

Before the Commissioner
Appointed by the Selwyn District Council

Under the Resource Management Act 1991

In the matter of Resource consent applications for Foodstuffs (South Island) Properties Limited to establish and operate a PAK'nSAVE supermarket and associated access, loading, car parking, signage, earthworks and landscaping at 157 Levi Road, Rolleston (RC216016)

Joint Witness Statement: Transport

1 August 2022

Introduction

- 1 This Joint Witness Statement (**JWS**) has been prepared to narrow the areas of disagreement on transportation issues prior to the hearing of the resource consent.
- 2 The conferencing was held online using Microsoft Teams and largely took place at two meetings as follows:
 - (a) A preliminary discussion on Monday 25 July 2022 from 9am-10:30am; and
 - (b) Further discussions on Wednesday 27 July 2022 from 9:20am-10:30am.
- 3 Participants at the meeting (**the experts**) were:

Name	Organisation	Party Represented
Andy Carr	Carriageway Consulting	Selwyn District Council
Dave Smith	Abley	Foodstuffs (Applicant)

- 4 For completeness, Jared White from Abley was present to run the Rolleston Traffic Model on Monday 25 July 2022 from 9am-9:30am. He is not a signatory to the JWS as he did not participate in any discussions.
- 5 In addition to the formal online meetings, Mr Carr and Mr Smith engaged in several phone calls and short online meetings between 27th July and 1st August.
- 6 None of the expert witness conferencing was facilitated.
- 7 In preparing this statement, the expert witnesses confirm that they have read and understood the Code of Conduct for Expert Witnesses as included in the Environment Court of New Zealand Practice Note 2014 and this JWS has been prepared in accordance with Appendix 3 to that document. The experts have confined their conferencing to matters within their field of expertise and have exercised independent and professional judgment. The experts also confirm that they have not acted on the instructions or directions of any person to withhold data or information, or to withhold or avoid agreement, or as to the contents of this JWS.

Structure of JWS

- 8 As set out in the Transport Report (Appendix 10 to the s 42A report), Mr Carr considered that further information was required in order to form a view on the transportation-related effects of the proposed development. The first part of this JWS therefore sets out the results of additional data collection and analysis carried out subsequent to expert Statements of Evidence being issued, and the outcomes of this.
- 9 The second part of the JWS addresses the other matters where Mr Carr considered that further information was required.
- 10 The final part of the JWS sets out a summary of the experts positions following the additional assessments carried out.

Levi Road / Lincoln-Rolleston Road / Lowes Road / Masefield Drive Roundabout

- 11 The experts agreed that there has been a lack of clarity as to the current (2022) performance of the Levi Road / Lincoln-Rolleston Road / Lowes Road / Masefield Drive roundabout (**the roundabout**). This then makes it difficult to have absolute confidence in the effects of the additional traffic generated by the proposed supermarket in future. Accordingly, they agreed that additional surveys of the current roundabout performance would be beneficial.
- 12 The experts agreed that the weekday 5-6pm period is the time at which peak commuter flows would coincide with supermarket demands, and is a suitable time period for establishing the performance and capacity of the roundabout. Mr Smith therefore carried out a traffic survey on Monday 25th July 2022 between 5pm and 6pm. Intersection turning movement volumes on all roundabout approaches were recorded as well as vehicle queues on the Levi Road approach.
- 13 The survey coincided with a period of forecast heavy rain and 'weather warnings' for people to return home, which Mr Smith felt might have adversely affected the survey outcomes. Mr Carr agreed with this. Consequently, a second survey was arranged, focussed on the Levi Road approach to the roundabout on Thursday 28th July 2022 between 4:30pm and 6pm.
- 14 The second survey was carried out by Mr Smith's colleague Mr Dixon due to Mr Smith being in quarantine with a household member being COVID positive. Mr Carr was also present for this survey. Both Mr Carr and Mr

Dixon recorded their observations and recorded video footage of vehicle queuing on Levi Road, which has subsequently been reviewed by Mr Smith.

- 15 The experts agree the following with regard to the observed roundabout performance:
- (a) Minimal queuing and relatively short delays to vehicles were observed on the Lincoln-Rolleston Road, Lowes Road and Masefield Drive approaches;
 - (b) The Levi Road approach is the critical approach in the evening peak hour. During the Monday survey, an observed average queue length of 7 vehicles and a 95th percentile¹ queue length of 22 vehicles with 'rolling' queues during the peak time were observed. The queueing was observed to be greater than 10 vehicles for an approximate 12 minute period from 5:20-5:32pm with two other 1-2 minute periods of queuing of more than 10 vehicles observed;
 - (c) During the Wednesday survey, a very similar pattern was observed. Mr Dixon observed average queue lengths of 9 vehicles and a 95th percentile queue length of at least 25 vehicles. The queueing was observed to be extensive for an approximate 10 minute period from 5:20-5:30pm with several other short 1-2 minute periods of queuing of more than 10 vehicles observed. Mr Carr's observations showed longer queues but this difference is not material to the outcomes of the analysis, as discussed further below;
 - (d) On occasions where queues on Levi Road extended beyond Beaumont Drive, traffic exiting Beaumont Drive was able to turn right to enter the Levi Road traffic stream due to courteous drivers providing gaps (a practice referred to as 'reverse priority').
 - (e) On the Wednesday survey, Mr Carr noted that the queue of traffic on Levi Road was affected by some drivers regulating their speed (that is, only slowly moving forwards once the vehicle ahead had moved off and reducing the extent to which they would accelerate and decelerate). The experts agree that this behaviour results in 'rolling' queue lengths which extend further than static queues, although again, this is not material to the outcomes of the analysis.

¹ that is for 95% of the peak hour (or 57 minutes) the queues are shorter to or equal to this value. For 5% of the peak hour (or 3 minutes), the queues are longer than this.

- 16 The experts agree that the Monday and Wednesday survey results are sufficiently similar that there can be confidence that the results reflect the typical operation of the roundabout.
- 17 A model of the roundabout has been prepared by Mr Smith using the software package Sidra Intersection and shared with Mr Carr. The model has been calibrated such that the model reflected the queues observed on Levi Road on the Monday survey. The model also uses the turning volumes, peak flow factor and percentage of heavy vehicles seen during the Monday survey.
- 18 Mr Smith considers that the model has been appropriately built and calibrated, and is representative of the intersection performance based on the July 2022 surveys and observations. Mr Smith has also compared the model results against data from Tomtom, which confirms his view that the model is appropriately reflecting queues and delays at the roundabout.
- 19 Mr Carr's observations indicated that the observed queue lengths were longer than the model forecasts. However this difference does not have a material effect on the conclusions drawn regarding the available spare capacity of the roundabout, as discussed below.
- 20 The calibrated evening peak Sidra model has been run by Mr Smith for the following scenarios with results presented in the following table:
 - (a) Scenario 1: 2022 (calibrated model);
 - (b) Scenario 2: 2022 + ambient traffic growth to the threshold at which the Levi Road approach reaches its theoretical capacity; and
 - (c) Scenario 3: 2022 + supermarket traffic.

Table One Levi Road approach – current layout results

Scenario	Average delay (sec)	Volume / Capacity ratio	Ave queue length in m (and # cars)	95 %ile queue length in m (and # cars)
1: 2022	21.9	0.879	50m (7)	124m (18)
2: 2022+9%	54.1	0.998	107m (15)	267m (38)
3: 2022+PNS	74.3	1.019	110m (16)	273m (39)

- 21 The experts agree that with respect to the performance of the roundabout, the model shows that:
- (a) the Levi Road approach is currently operating with a volume / capacity ratio of 0.88 which indicates it has very limited capacity remaining before it reaches capacity²;
 - (b) the approach can only accommodate 9% growth in traffic before capacity is reached, at which point Levi Road westbound travel times will increase by a further 30 seconds and queues extend to a maximum of over 250m. Mr Smith notes that this corresponds to approximately 2-3 years of traffic growth based on Selwyn District observed 2021-2022 traffic growth of 4%³ sourced from Infometrics quarterly reporting.
 - (c) if the supermarket was to become operational, the existing roundabout also reaches theoretical capacity with delays increasing by up to 50 seconds. Mr Smith notes that this is consistent with the incremental delay presented in Table 7.3 of his ITA.
- 22 The experts therefore agree that the roundabout in its current form is unable to accommodate prevailing traffic growth for more 2-3 years based on current traffic growth rates. The current scheduled timeframe for upgrading the roundabout to signals of 2025/26 set out in the Selwyn District 2021-31 Long Term Plan aligns well with this requirement.
- 23 The experts also agree that if the full traffic generation associated with the supermarket is realised prior to the signals being installed, the Levi Road approach to the roundabout would operate at or over capacity with delays and queue lengths of at least those shown in Table One. Mr Smith considers that irrespective of the supermarket application, the modelling demonstrates that the roundabout requires upgrading in the next 2-3 year period.
- 24 In the event that Council was unable to deliver the signals prior to the supermarket opening, the experts agree that an interim upgrade is feasible

² A volume / capacity ratio of 1 means that the same number of vehicles are arriving as the capacity of the approach. A value of less than 1 means that fewer vehicles are arriving than the capacity of the approach. A value of more than 1 means that more vehicles are arriving than the capacity of the approach. As traffic flows increase, the volume / capacity ratio therefore gradually increases, and as it approaches a value of 1, queues and delays start to increase substantially.

³ <https://qem.infometrics.co.nz/selwyn-district/indicators/traffic?compare=new-zealand,selwyn-district>

within the road reserve and the application site. This would involve constructing a 40m long (approximately) left turn auxiliary lane from Levi Road into Lincoln-Rolleston Road as shown in the indicative concept drawing in the figure below.

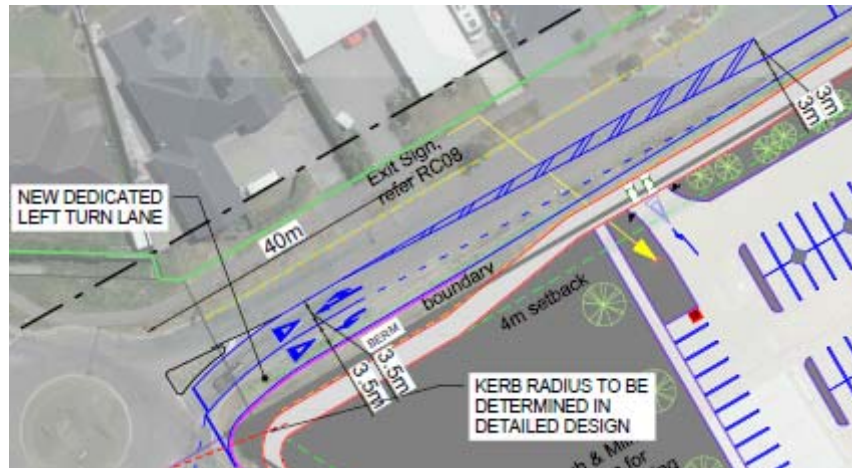


Figure Two Indicative interim upgrade to roundabout

- 25 This arrangement would only require use of the road reserve and the Applicant's site.
- 26 Mr Smith has updated the Sidra Intersection model to include this interim improvement. The model has been run for the following scenarios with results presented in the following table:
 - (a) Scenario 4: 2022 with left turn lane + 9% growth, being the threshold at which the Levi Road approach reaches its theoretical capacity without the interim improvement. These traffic flows are the same as under Scenario 2 above;
 - (b) Scenario 5: 2022 with left turn lane + ambient traffic growth to the threshold at which the Levi Road approach reaches its theoretical capacity including the interim improvement;
 - (c) Scenario 6: 2022 with left turn lane + 9% growth + supermarket traffic.

Table Two Levi Road approach – interim upgrade layout results

Scenario	Average delay (sec)	Volume / Capacity ratio	Ave queue length in m (and # cars)	95 %ile queue length in m (and # cars)
4: 2022+9%	12.6	0.735	26m (4)	65m (9)
5: 2022+28%	47.4	1.000	100m (14)	248m (35)
6: 2022+9%+PNS	32.5	0.915	54m (8)	135m (19)

27 The experts agree that with respect to the performance of this interim upgrade:

- (a) the capacity of the Levi Road approach increases, meaning that queues and delays decrease significantly.
- (b) whereas only 9% growth can be accommodated at the current roundabout, 28% traffic growth can occur with the additional approach lane added. This corresponds to approximately 7 years of traffic growth based on Selwyn District observed 2021-2022 traffic growth of 4%⁴ before capacity is reached. In other words, the additional approach lane means that a further 4-5 years of ambient traffic growth on Levi Road can be accommodated (Scenario 5 compared with Scenario 2).
- (c) should the supermarket become operational in 2-3 years time, then the roundabout performance operates within theoretical capacity with delays in the order of 35-40 seconds and queues similar to those experienced in 2022 (Scenario 6 compared to Scenario 2).

28 The experts agree that:

- (a) In the absence of the roundabout being upgraded to traffic signals, the provision of the auxiliary left-turn lane on Levi Road satisfactorily mitigates the impacts of supermarket traffic on the roundabout;
- (b) there will be design matters to be worked through at the appropriate time but the concept design does not appear to have any fundamental

⁴ <https://qem.infometrics.co.nz/selwyn-district/indicators/traffic?compare=new-zealand,selwyn-district>

design issues which would preclude a satisfactory layout from being implemented

- (c) the works do not require third party land, and will require only legal road reserve and land within the Application site; and
 - (d) the conditions of consent should capture this delivery of the interim upgraded (at the Applicant's expense) in the event that the supermarket opens prior to the roundabout being upgraded to traffic signals.
 - (e) These conclusions are valid even if queues and delays are slightly greater than observed during the Monday survey (that is, if the typical conditions are those that were seen during the Wednesday survey).
- 29 The experts highlight that as part of other conditions of consent, the Applicant is responsible for implementing upgrades to Levi Road and Lincoln-Rolleston Road, and that the design/location of these around in the vicinity of the roundabout will be different with traffic signals and with a roundabout. As such, the experts consider that there is a cost saving to both parties, and savings in delays and disruption to the travelling public and neighbouring properties, if the improvements works to Levi Road and Lincoln Rolleston Road were to be carried out at the same time as the roundabout was converted to traffic signals.

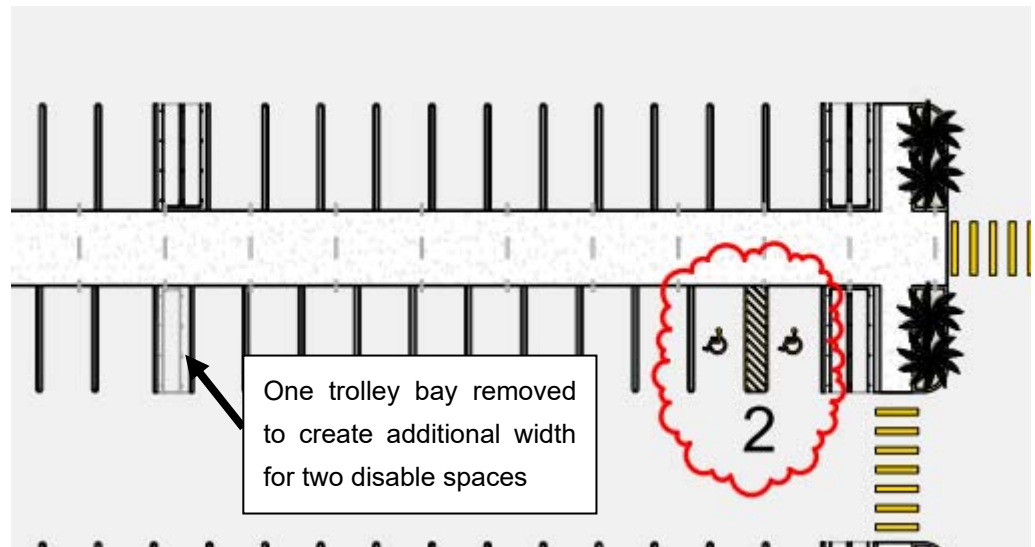
Additional Matters Where Further Information was Requested

Separation of Access and Intersections

- 30 In paragraph 72 of Mr Smith's Evidence in Chief, an assessment of a non-compliance in relation to the offset between Beaumont Drive and Access C was provided. Mr Carr is satisfied that the assessment provided by Mr Smith is appropriate, and that the proposed access will not have adverse effects on the operation of the nearby intersection.

Mobility Spaces

- 31 In paragraph 76 of Mr Smith's Evidence in Chief, the shortfall in mobility parking spaces is addressed with the provision of two additional spaces as shown in his Figure 5. For the avoidance of doubt Mr Smith confirms these spaces will be 3.6m in width and will be provided with the removal of one trolley bay and no net loss in overall parking. This is shown on plan RC02 of Mr Mitchell's Architectural Drawing Set with excerpt as shown below.



- 32 Mr Carr is satisfied this matter is resolved and that the number of mobility spaces will meet District Plan requirements.

Effects of the Supermarket Proposal on PC71 (and vice versa)

- 33 Additional information was sought by Mr Carr as to “*whether transportation-related effects arise through PC71 that have not been identified?*”. Further information was provided in paragraphs 103-105 of Mr Smith’s Evidence in Chief.
- 34 Mr Carr considers that it has now been demonstrated that the traffic volumes associated with PC71 have been accommodated on the road network.
- 35 The experts agree that there may be planning matters that arise in relation to PC71, because the approved Outline Development Plan for PC71 can no longer be implemented if the supermarket is granted resource consent. However, they defer to the planning experts in that regard.

Diverted trips within the transportation modelling

- 36 A query was raised by Mr Carr as to “*whether the model has over-estimated the extent of diverted trips with the Lincoln Rolleston Road / Levi Road intersection retained as a roundabout, and if so, what the effects of this will be, both at the roundabout and also at other intersections along Levi Road*”. Further information was provided in paragraphs 107-114 of Mr Smith’s Evidence in Chief.
- 37 The experts agree that this matter is addressed through the additional traffic surveys and further modelling that has now been carried out by Mr Smith and which is discussed previously in this JWS.

Third party land requirement

- 38 A query was raised by Mr Carr as to “*how the scheme for the signalisation of the Lincoln Rolleston Road / Levi Road intersection could be constructed without third party land being (or alternatively, the effects of supermarket traffic at a smaller intersection with less capacity)*”. Further information was provided in paragraphs 116-120 of Mr Smith’s Evidence in Chief.
- 39 The experts acknowledge that the sketch provided in Figure 8 of Mr Smith’s Evidence in Chief is indicative and that further design work will be required by Council at the appropriate time to establish the layout and dimensions of the intersection.
- 40 However, the experts also agree that a layout with three approach lanes on all four approaches would be an appropriate design solution to provide satisfactory intersection performance and including traffic associated with the supermarket. The experts agree that there are very likely to be suitable design solutions for the traffic signals that avoid third party land.
- 41 The experts agree that the signalised intersection would likely require Foodstuffs land on the Lincoln-Rolleston Road / Levi Road corner to accommodate the proposed Levi Road shared path, footpath and potentially signal equipment. Until such time as a more detailed design is prepared by Council it is unclear how much land would be required, however this could potentially be addressed with an easement over the land or by giving the land over to road reserve.
- 42 Mr Smith notes that this is a property matter and will be addressed by Ms Booker on behalf of Foodstuffs.

Conditions of consent

- 43 Mr Carr highlighted “*a lack of precision around the wording of the conditions of consent which mean that the mitigation proposed is not specific and open to interpretation.*”. Further information was provided in paragraphs 106-122 of Mr Smith’s Evidence in Chief with detailed conditions drafted in paragraphs 133-136.
- 44 Mr Carr has reviewed the updated conditions and the experts have agreed on an updated set of traffic conditions which are appended to this JWS as Annexure A. The key changes from those included in Mr Smith’s Evidence in Chief are:
- (a) restructuring and rewriting of the conditions to improve the precision and interpretation thereof;

- (b) the addition of Condition (b)(ii) for the construction of an auxiliary left-turn lane on Levi Road, if the traffic signals are not in place at the Levi Road / Lincoln-Rolleston Road / Lowes Road / Masefield Drive intersection when the supermarket starts to trade
 - (c) the addition of a condition ((j) which provides Council with the flexibility to require additional monitoring to be undertaken should an unexpected safety-related incident occur or regular complaints be received from the public; and
 - (d) shifting further detail into advice notes where it is considered appropriate to do so.
- 45 The experts confirm they are satisfied with the appended set of conditions from a transportation perspective. However they are cognisant that these have been prepared without input or advice from other technical disciplines and therefore may be changed in future. There may also be 'standard' conditions of consent in transportation matters that Council applies to all resource consents which might also need to be included.
- 46 Insofar as mitigating the effects of the supermarket, the experts confirm their view that only a footpath is required on the eastern side of Lincoln Rolleston Road (plus a formed crossing point on Lincoln Rolleston Road). However the experts are aware that as part of the provisions of PC71, there is a requirement that a shared walking and cycling route is to be provided on the eastern side of Lincoln Rolleston Road. The experts consider that the timing of these is uncertain, however there would be benefits in coordinating these works to minimise disruption to the traveling public and minimise costs to the various stakeholders.

Public access to shared path on Foodstuffs land

- 47 Further information was sought by Mr Carr as to *"how the Council can have certainty regarding the public use of the proposed walking/cycling route at the northwestern corner of the site and around the main access, since it is on the Applicant's land."*. Further information was provided in paragraphs 124-125 of Mr Smith's Evidence in Chief.
- 48 Mr Carr accepts Mr Smith's response fully addresses this matter, and both experts agree that whether an easement is a suitable approach or the land needs to be vested is a policy matter for Council to address.

Recommended closure of Access C

- 49 Mr Carr continues to consider that Access C should not be formed, for the reasons set out in his previous report. Mr Smith is of the view that Access C will operate safely and efficiently as set out in paragraphs 127-129 of his Evidence in Chief. Both experts have however are of the view that if the access is formed, then it should be monitored for a period of time after retail activity commences at the supermarket to ensure that no adverse effects are arising. The experts agree that conditions (h), (i) and (j) are appropriate for this.
- 50 The experts agree that if Access C was not be to be formed, or was to be formed but subsequently closed, the closure would not give rise to any secondary adverse effects within or external to the Site.

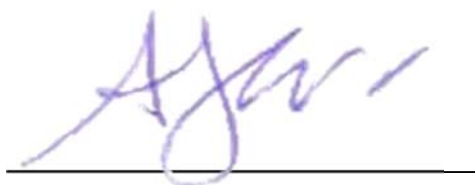
Summary

- 51 In view of the additional information and analysis that has now been presented, and refinements/additions to the conditions of consent, the experts are of the view that there is only one point of disagreement between them.
- 52 This relates to Access C, where Mr Carr considers it should not be formed and Mr Smith considers that is able to be formed and will function safely and efficiently.
- 53 Mr Carr confirms however that the wording of the conditions of consent mean that the access will be monitored and if adverse effects arise, then Council has the ability to require that the access is closed. Both experts agree that the closure of Access C (whether this occurs prior to the supermarket commencing trading or afterwards) will not give rise to any secondary adverse effects within the Site or on the adjacent transport networks.

Dated this 1st day of August 2022

A handwritten signature in blue ink, appearing to read 'Dave Smith', written over a horizontal line.

Dave Smith

A handwritten signature in blue ink, appearing to read 'Andy Carr', written over a horizontal line.

Andy Carr

Annexure A: Agreed Transport Conditions from Transport Expert Witness Conferencing

- (a) Prior to any retail activity commencing at the Site, the Consent Holder shall, at its own cost:
 - i. Design and construct a pathway along the southern side of Levi Road suitable for shared use by pedestrians and cyclists, over the full length of the site frontage.
 - ii. Design and construct a pathway along the eastern side of Lincoln Rolleston Road suitable for use by pedestrians only, over the full length of the site frontage.
 - iii. Provide kerb and channel along the southern side of Levi Road and Lincoln Rolleston Road over the full length of each site frontage
 - iv. Provide a formed pedestrian crossing point across Levi Road located to the east of Access D as shown on Drawing XXXX
 - v. Provide a formed pedestrian and cyclist crossing point across Lincoln-Rolleston Road located to the south of Access B as shown on Drawing XXXX
- (b) In the event that retail activity commences at the Site prior to the signalisation of the Levi Road / Lincoln-Rolleston Road / Lowes Road / Masefield Drive intersection, the Consent Holder shall at its own cost
 - i. install a temporary pedestrian and cyclist crossing of Lincoln-Rolleston Road to provide connectivity between the shared use path on Levi Road and the existing shared use path on the western side of Lincoln-Rolleston Road; and
 - ii. construct a left turn auxiliary lane on the Levi Road approach to the Levi Road / Lincoln-Rolleston Road / Lowes Road / Masefield Drive roundabout of at least 40m in length as shown on Drawing XXXX.
- (c) The Consent Holder shall install signage prior to any retail activity commencing at the Site as follows:
 - i. Signs as per signface RG-7 and/or RG-12 of the Manual of Traffic Signs and Markings to show that only left-turn movements into and left-turn movements out of the

- northernmost Lincoln-Rolleston Road access (Access B on Drawing XXXX) are permitted to be carried out by drivers.
- ii. Signs as per signface RG-7 and/or RG-12 of the Manual of Traffic Signs and Markings to show that only left-turn movements out of the easternmost Levi Road access (Access C on Drawing XXXX) are permitted to be carried out by drivers
 - iii. Signs as per signface RG-7 and/or RG-12 of the Manual of Traffic Signs and Markings to show that only left-turn movements into the easternmost Levi Road access (Access E on Drawing XXXX) are permitted to be carried out by drivers.
 - iv. Speed limit signs as per signface RG-1 of the Manual of Traffic Signs and Markings at each entry location (Accesses A, B, D and E on Drawing XXXX) and facing vehicles entering the Site. These signs shall display a maximum permitted speed of 10km/h.
 - v. At the internal entrance to the staff parking area near the service yard with 'No Public Access' or words to that effect to advise that the public should not seek to gain access to this area.
- (d) The Consent Holder shall ensure that a Construction Temporary Traffic Management Plan (TTMP) is prepared in accord with Waka Kotahi's Code of Practice for Temporary Traffic Management procedures. This shall be submitted to the Council for review and approval at least three months prior to any construction works commencing that affect the normal operating conditions on the roading network.
- (e) The Consent Holder shall arrange for a concept design and detailed design road safety audit to be carried out for all works in the road reserve (including, but not limited to, the formation of vehicle crossings). These audits will be carried out by a suitably-qualified and experienced traffic engineer in accordance with the Waka Kotahi 'Road Safety Audit Procedures for Projects' guideline. The safety audit reports will be issued to the Council for completion of the 'Client' comments. The completed safety audit reports shall be appended to any request for Engineering Approval.
- (f) The Consent Holder shall inform all delivery drivers under its direct control that access for semi-trailers is restricted to entering the Site

via a left-turn movement at the easternmost access on Levi Road (Access E) and egressing the Site via the southernmost access on Lincoln Rolleston Road (Access A).

- (g) The Consent Holder shall ensure that no obstruction of more than 1m in height is located within a triangle formed by (needs definition of area) at each access in order to ensure drivers and pedestrians have suitable intervisibility of one another.
- (h) Once retail activity has commenced at the Site, the Consent Holder shall undertake monitoring as follows:
 - i. at the northernmost access on Lincoln-Rolleston Road (Access B on Drawing XXX) to identify whether vehicles are undertaking right-turn entry movements or right-turn exit movements
 - ii. at the westernmost access on Levi Road (Access C on Drawing XXX) to identify whether vehicles are undertaking entry movements or right-turn exit movements
 - iii. at the easternmost access on Levi Road (Access E on Drawing XXX) to identify whether vehicles are undertaking right-turn entry movements or any exit movements
 - iv. at the easternmost access on Levi Road (Access E on Drawing XXX) to identify whether movements turning left into the Site are impeding westbound 'through' traffic on Levi Road.
- (i) All monitoring shall be undertaken by an independent, suitably-qualified traffic engineer with the first monitoring carried out no earlier than 3 months, and no later than 6 months, after retail activity commences at the Site and annually thereafter for the first two years of operation (three monitoring exercises in total). Each monitoring report will as a minimum:
 - i. Review the crash records within the Waka Kotahi Crash Analysis System to identify whether any reported crashes have occurred at the access since the last monitoring exercise was carried out
 - ii. Include observations on a single weekday from 5-6pm and a single Saturday 12-1pm at the access to identify unlawful

movements, sudden braking and/or swerving manoeuvres associated with the access.

- iii. Set out whether, in the opinion of the traffic engineer, the operation of the access is giving rise to adverse road safety effects and if so, the measures that will be implemented by the Consent Holder to address those adverse effects and the timeframe for implementation.
 - iv. Be provided to the Council within one calendar month of the monitoring being undertaken.
- (j) Additional monitoring may also be requested by the Council in response to a specific road safety concern arising, such as an injury crash occurring or repeated complaints from members of the public. Where additional monitoring is requested, this will follow the structure set out in points (i) to (iv) above.

Advice Note 1: all construction works and signage within the legal road reserve are to meet the requirements of the Selwyn District Council Subdivision Code of Practice Part 8 (February 2012) or successor and are subject to Engineering Approvals

Advice Note 2: a range of measures can be considered as mitigation within Condition (i)(iii) such as additional signage, modifications to kerblines, and other design treatments as determined to be appropriate by the traffic engineer. In the case of more serious safety concerns it may be necessary to consider restricting the usage of an access to specific vehicles or closing an access.