Before the Selwyn District Council

under: the Resource Management Act 1991

in the matter of: Proposed Private Plan Change 80 to the Operative District Plan

and: **Two Chain Road Limited**
Applicant

Evidence of Nick Fuller (transport)

Dated: 5 October 2022

Reference: JM Appleyard (jo.appleyard@chapmantripp.com)
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EVIDENCE OF NICK FULLER

INTRODUCTION

1 My full name is Nicholas Peter Fuller.

2 I am a Principal 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. I have prepared Integrated Transport Assessments for a range of activities and Plan Change requests. This specifically includes several Plan Change requests in Rolleston.

4 I am familiar with private plan change 80 (*PC80*). I prepared the Integrated Transport Assessment attached to the application.

CODE OF CONDUCT

5 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

6 My evidence relates to:

6.1 Transport effects of PC80;

6.2 Development timing in relation to transport infrastructure upgrades; and

6.3 Integration of the Plan Change with the surrounding transport network.

Figure 1: Site Location

7 In preparing my evidence, I have primarily relied upon the Integrated Transport Assessment (and subsequent Request for Further Information response) prepared for PC80. I have also relied upon traffic modelling undertaken by Abley Ltd for the Hearing associated with Plan Changes 81 and 82, which incorporates the traffic generation associated with the other Plan Change applications in Rolleston including PC80. This wider context is illustrated in **Figure 2**.

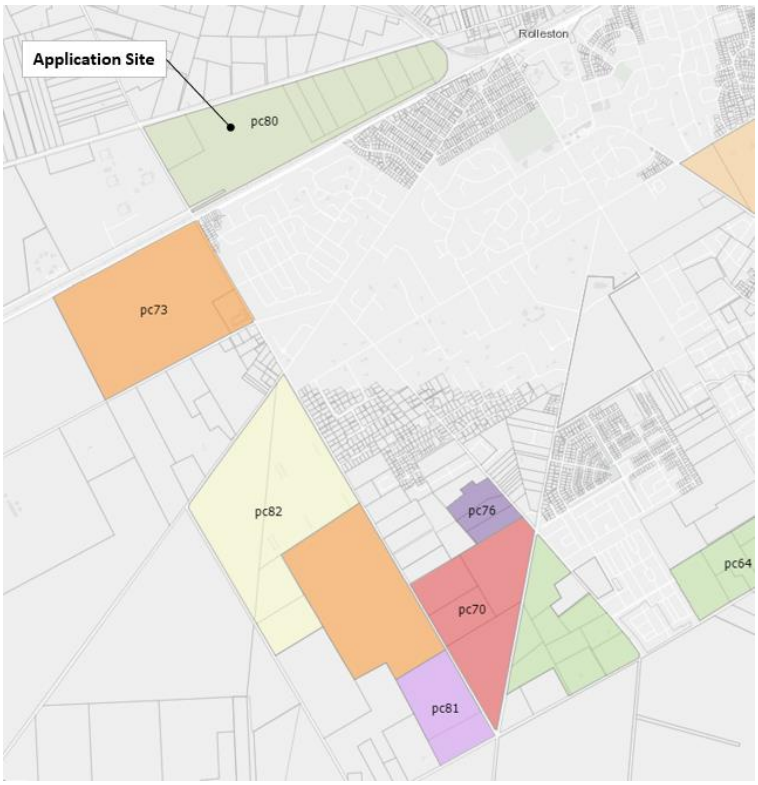


Figure 2: Wider Plan Change Requests

8 I am involved with other rezoning requests in the vicinity of this site, which notably includes Plan Changes 73, 81 and 82. These are all to the west of Rolleston, although south of State Highway 1 (*SH1*). I was also involved in the rezoning request related to Plan Change 66, which provided additional industrial land to the north-east of IPort.

9 In preparing my evidence, I have reviewed:

9.1 The evidence of Mr Blackmore regarding traffic modelling;

9.2 Council's Section 42A Transportation Hearing Report[1]; and

9.3 Relevant transport related submissions.

SUMMARY OF EVIDENCE

10 As a summary of my evidence:

10.1 I consider that the transport effects associated with PC80 and with a Business 2A zoning will be acceptable, subject to the construction of intersection upgrades and the deferral rules (as set out in the evidence of **Ms Seaton**) that limit the amount of development that could occur prior to the critical upgrades being completed; and

10.2 The site has good accessibility and provides for a range of transport modes and can be integrated with existing Passenger Transport routes.

11 Accounting for the above, I conclude that PC80 is acceptable from a transport perspective. I note that Council's transport reviewer also considers the effects of PC80 to be acceptable.

TRANSPORT ENVIRONMENT

Existing Transport Environment

Road Network

12 The road hierarchy in the vicinity of the Plan Change site is illustrated in **Figure 3**.

13 The site will take access from Walkers Road and Two Chain Road. These roads are classified as *Arterial Roads* and form part of a wider Arterial route around Rolleston. Two Chain Road connects to Jones Road to form a continuation of this east-west link.

[1] Private Plan Change 80: Transportation Hearing Report by Flow Transportation Specialists dated September 2022.

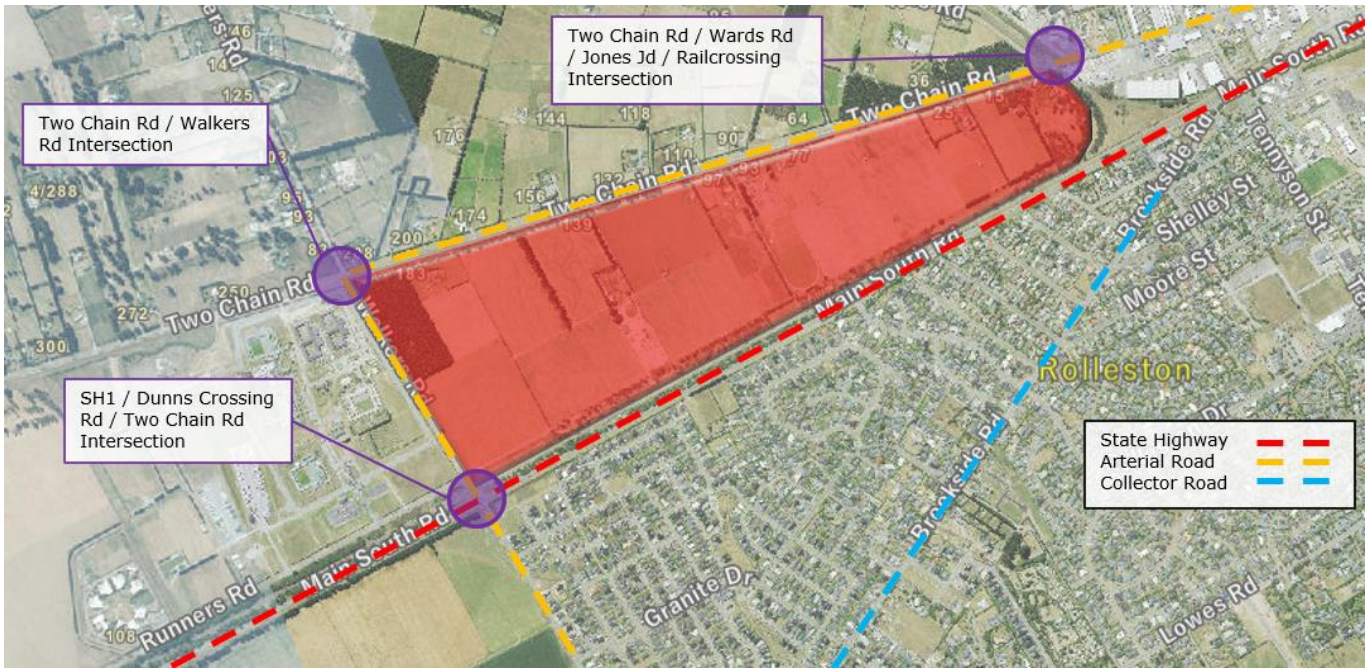


Figure 3: Road Hierarchy

Passenger Transport

14 Bus service 820 travels on Two Chain Road along the boundary of the site (illustrated in **Figure 4**). This service is between Burnham and Lincoln (via Rolleston) and operates on an hourly frequency.

Figure 4: Existing Bus Route

Future Transport Environment

15 Waka Kotahi are undertaking a programme of transport improvement projects in Rolleston, as illustrated in **Figure 5**. These works are funded under the New Zealand Upgrade Programme (*NZUP*) and has led to funding of these works, in conjunction with Selwyn District Council (*SDC*) and KiwiRail. Broadly, the package includes the following:

15.1 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

15.2 A new roundabout at the SH1 / Dunns Crossing Road / Walkers Road intersection (see **Figure 6**). Discussions with Waka Kotahi have indicated this will commence in 2024 and be complete in 2026.

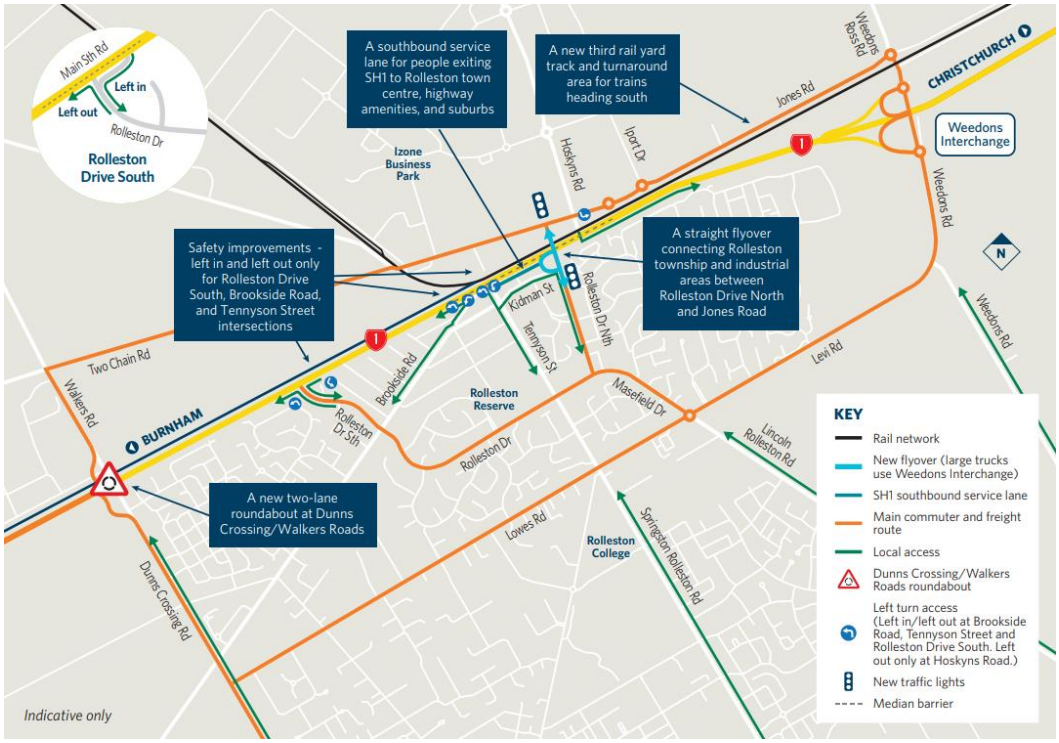


Figure 5: Rolleston Transport Improvements

[Sourced from Waka Kotahi Consultation Material]

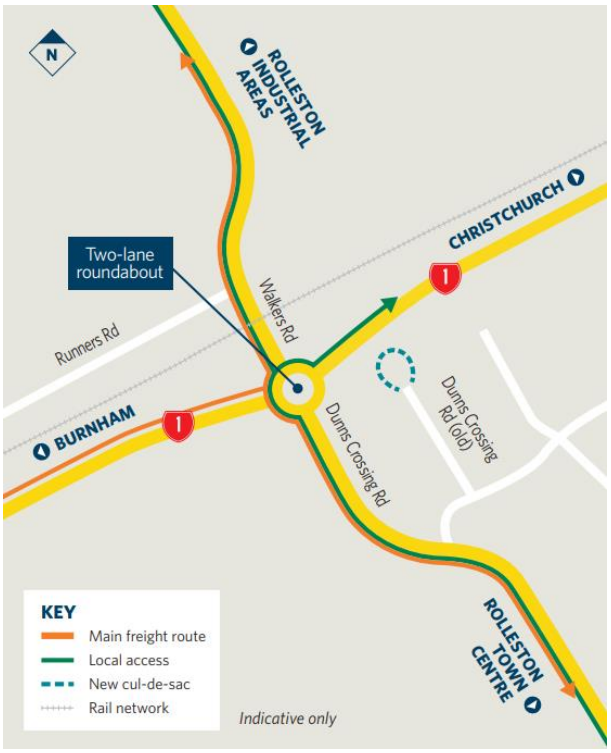


Figure 6: SH1 / Dunns Crossing Road / Walkers Road Improvements

[Sourced from Waka Kotahi Consultation Material]

16 I have reviewed the Business Case tender documentation for the NZUP project. The tender documentation identifies the following additional projects are under consideration for Rolleston:

16.1 Pavement widening and strengthening of Walkers Road and Two Chain Road (Two Chain Road widening is funded in the SDC Long Term Plan for 2028/2029);

16.2 Level crossing upgrade at the Jones Road / Two Chain Road / Wards Road intersection (funded in the SDC Long Term Plan for 2028/2029);

16.3 Roundabout at the Walkers Road / Two Chain Road intersection (funded in the SDC Long Term Plan for 2028/2029);

16.4 A shared path to the north of the rail corridor (with two segments funded in the SDC Long Term Plan for 2027/2028 and 2029/2030); and

16.5 New rail connectivity between the Main South Line and the Midland Line at the eastern end of the Application site.

17 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 REZONING REQUEST

18 The traffic generation of the site has been based on the industrial trip rates from Plan Change 10, which established the IPort industrial area. This leads to an estimated traffic generation of 996 to 1,078 vehicle movements per hour in the weekday peak hours.

19 The proposed ODP for this plan change includes two primary road intersections with Two Chain Road, plus a further primary road intersection to Walkers Road. A third access intersection with Two Chain Road could be provided, although this would have a secondary function. The existing Arterial Roads will retain priority at these locations.

20 Individual property accesses are not proposed as permitted activities from Two Chain Road or Runners Road. Property accesses are proposed to be permitted from Walkers Road (south of the Primary access)[2], with that road needing to be upgraded prior to development to include a flush median to safely accommodate turning movements.

21 The ODP indicates the provision of a shared path around the outside of the site along Two Chain Road and Walkers Road. Although accesses are proposed to Walkers Road (south of the Primary access) that would cross the shared path, activities with notable traffic generation would be required to undertake an assessment of effects[3] relating to the safety effects this may have on all road users, including those on the shared path.

22 **Table 1** sets out the timing of transport infrastructure relative to the proposed development at the site. This incorporates amendments sought in Council's Transportation Hearing Report.

[2] This is an amendment subsequent to the submission from the Department of Corrections.

[3] In relation to non-compliances associated with TRAN-R4, TRAN-R8 and TRAN-REQ2 of the pSDP.

Table 1: Transport Infrastructure Timings

Upgrade Required	Timing	Anticipated Funding Mechanism
Commencement of SH1 / Dunns Crossing Road / Walkers Road Intersection upgrade (in accordance with the Waka Kotahi NZ Upgrade Programme).	Prior to any development (including earthworks or construction related activities) in the ODP area.	Works already funded by Waka Kotahi.
Completion of SH1 / Dunns Crossing Road / Walkers Road Intersection upgrade (in accordance with the Waka Kotahi NZ Upgrade Programme).	Prior to construction of any building in the ODP area.	Works already funded by Waka Kotahi.
Walkers Road Upgrades along Site Frontage.	Prior to construction of any building in the ODP area.	Developer funded (as not in the Long Term Plan (*LTP*)).
Walkers Road intersection with Runners Road and rail crossing.	Prior to construction of any building in the ODP area.	Works already funded by Waka Kotahi.
Walkers Road / Two Chain Road Roundabout.	Prior to construction of any building in the ODP area if the Primary Road through site link has not been already constructed and opened.	Funded in the LTP for 2028/29 (or by developer agreement if being brought forward).
Two Chain Road Site Frontage Upgrades.	Prior to construction of any building in the ODP area.	Developer agreement, as upgrades are proposed in the LTP but not until 2028/29.
Two Chain Road widening, Two Chain Road/Wards Road realignment (other than the road site frontage upgrades above) and	Prior to construction of any building in the ODP area.	Funded in the LTP in 2028/29, although this may be accelerated through the Waka Kotahi southern access proposed to the industrial areas (or else in agreement with

upgrade of the Two Chain Road rail level crossing.		the Developer and Council).
Internal Primary Road network.	Prior to construction of any building in the ODP area.	Developer funded as part of the internal Plan Change transport network.

ASSESSMENT OF EFFECTS

Wider Network Effects

SH1 / Dunns Crossing Road / Walkers Road Intersection

23 The traffic effects of the proposed Plan Changes illustrated in **Figure *2*** above have been assessed using the 2033 Rolleston Micro-Simulation Traffic model made available by the Council. The initial traffic modelling that informed the PC80 assessment did not include the traffic associated with PC81 or PC82, although the other Rolleston Plan Changes in **Figure *2*** were included.

24 Subsequent to the above, further traffic modelling has been undertaken that accounts for the recent changes made by Waka Kotahi with regards to their latest consultation scheme (as set out in paragraph 6). 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 PC80, 81 and 82 (as well as Plan Change 73).

25 Although I understand the base model is considered to represent a future year of 2033, the inclusion of the Rolleston Plan Changes 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 PC80 stated that the Applicant's modelling is showing more 2033 base traffic than in the Waka Kotahi NZUP 2038 model (and this version of the model would not have included PC81 or PC82). The Applicant's model included Rolleston Plan Changes up to Plan Change 80, so it could be assumed that the basis of traffic modelling is beyond 2038.

26 The outcome of the further traffic modelling (as referenced in paragraph 24 above) is that the road network is generally predicted to operate satisfactorily with the Proposed Plan 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[4] and with average delays of 97 seconds.

27 Accounting for this output in the traffic model, I have subsequently created an intersection model (through SIDRA) 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 *6***). 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.

28 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 taken 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.

29 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 is 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.

30 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 at this intersection.

31 Furthermore, additional modelling has been undertaken of potential solutions to provide additional capacity at the SH1 / Dunns Crossing

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

Road intersection (as set out in the evidence of **Mr Blackmore**). This includes:

31.1 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

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

32 Whilst I understand that Waka Kotahi are not currently amenable to these options, they remain potential solutions (either on their own or combined) to provide additional capacity should the need arise upon completion of the Plan Changes sought in Rolleston.

33 Overall, I consider that the operation of the road network will be acceptable with the inclusion of these Plan Changes, including PC80, based on the traffic modelling. There are also potential capacity solutions available should Waka Kotahi change their position on these upgrades should the need arise in the future.

Alternate Transport Modes

Walking & Cycling

34 The ODP includes the provision of a shared path around the Application site that will accommodate cyclists and pedestrians around the outside of the site. This shared path is intended to link to the Jones Road cycleway, as well as the shared path on Dunns Crossing Road (subject to crossing SH1).

35 The proposed zone will also permit small scale food and beverage opportunities to establish and these will be within walking distance of the surrounding industrial activities. This provides the opportunity for staff in the Site to walk to these locations for lunch (for example), should they choose to do so.

36 I consider the above to be sufficient to safely accommodate walking and cycling to / from the site.

Passenger Transport

37 In paragraph 14 I have identified there is a bus route passing the site along Two Chain Road, which could be diverted into the site. This would need to be undertaken in conjunction with Environment Canterbury, as they are responsible for operating bus services.

Site Access Arrangements

38 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.

39 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.

Internal Transport Network

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

41 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

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

Development Timing & Funding

43 Several submissions sought that development of the Plan Change sites be deferred until transport upgrades have been completed in the surrounding area. Provisions are included in the ODP text that ensures key elements of transport infrastructure are in place either prior to development occurring, or prior to any building construction.

44 Changes have also been made to the wording of the proposed Rules, in which no development (including earthworks or construction activities) shall commence until such time as the SH1 / Walkers Road / Dunns Crossing Road intersection upgrade works commence (as provided for in the New Zealand Upgrade programme). Similarly, no buildings are permitted to be constructed until such time as:

44.1 the upgrade of SH1 / Dunns Crossing Road / Walkers Road roundabout is completed;

44.2 the upgrade of Two Chain Road and Walkers Road (as provided for the Council LTP);

44.3 the upgrade of the Walkers Road / Runners Road intersection;

44.4 the realignment of the Two Chain Road / Wards Road intersection (to give Two Chain Road priority); and

44.5 Either a primary road link is operational within the site between Two Chain Road and Walkers Road, or the Two Chain Road / Walkers Road intersection is upgraded to a roundabout.

45 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.

Multi-Modal Opportunities

46 The Waka Kotahi submission identifies that whilst the Plan Change provides for walking and cycling (as well as accommodating passenger transport), the site is likely to be reliant on private car travel. The primary barrier to walking and cycling is the need to cross State Highway 1 and we understand that solutions to this are being considered by Waka Kotahi at the SH1 / Dunns Crossing Road / Walkers Road intersection. This includes consideration of how to link the Dunns Crossing Road shared path (provided as part of the residential Plan Changes to the west of Rolleston) to the shared path proposed to the north of the State highway.

47 Residents in central and eastern Rolleston will be able to use the proposed SH1 overbridge on Rolleston Drive North to get across the State highway. This is most likely to be of use to cyclists, noting the uptake of e-bikes will provide easier access to longer range travel by bike.

48 The Operative District Plan permits small scale food and beverage activities within the zone. This will be sufficient to provide lunch opportunities to staff within the Plan Change site without the need to drive off-site.

49 Overall, the Plan Change site includes opportunities to accommodate travel by modes other than private car and these will connect with the wider facilities (when available).

Effects on Burnham Military Camp

50 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.

51 The majority of Plan Change traffic is not anticipated to head south on State Highway 1 during the peak hours, with no noticeable alterations to volumes on SH1 or Two Chain Road (both west of Walkers Road) being predicted by the traffic modelling. As such, I consider adverse effects on the operation of the road network in the

vicinity of the Burnham Road Military Camp would not occur as a result of this Plan Change.

Increased Traffic on Two Chain Road

52 Several submissions raised concerns regarding the increase in traffic on Two Chain Road and the safety effects of this. I note that traffic volumes on this road are anticipated to increase as a result of the Waka Kotahi NZ Upgrade project, partially because of restrictions on turning movements at the SH1 / Hoskyns Road intersection.

53 Whilst I accept that increased traffic volumes will occur on Two Chain Road, I do not consider this will materially affect the safety of this corridor. I also note that Two Chain Road is part of an arterial route around Rolleston and high traffic volumes should be expected on these types of road. This is illustrated in **Figure *3*** and **Figure *5***.

No. of Intersections on Two Chain Road

54 One submission sought to reduce the number of intersections on Two Chain Road to only one at the eastern end of the Site. Whilst I anticipate that provision of one access could be made to operate satisfactorily from a traffic safety and efficiency perspective, I consider that this would not be a good outcome from a resilience perspective. In particular, if a crash occurred at the one Two Chain Road intersection to the Plan Change site the ability for emergency service vehicles to attend the site would be limited. In this regard, I also note that Two Chain Road is part of the Arterial network and providing resilience on this network is important. It would also be more efficient to spread this traffic over several accesses to reduce the delays to traffic turning to / from the Plan Change 80 site.

55 Given the above, I consider that at least two primary vehicle accesses should be provided to the Plan Change Site from Two Chain Road to provide a level of resilience in the arterial network.

RESPONSE TO OFFICER'S REPORT

56 I have reviewed Council's *Transportation Hearing Report* and I am in agreement with the recommendations provided. I note that the recommended amendments have been included in **Table 1** of this evidence and these amendments include:

56.1 No earthworks or construction commencing prior to the commencement of works at the SH1 / Dunns Crossing Road / Walkers Road intersection;

56.2 Either the provision of the through site Primary Road link or the upgrade of the Two Chain Road / Walkers Road intersection prior to construction of buildings on the site;

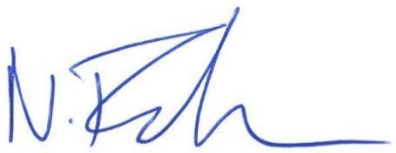
56.3 Alteration of wording of Rule 22.9.x to refer to an upgrade of the Two Chain Road / Wards Road intersection (rather than referring to Jones Road / Wards Road); and

56.4 Inclusion of an upgrade to the Two Chain Road rail level crossing prior to construction of any building.

CONCLUSION

57 Given the above, I consider that the transport effects of PC80 will be acceptable.

Dated: 5 October 2022



Nick Fuller

APPENDIX 1: SH1 / WALKERS ROAD / DUNNS CROSSING ROAD INTERSECTION SIDRA RESULTS

MOVEMENT SUMMARY

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

New Site
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)]

New Site
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.