation of the road network will be acceptable with the inclusion of these Plan Changes based on the traffic modelling and further consider there is potential that the effects may be overstated. There are also potential capacity

[3] As noted in the evidence of Mr Farrelly at [99].

solutions available should Waka Kotahi change their position on these upgrades should the need arise in the future.

Alternate Transport Modes

Passenger Transport

43 With regards to passenger transport, I acknowledge that the existing passenger transport network does not serve the Proposed Plan Changes, although this is to be expected because there is no development at present.

44 **Figure 3** illustrated the route travelled by existing bus services in the vicinity of the sites (Routes 5 and 85). **Figure 6** illustrates how these bus routes could be extended to service the sites. However, the provision of passenger transport services is ultimately a matter for Environment Canterbury to address (as bus service providers) and is outside of the scope of any resource consent / Plan Change process.

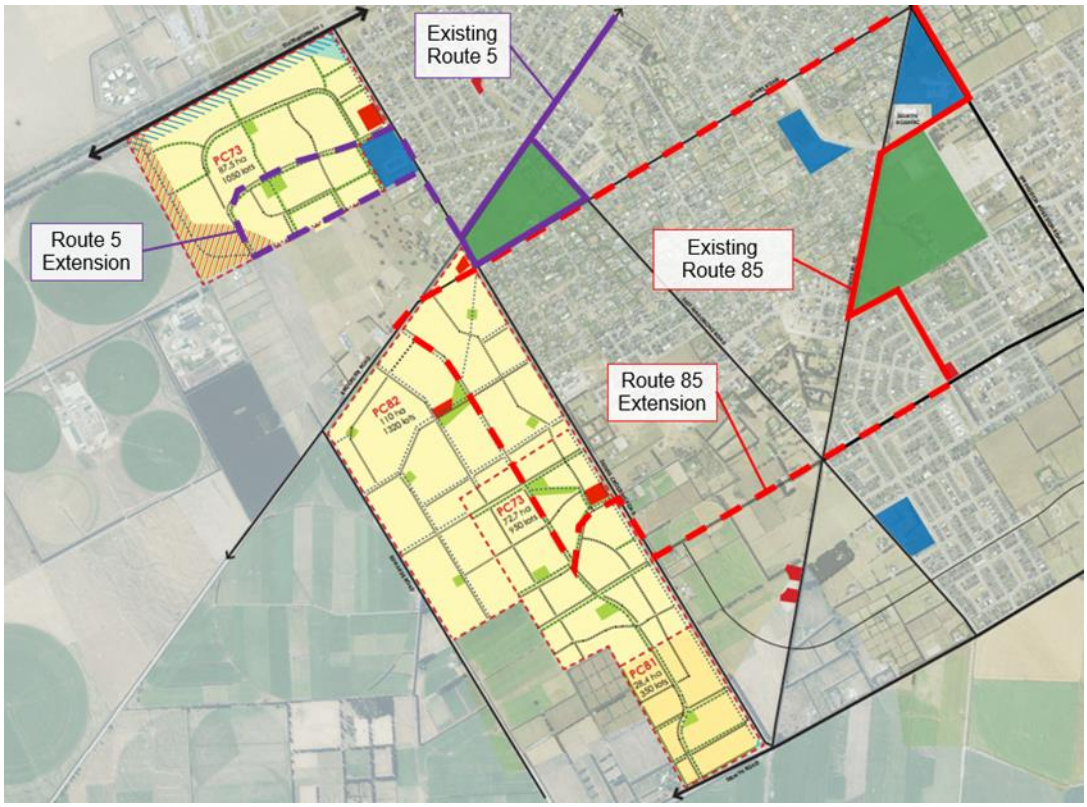

Figure 6: Potential Future Bus Routes

45 I consider that the Proposed Plan Changes have the potential to accommodate passenger transport should Environment Canterbury choose to do so. As such, it is my opinion that the sites are appropriate in this regard.

Walking & Cycling

46 The sites include Local Commercial Centres that will accommodate the day-to-day shopping needs of the residents, as well as residents in the surrounding existing residential areas. The internal transport networks include dedicated pedestrian and cycle networks (as well as the connections provided through the internal roading) to safely link residents to these commercial facilities.

47 In a wider context, the Proposed Plan Changes propose upgrading the frontages to Dunns Crossing Road (and Burnham School Road) to provide a walking and cycling link to SH1, where Waka Kotahi are understood to be investigating a link across the State Highway to / from Walkers Road. Pedestrian crossing points are also proposed for Dunns Crossing Road and the traffic signals at Granite Drive and Burnham School Road will further add to safe pedestrian crossing opportunities.

48 Given the above, I consider that the Proposed Plan Changes satisfactorily facilitate walking and cycling.

Site Access Intersections

49 The site access intersections have been included in the modelling of the Rolleston traffic network. This indicates that the proposed accesses are able to accommodate the predicted traffic volumes.

50 The design of these access intersections can be undertaken at subdivision stage, which will include a Road Safety Audit to confirm that the arrangement will operate safely.

51 Overall, I consider that safe and efficient site access arrangements can be provided for the Proposed Plan Changes.

Internal Transport Networks

52 Internal roading arrangements will be designed at the time of subdivision and will need to be confirmed as safe and efficient at that point (through separate assessments and Road Safety Audit processes). The ODPs require a multi-modal approach to considering transport within the subdivision, with pedestrians and cyclists being accommodated within the road corridor as well as in the dedicated pedestrian / cycle links.

53 Passenger transport will also be provided for in the design of the Primary Road network and at the accesses.

54 In brief, I consider the internal transport network can be designed to be safe and efficient (whilst accommodating walking, cycling and passenger transport) at the subdivision stage and that this is appropriate.

RESPONSE TO SUBMISSIONS

55 The following provides a response to the transport related submissions, grouping these together where possible.

SH1 / Dunns Crossing Road Capacity

56 This intersection is programmed by Waka Kotahi for a significant (roundabout) upgrade which is understood to be complete in 2024.

57 I have considered the operation of the SH1 / Dunns Crossing Road intersection in paragraph 33. I consider that the operation of this intersection will be acceptable at peak times as it will be similar to the operation of other urban locations in peak periods. I also consider there is potential that the roundabout will operate better than has been modelled for a range of factors.

58 Overall, I am satisfied that the operation of the SH1 / Dunns Crossing Road intersection will be acceptable.

Timing of Development Relative to Infrastructure Provision

59 Several submissions sought that development of these Plan Change sites be deferred until transport upgrades have been completed in the surrounding area. Provisions are included in the ODP text for both sites that ensures key elements of transport infrastructure are in place prior to development occurring.

60 I note that the funding of these upgrades is either in place (such as being funded by Waka Kotahi through NZUP), is wholly funded by the developer or is in the LTP and can be brought forward through developer agreement. I consider this addresses the concerns raised in these submissions.

Lower Speed Limits

61 Several submissions sought lower speed limits on the surrounding network to improve road safety. The urbanisation of the area is anticipated to lead to a consistent speed limit to provide a safe environment, particularly with the increase in accesses and intersections through development of adjacent land. This urbanisation will also encourage vehicles to travel more slowly along Dunns Crossing Road as the road will no longer be a peri-urban environment and the development (plus accesses) will provide a visual cue to slow drivers. That said, the setting of speed limits is a Council matter and is outside the scope of this Plan Change application.

Passenger Transport Accessibility

62 Submissions have identified that the Plan Change sites are not currently well served by passenger transport. I agree with this, although (as set out at paragraph 43) existing bus routes could be

extended to service the sites and this need not affect the level of service elsewhere.

63 These changes are a matter for Environment Canterbury to address (as bus service providers) and is outside of the scope of any resource consent / Plan Change process.

Multi-Modal Opportunities

64 The Waka Kotahi submission recommended that multi-modal transport opportunities be further considered. I have discussed access to passenger transport above, so the remaining modes are walking and cycling.

65 The ODPs provide for an integrated walking and cycling network, which includes dedicated links beyond those provided as part of the road network. These links have been aligned between the two Plan Change sites, as well as with Plan Change 73 (also to the west of Dunns Crossing Road). This will provide for convenient walking and cycling within these new development areas also noting that the PC82 site provides Local Commercial centres that will be able to accommodate day to day retail trips by walking and cycling.

66 The ODPs also require provision of pedestrian and cycle facilities on the frontage roads of Dunns Crossing Road, Edwards Road and Brookside Road. Pedestrian crossing facilities are identified for Dunns Crossing Road and Brookside Road. These will be supported by pedestrian crossing facilities at the proposed Dunns Crossing Road / Burnham School Road signalised intersection.

Safety Effects at Schools

67 This submission seeks an assessment of safety effects on schools in Rolleston. I note that the majority of schools identified in the submission are some distance from the Plan Change sites and I consider that traffic would have dispersed to the extent it would not have a noticeable effect at these locations.

68 The West Rolleston Primary School is in close proximity to the PC82 site. That said, the PC82 traffic is only predicted to represent 3.1% of traffic passing through the Burnham School Road / Dunns Crossing Road intersection. The PC81 traffic is predicted to represent only 0.5% of traffic passing through that intersection[4]. I do not consider these increases to be significant.

69 I consider that the urbanisation of the surrounding area will likely lead to lower speed limits and therefore improve road safety. I also consider that the proposed traffic signals at the Dunns Crossing Road / Burnham School Road intersection will provide safe crossing opportunities for pedestrians and primary school aged pupils, as

[4] From Table 3 of the Transportation Hearing Report.

would the proposed traffic signals at Dunns Crossing Road / Granite Drive (as part of Plan Change 73 and is required prior to the development of PC81 and PC82).

70 The road frontage upgrades and intersections designs will be subject to a Road Safety Audit, which will specifically include consideration of the effects of school travel by all modes. As such, the design of the road network will incorporate further consideration of safety when developing the designs for this area.

Sealing of Edwards Road & Access to Brookside Drive

71 A submission sought that Edwards Road be sealed prior to development occurring and that all access be taken from a single access to Brookside Drive.

72 It is proposed to seal Edwards Road prior to establishing connections to either Brookside Road or Edwards Road that would increase volumes on this link. As such, this matter has been addressed.

73 This submission does not elaborate on why sole access should be provided to Brookside Road. However, I consider this would lead to poor connectivity and the proposed arrangements (with associated upgrades) will satisfactorily accommodate the predicted development traffic.

Effects of Burnham Military Camp

74 This submission sought that an assessment of the transport effects of the Plan Change be provided in the vicinity of the Burnham Military Camp. This site is approximately 3.4km south-west of Dunns Crossing Road on State Highway 1.

75 The majority of Plan Change traffic is not anticipated to head south on State Highway 1 during the peak hours. I have compared the output of the PC82 traffic models, which indicate an increase in volumes on State Highway 1 to the south-west of Dunns Crossing Road of 30 to 50 vehicles per hour in the peak hours. I consider this to be a low increase that would not be expected to adversely affect the operation of the SH1 / Burnham Road intersection.

RESPONSE TO OFFICER'S REPORT

76 I have reviewed Council's *Transportation Hearing Report* and I am in agreement with the recommendations provided. I note that the recommended amendments to the ODPs have been adopted, as included in the evidence of Mr Compton-Moen. These amendments include:

76.1 Adding rural / urban gateways to Selwyn Road, Brookside Road and Edwards Road;

76.2 Including pedestrian and cycle facilities on the site frontages to Selwyn Road, Brookside Road and Edwards Road; and

76.3 Extending the secondary north-south link in PC81 to meet the southern east-west primary road.

77 Further to the above, the recommendation made with regards to earthworks not occurring at the Plan Change sites until the State Highway 1 / Dunns Crossing Road intersection is upgraded has been adopted in the revised Transport Network Upgrades table of the ODP text (refer to **Table 1** and **Table 2** of this evidence).

CONCLUSION

78 Given the above, I consider that the transport effects of the Proposed Plan Changes will be acceptable.

Dated: 26 August 2022

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Nicholas Fuller

APPENDIX 1

MOVEMENT SUMMARY

Site: 101 [SH1 / Dunns Crossing / Walkers - 2033 AM (Site Folder: SH1 / Dunns / Walkers)]

Waka Kotahi Concept
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Dunns Crossing Rd														
1	L2	75	10.0	79	10.0	0.297	6.6	LOS A	1.4	10.4	0.65	0.61	0.65	53.4
2	T1	194	10.0	204	10.0	0.691	5.3	LOS A	5.7	43.5	0.70	0.77	0.81	47.9
3	R2	559	10.0	588	10.0	0.691	12.9	LOS B	5.7	43.5	0.78	1.02	1.06	50.4
Approach		828	10.0	872	10.0	0.691	10.5	LOS B	5.7	43.5	0.75	0.92	0.96	50.1
East: SH1 East														
4	L2	91	10.0	96	10.0	0.455	7.6	LOS A	3.0	22.6	0.62	0.60	0.62	55.2
5	T1	731	10.0	769	10.0	0.496	7.7	LOS A	3.5	26.9	0.62	0.61	0.62	65.1
6	R2	157	10.0	165	10.0	0.496	14.7	LOS B	3.5	26.9	0.63	0.62	0.63	58.6
Approach		979	10.0	1031	10.0	0.496	8.8	LOS A	3.5	26.9	0.62	0.61	0.62	62.9
North: Walkers Rd														
7	L2	26	10.0	27	10.0	0.081	13.6	LOS B	0.4	3.0	0.79	0.83	0.79	49.6
8	T1	88	10.0	93	10.0	0.211	7.4	LOS A	1.3	9.6	0.84	0.86	0.84	47.7
9	R2	23	10.0	24	10.0	0.211	13.8	LOS B	1.3	9.6	0.84	0.86	0.84	53.0
Approach		137	10.0	144	10.0	0.211	9.7	LOS A	1.3	9.6	0.83	0.86	0.83	48.9
West: SH1 West														
10	L2	139	10.0	146	10.0	0.605	15.5	LOS B	4.9	37.0	0.90	1.04	1.21	51.0
11	T1	416	10.0	438	10.0	0.659	16.1	LOS B	6.4	48.3	0.92	1.07	1.27	58.7
12	R2	214	10.0	225	10.0	0.659	22.2	LOS C	6.4	48.3	0.94	1.09	1.31	53.1
Approach		769	10.0	809	10.0	0.659	17.7	LOS B	6.4	48.3	0.92	1.07	1.27	55.6
All Vehicles		2713	10.0	2856	10.0	0.691	11.9	LOS B	6.4	48.3	0.76	0.85	0.92	55.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [SH1 / Dunns Crossing / Walkers - 2033 PM (Site Folder: SH1 / Dunns / Walkers)]

Waka Kotahi Concept
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Dunns Crossing Rd														
1	L2	89	10.0	94	10.0	0.279	11.3	LOS B	1.8	13.5	0.84	0.85	0.84	51.3
2	T1	149	10.0	157	10.0	0.648	11.4	LOS B	6.8	51.5	0.95	1.07	1.20	44.1
3	R2	254	10.0	267	10.0	0.648	19.0	LOS B	6.8	51.5	0.97	1.11	1.28	47.6
Approach		492	10.0	518	10.0	0.648	15.3	LOS B	6.8	51.5	0.94	1.05	1.17	47.0
East: SH1 East														
4	L2	649	10.0	683	10.0	0.831	18.9	LOS B	12.5	95.2	0.99	1.18	1.61	48.9
5	T1	773	10.0	814	10.0	0.906	21.5	LOS C	20.3	154.1	1.00	1.28	1.97	54.1
6	R2	100	10.0	105	10.0	0.906	29.2	LOS C	20.3	154.1	1.00	1.28	1.97	50.0
Approach		1522	10.0	1602	10.0	0.906	20.9	LOS C	20.3	154.1	0.99	1.24	1.81	51.6
North: Walkers Rd														
7	L2	51	10.0	54	10.0	0.134	9.4	LOS A	0.6	4.4	0.72	0.79	0.72	51.5
8	T1	246	10.0	259	10.0	0.465	7.4	LOS A	3.0	22.6	0.82	0.84	0.95	48.0
9	R2	57	10.0	60	10.0	0.465	12.8	LOS B	3.0	22.6	0.82	0.84	0.95	53.4
Approach		354	10.0	373	10.0	0.465	8.6	LOS A	3.0	22.6	0.80	0.84	0.92	49.3
West: SH1 West														
10	L2	78	10.0	82	10.0	0.462	9.2	LOS A	3.1	23.5	0.73	0.74	0.78	54.6
11	T1	499	10.0	525	10.0	0.504	9.5	LOS A	3.7	28.4	0.74	0.76	0.80	63.7
12	R2	220	10.0	232	10.0	0.504	16.2	LOS B	3.7	28.4	0.75	0.79	0.81	56.8
Approach		797	10.0	839	10.0	0.504	11.3	LOS B	3.7	28.4	0.74	0.77	0.80	60.7
All Vehicles		3165	10.0	3332	10.0	0.906	16.2	LOS B	20.3	154.1	0.90	1.05	1.36	52.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.