BEFORE THE SELWYN DISTRICT COUNCIL

UNDER	the Resource Management Act 1991
IN THE MATTER	of Proposed Plan Change 68: Prebbleton
APPLICANTS	Urban Holdings Limited, Suburban Estates Limited and Cairnbrae Developments Limited

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STATEMENT OF EVIDENCE OF DAVID JOHN ROBERT SMITH -TRANSPORT

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Anthony Harper

1 Introduction -Qualifications and Experience

1.1 My full name is David John Robert Smith. I am a Technical Director, Transportation Planning at Abley Limited (**Abley**), a transportation, spatial and data intelligence professional services company.

1.2 I hold a Bachelor of Technology (with Honours) in Industrial Operations Research and Master of Philosophy in Operations Research from Massey University. I am a Chartered Member of the Institute of Logistics and Transport (CMILT), a member of Engineering New Zealand (MEngNZ) and a member of the NZ Modelling User Group sub-group of ENZ. I have been appointed to the NZ Transport Agency Independent Professional Advisors panel for Transportation Modelling. I am also certified as a Hearings Commissioner having completed the Making Good Decisions course in 2019.

1.3 I hold the position of Technical Director of Transportation Planning at Abley. I have been in this position since 2018 and have been at Abley for ten years. I lead a range of development planning and transportation planning projects for both public and private sector clients.

1.4 My previous work experience includes 21 years of transportation planning and engineering experience. I have managed and led numerous projects related to transportation business cases, transportation research and Resource Management Act (RMA) related matters for public and private sector clients. As an expert witness I was engaged by the Environmental Protection Authority (EPA) to provide transportation advice and evidence directly to the Board of Inquiry presiding over the Basin Bridge hearing. I have also recently been engaged by Foodstuffs South Island Limited, Auckland Council, Selwyn District Council, Queenstown-Lakes District Council, Ports of Auckland and Fonterra as an expert witness.

2 Code of Conduct

2.1 Whilst I acknowledge that this is not an Environment Court hearing, I confirm that I have read and am familiar with the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014. I have complied with the Code of Conduct in preparing this evidence and I agree to comply with it while giving any oral evidence during this hearing. EXCEPT where I state that I am relying on the evidence of another person, my evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

3 Scope of Evidence

3.1 I have been asked by the Applicants to provide evidence in relation to Plan Change 68 for traffic and transportation matters.

3.2 An Integrated Transportation Assessment (ITA) has been prepared by Abley staff under my direction to assess the potential transportation related effects of the proposed rezoning on the future transport network.

3.3 In preparing my evidence I have reviewed the following documents and evidence:

- *'Prebbleton Private Plan Change Integrated Transportation Assessment' version 2 prepared by Abley dated 31st May 2021;*
- *Requests for Further Information (RFI) email received from Selwyn District Council (Council) Asset Manager – Transportation and responses prepared by Abley;*
- *Submissions addressing transportation-related matters;*
- *Transport-related matters in the Section 42A report prepared by Mr Clease; and*
- *Transportation Hearing Report prepared by Mr Collins of Flow Transportation Specialists (Appendix 4 to Section 42A report) dated 13th December 2021 with appended QTP Future Transport Model Outputs – Selwyn Update (Selwyn 2051) report.*

3.4 My evidence is structured as follows:

(a) Overview of Integrated Transportation Assessment;

(b) Response to transport-related submissions on the Plan Change; and

(c) Response to the Council's Transportation Evidence in the Section 42A Report.

4 Executive Summary

4.1 I have prepared an Integrated Transportation Assessment to assess the potential transportation related effects of the proposed rezoning on the future transport network. This included a transportation modelling assessment of the Plan Change traffic which demonstrated there is sufficient capacity on the transport network to accommodate development traffic, with future intersection upgrades in the vicinity of the Plan Change anticipated by Selwyn District Council and included in the Selwyn District Long Term Plan 2021-31.

4.2 My assessment also identified that the Plan Change site integrates well with the Prebbleton and wider transportation network, and seeks to maximise connectivity and accessibility for all modes including walking and cycling.

4.3 I have also concluded that PC68 is well located to be directly serviced by public transport, and has the potential to integrate well with future public transport network, maximising opportunities for uptake of sustainable transportation modes.

4.4 I have reviewed the strategic planning framework and consider that the Plan Change is consistent or can be consistent with the relevant transport-related provisions. I have concluded that the Plan Change can be supported in relation to transportation matters, and any effects associated with the Plan Change are appropriately mitigated or anticipated by the Selwyn District Long Term Plan 2021-31.

4.5 I have reviewed transport-related matters raised in submissions and have concluded that any concerns raised are adequately addressed through the Plan Change.

4.6 I have also read the Transportation Hearing Report prepared by Mr Collins and appended to the Section 42A planner's report.

4.7 I have addressed questions raised in the Section 42A relating to the staging of the development through an additional transportation modelling assessment. I have subsequently recommended that 120 lots can be established at the southern end of PC68 as an initial stage of development directly connecting to Guinea Drive and the southernmost Hamptons Road access shown on the ODP. This initial stage can be supported following the construction of the Shands Rd / Trents Rd roundabout, with the remainder of the development to follow the completion of the Shands / Hamptons roundabout upgrade and Trents and Hamptons Road seal widening projects.

4.8 Mr Collins notes that the Shands / Trents roundabout included in the LTP is intended by Selwyn District Council to be a single lane roundabout. I have modelled the future performance of a single lane roundabout at this location and concluded that a second approach lane is required from the Shands Road northern approach to provide satisfactory performance during commuter peak times. Urban Estates Limited have signalled their intention to enter a Developer Agreement with Council regarding this enhancement.

4.9 Mr Collins makes several requests recommendations for minor changes to the ODP including providing for cycling within the PC68 site and upgrading the Hamptons and Trents Road frontages to include footpaths to connect with

existing footpaths on Hamptons Road and Trents Road. I support these recommendations and have advised Ms Harte that I recommend minor amendments be made to the ODP accordingly.

4.10 Following consideration of submissions and the Section 42A Transportation Hearing Report, I remain of the view that the Plan Change can be supported in relation to transportation matters.

5 Overview Of Integrated Transportation Assessment

Existing Land Use and Transport Environment

5.1 The existing environment is reported in Section 2 of the ITA. The site is shown in **Figure 1** and is located 2km south-west from Prebbleton town centre and approximately 15km south-west from Christchurch CBD. The site is located west of an existing residential area with three surrounding roads forming the boundary of the site. The existing land use consists of rural residential properties and the surrounding land use is primarily residential and rural farmland.

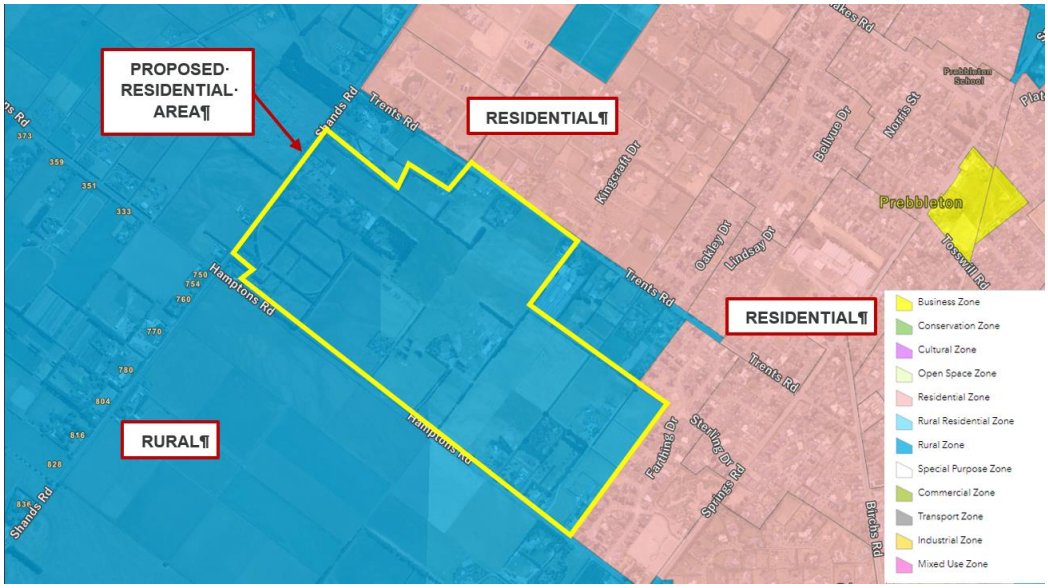

Figure 1: Plan Change Site Location[1]

5.2 The site has frontage on to Hamptons Road along the southern boundary, Shands Road along the western boundary and Trents Road along the northern boundary. All surrounding intersections surrounding the site currently operate as stop-controlled intersections. Shands Road between Trents Road and Hamptons Road has an Annual Daily Traffic (ADT) of 14,679 vehicles per day

[1] sourced: Canterbury Maps 2019

(vpd)[2]. Trents Road between Shands Road and Springs Road has an ADT of 2,671 vpd[3]. Hamptons Road between Shands Road and Springs Road has an ADT of 2,169 vpd[4]. Springs Road between Trents Road and Hamptons Road has an ADT of 8,193 vpd[5].

5.3 Shands Road runs in a north/east – south/west orientation between Springston village and Hornby, and is approximately 15km in length total. Hornby is approximately 5km north of the site and Springston is approximately 8km south of the site. The segment of Shands Road between Trents Road and Hamptons Road, adjacent to the Plan Change site, is a two-lane carriageway with one traffic lane in each direction. Shands Road is consistent throughout the section between Trents Road and Hamptons Road, providing a shoulder roughly 1.5m in width on both sides of the road and a painted centreline. The overall road reserve width is 20m. There are no footpaths or cycle facilities on either side of the carriageway.

5.4 The District Plan classifies Shands Road as an Arterial road. The posted speed limit along Shands Road ranges from 100km/h to 50km/h, with an 80km/h speed limit within the vicinity of the site.

5.5 Trents Road runs in a north/west – south/east orientation between the towns of Templeton and Prebbleton, and is approximately 5km in length. Templeton is located approximately 3km from the site and Prebbleton town centre is conveniently located approximately 1-2km from the site. To the north/west Trents Road provides direct access onto SH1 at Templeton.

5.6 The Operative District Plan does not classify Trents Road, however it is classified as a Collector under the Proposed District Plan. The posted speed limit along Trents Road ranges from 80km/h to 50km/h, with 70km/h speed limit within the vicinity of the site. Trents Road provides no shoulder, footpaths or cycle facilities with a painted centreline. From Oakley Drive to Springs Road that is an existing residential area, Trents Road provides on-street parking and footpaths on both sides of the road, no cycling facilities are provided. The overall road reserve width is 20.4m throughout.

5.7 Hamptons Road runs north/west – south/east orientation between Waterholes Road to end of road approximately 5km in length. The segment of Hamptons Road between Shands and Springs Road adjacent to the site, is a two-lane carriageway with one traffic lane in each direction. Hamptons Road provides

[2] SDC April 2021 traffic counts database, count date November 2020
[3] SDC April 2021 traffic counts database, count date July 2019 and located to the north of Oakley Drive
[4] SDC April 2021 traffic counts database, count date October 2020
[5] SDC April 2021 traffic counts database, count date August 2019

no shoulder, footpath or cycle facilities with a painted centreline. The overall road reserve width is 20m throughout.

5.8 The District Plan classifies Hamptons Road as an Arterial Road. The posted speed limit on Hamptons Road is 80km/h throughout. Within the ONRC, Hamptons Road is classified as a Primary Collector. I consider that it would be appropriate to review this speed limit should the plan change be approved.

5.9 I have updated the safety assessment from the ITA using the Waka Kotahi Crash Analysis System (CAS) database for the period of 2017 to 2021 (2022 inclusive). The results are shown in Table 1 and identified 31 crashes in the vicinity of the site.

5.10 The crash history shows that most of the crashes are concentrated at the intersections of Shands and Hamptons Road and Springs and Trents Road. This is due to the higher traffic volumes travelling along Shands Road and Springs Road. Three of the four reported serious crashes that occurred were due to vehicles failing to stop or give-way to other vehicles on Hamptons Road. The serious injury crash was caused by a motorcycle failing to stop for a truck waiting to turn right onto Hamptons Road. Additionally, three of the four serious injury crashes were a result of inexperience. It is noted that Council have plans to install large rural roundabouts at the two Shands Road intersections in the next three years where 17 of the crashes (and all crashes classified by Waka Kotahi as serious crashes) have occurred. Roundabouts are an excellent treatment to reduce vehicle speeds and control vehicle conflicts for all movements, therefore I fully expect this will substantially improve safety performance.

Location	Fatal	Serious	Minor	Injury Total	Non-Injury	Total
Intersection of Hamptons Road and Springs Road.	0	0	1	1	5	6
Intersection of Trents Road and Springs Road	0	0	0	0	0	0
Intersection of Shands Road and Trents Road	0	0	2	2	3	5
Intersection of Hamptons Road and Shands Road	0	4	1	5	7	12
Hamptons Road between Springs Road and Shands Road	0	0	0	0	0	0

Springs Road between Hamptons Road and Trents Road	0	0	1	1	1	2
Trents Road between Springs Road and Shands Road	0	0	0	0	1	1
Shands Road between Trents Road and Hamptons Road	0	0	0	0	5	5

Table 1: 2017-2021 Crashes in the vicinity of the site

5.11 Due to the rural nature of the site, it is currently not well connected to the local pedestrian network. Along the frontage of the site there are no footpaths on either side of the road available and there are no pedestrian crossing facilities available.

5.12 There are limited cycle facilities as the roads are currently rural in nature. There is an existing shared path that runs along Springs Road that connects Prebbleton to the Christchurch cycle network. There are no cycling facilities at the frontage of the site, with the nearest being the existing facilities on Springs Road approximately 1km east of the site. The existing cycle network in the site vicinity is shown in **Figure 2**.

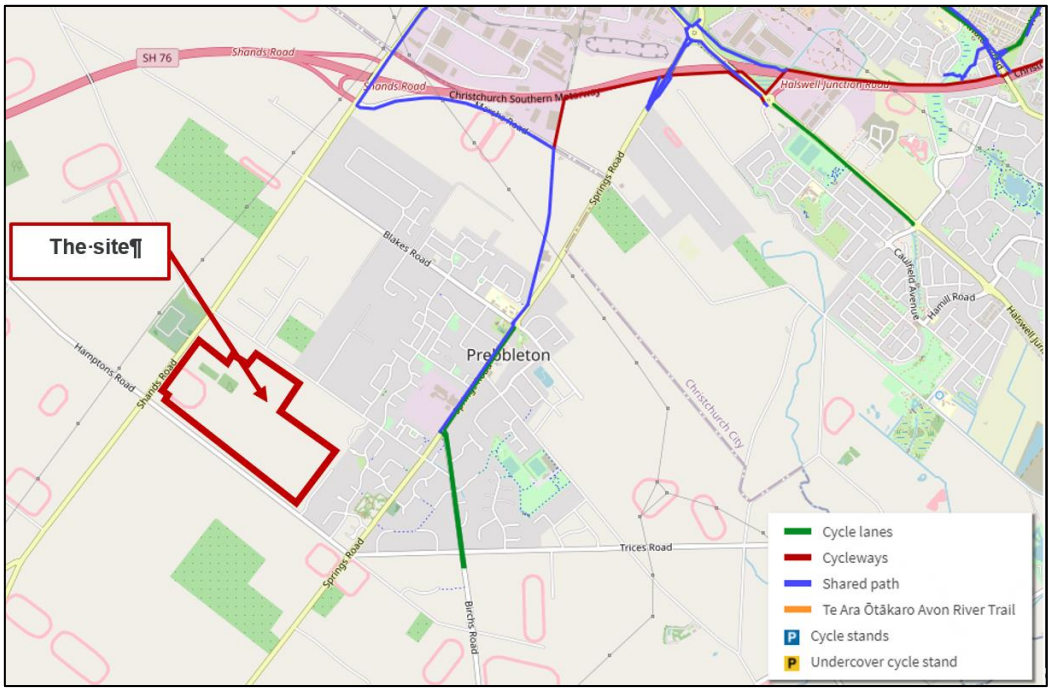

Figure 2: Prebbleton cycle network (Source: Christchurch City Council)

5.13 Currently there are several bus stops along Birches and Springs Roads, that travel through Prebbleton township which are serviced by Bus Route 80 (and

express route 81) operating between Lincoln and Parklands. This bus route operates at high frequency intervals every 15 mins during peak times and then every 30mins during non-peak hours on weekdays and on weekends. The nearest bus service to the site is Route 80 as shown in **Figure 3**. This service is approximately 1km from the nearest edge of the site which is an approximate 12-15 minute walk.

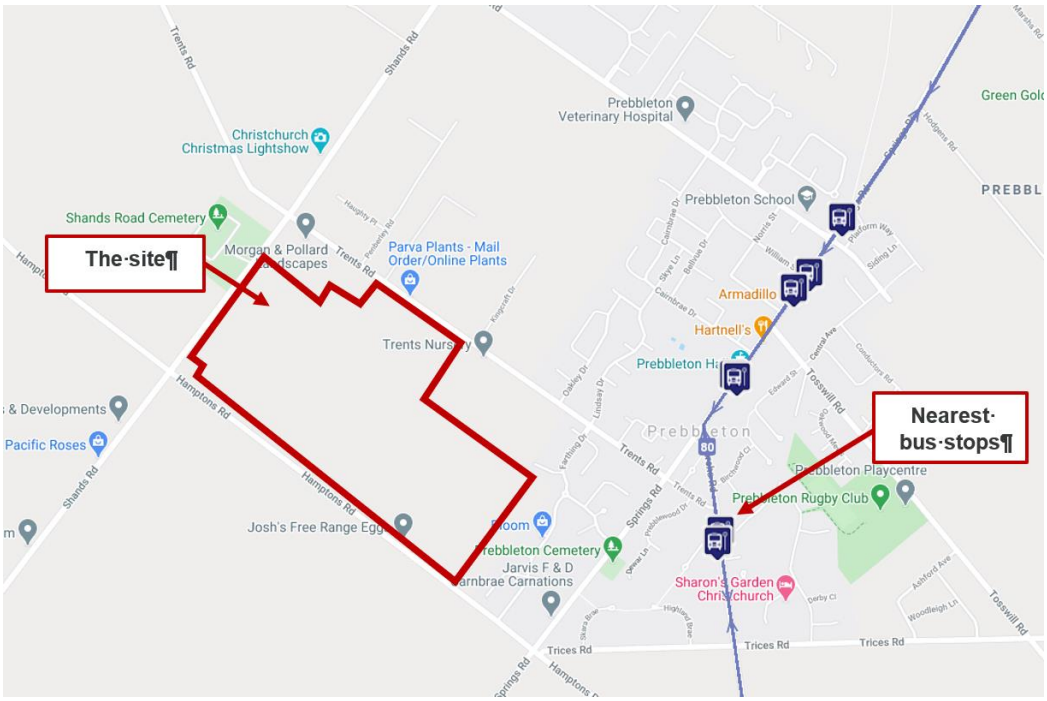

Figure 3: Location of bus services (Source: Environment Canterbury)

6 Future Receiving Environment

6.1 Section 3 of the ITA presents the future receiving environment as at 2021. There are several roading upgrades planned in the vicinity of the site and included in the Selwyn District Long Term Plan (LTP) which was adopted by Council in June 2021. Four projects are planned within the LTP for 2021 – 31 including the construction of the:

(a) Shands Rd / Trents Rd roundabout which is understood to likely be a single lane rural roundabout plus seal widening of Trents Rd east to near Lindsay Drive in 2022/23,

(b) Shands Rd / Hamptons Rd roundabout which is understood to likely be a dual lane rural roundabout plus seal widening of Hamptons Rd between Shands Rd and Springs Rd in 2023/24,

(c) Springs Rd / Hamptons Rd roundabout in 2024/25 which is likely to be an urban single lane roundabout, and

(d) the Templeton to Prebbleton Cycleway along Trents Rd in 2023/24 which is an off road cycleway which runs adjacent to the site.

6.2 A township footpath extension is also proposed with $0.3m allocated each year to further encourage active transportation.

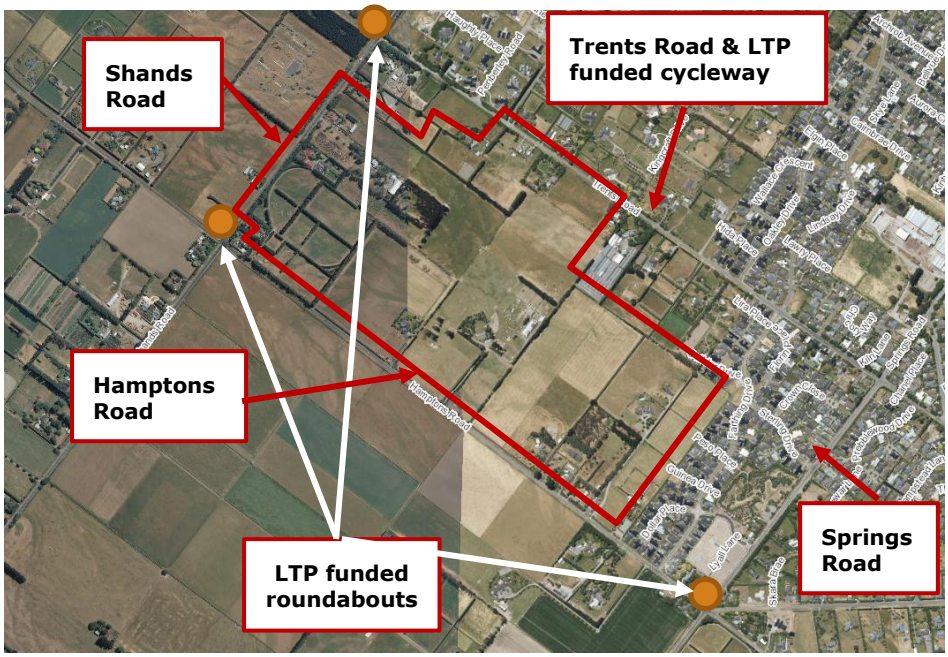

Figure 4 Future funded infrastructure

7 Proposed Plan Change

7.1 The Plan Change will enable an area of land located in south-east Prebbleton to be developed for housing. The area is approximately 67 hectares of land which is proposed to change from Inner Plains to Living Z under the Operative District Plan. The Outline Development Plan (ODP) area accommodates approximately 820 dwellings.

7.2 The site will gain access to the existing road network from Trents Road, Guilder Drive extension, Guinea Drive extension and five access points on Hamptons Road as shown in the ODP. Two further walking and cycling connections into the adjacent urban development to the southeast of the Plan Change site are also proposed in the ODP. I consider this to be well integrated with the surrounding urban and rural areas.

8 Accessibility

8.1 I have assessed the Plan Change against the commuter maps available through Statistics New Zealand in Section 5 of the ITA which shows the destinations people are travelling to and from within a selected area. This was used to determine the level of accessibility by each mode of transport.

8.2 I have concluded that the site has good accessibility based on:

(a) Travel durations between Prebbleton and key destinations are relatively comparable between private and public transportation modes.

(b) Hornby, Lincoln and Islington can be reached by cycling with an approximate 20 minute cycle ride which will be further supported as cycle infrastructure improves across the District.

(c) The only exception to this is Islington, where public transport takes longer than the other modes due to the lack of a direct service.

8.3 Prebbleton is currently served by bus route 80 travelling to Parklands, Christchurch Central and Lincoln which operates every 15 minutes peak and 30 minutes offpeak. There are also four express services (as route 81) that run between Lincoln and Christchurch central (including pick up and drop off in Prebbleton), two in the morning peak and two in the evening peak to provide for more direct travel between Prebbleton and Christchurch central.

8.4 The Little River Rail Trail has experienced strong growth and the section between Prebbleton and Lincoln is used by upwards of 200 cyclists each day. Future cycle links are planned as indicated by the LTP indicating a cycleway between Templeton and Prebbleton in 2023/24. This will aim to connect Selwyn's high growth eastern townships to the wider city cycle networks via the Rail Trail. Further links are indicated in the Walking and Cycling Strategy for Selwyn District.

9 Travel Characteristics and Trip Generation

9.1 I have calculated the trip generation rates using the most recent surveys from the Trips Database Bureau (TDB) for residential dwellings. I have found the peak hour trip generation rate within TDB surveys was higher than the Roads and Traffic Authority (RTA) Guide to Traffic Generating developments and therefore has been used to provide a conservative assessment of trip generation.

9.2 The Plan Change will consist of approximately 820 low to medium density residential dwellings. Using the TDB peak hour trip rate of 0.9 trips per dwelling in peak hour and 8.2 trips per day, 738 and 6,724 additional trips will be generated by the development respectively.

9.3 I have undertaken a trip distribution assessment using Statistics New Zealand 2018 Journey to Work data[6]. The methodology of the assessment is found within Section 6.2 of the ITA and was concluded to provide a robust and conservative trip distribution estimation for the new trips generated by the Plan Change.

9.4 Applying the methodology I estimate that 55% of trips will travel towards Christchurch and the remaining 45% of trips will travel towards Prebbleton, Rolleston and Lincoln (each having an approximate 15% distribution of trips). A total of 406 trips in peak hour will travel towards Christchurch and 111 trips each will be directed towards each of Prebbleton, Rolleston and Lincoln.

10 Network Effects Assessment

10.1 Section 7 of the ITA presents the capacity and modelling assessment I have undertaken to understand local and wider network effects using the data obtained from the traffic surveys conducted during peak hours.

10.2 The traffic surveys undertaken were conducted on Thursday 22nd of October 2020 and Friday 23rd of October 2020 to provide a baseline for evening and morning peak respectively and represent pre-COVID travel demand. The intersections surveyed were Hamptons Road/Springs Road, Trents Road/Springs Road, Shands Road/Trents Road and Hamptons Road/Shands Road. The results showed that morning peak hour is between 7:15-8:15am and the evening peak hour is between 4:30-5:30pm.

10.3 I have undertaken a capacity assessment by forecasting 2030 traffic volumes both with and without the development traffic. The forecasts have been based on 2.8% growth per annum on all corridors from 2020-2030. The 2.8% growth aligns with the Statistics New Zealand medium growth population forecast from 2018-28 for Selwyn District and has been adopted as an indicator of likely traffic growth.

10.4 The capacity of each corridor has been calculated using a best practice assessment based on the Austroads Guide to Traffic Management Part 3. The results of the capacity assessment are within Section 7.3 of the ITA and it was concluded that the Shands Road corridor has a volume to capacity (V/C) ratio of 0.78 in the morning peak and 0.88 in the evening peak and Springs Road has a V/C of 0.76 morning peak and 0.84 evening peak. I conclude that both corridors have sufficient capacity to accommodate the full development of the site in the vicinity of the Plan Change.

[6] Sourced from https://www.stats.govt.nz/tools/commuter-waka-2018-census-data-visualisation

10.5 I have used SIDRA Intersection modelling software to model the intersection performance in proximity to the plan site. The results are presented in the ITA as intersection delays and as Level of Service (**LoS**) which is a function of delay. LoS is a concept used by transportation engineers to qualitatively describe network performance as shown in the classifications of **Table 2**.

Level of Service (LoS)	**General Traffic Flow Description**	**Intersection Performance Description**
LoS A	Primarily free-flow operation.	No delay
LoS B	Reasonably unimpeded operation with very small intersection delays.	Very small delays
LoS C	Stable operation.	Give way and stop control intersections have delays of 15-25 seconds on average, and signals and roundabouts experience delays of 25-35 seconds on average weighted across all approaches.
LoS D	A less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed.	Give way and stop control intersections have delays of 25-35 seconds on average, and signals and roundabouts experience delays of 35-55 seconds on average weighted across all approaches.
LoS E	Characterised by unstable operation and significant delay.	Give way and stop control intersections have delays of 35-50 seconds on average, and signals and roundabouts experience delays of 55-80 seconds on average weighted across all approaches.
LoS F	Characterised by flow at extremely low speed. Congestion	Give way and stop control intersections have delays of over 50 seconds on average, and

Level of Service (LoS)	General Traffic Flow Description	Intersection Performance Description
	occurring at boundary intersections, as indicated by high delay.	roundabouts and signals experience delays of over 70 or 80 seconds (respectively) on average weighted across all approaches.

Table 2: Level of Service (LoS) descriptions

10.6 I have run the SIDRA model for the observed morning peak period of 7:15am to 8:15am and evening peak period of 4:30pm to 5:30pm. Peak scenarios for a future year of 2030 have been modelled both with and without the development traffic to inform the assessment of effects and intersection performance has been assessed for the following intersections with locations shown in Figure 3. Three development scenarios have been modelled including a Base Scenario (2020), Future Base Scenario (2030) and Future Development Scenario (2030). All intersections in the Base Scenario model are stop controlled and in the Future Scenarios all intersections other than the Springs Road / Trents Road intersection will be roundabouts as per the Selwyn District LTP. I have summarised this below.

(a) Shands Road / Trents Road intersection – Stop controlled in Base Scenario and dual lane roundabout in Future Scenarios. It is noted that since preparing the ITA it has become evident that this upgrade is intended to be a single lane roundabout. Additional modelling is presented in section 12 of this statement of evidence to address this matter.

(b) Shands Road / Hamptons Road intersection – Stop controlled in Base Scenario and dual lane roundabout in Future Scenarios

(c) Springs Road / Hamptons Road intersection – Stop controlled in Base Scenario and single lane roundabout in Future Scenarios

(d) Springs Road / Trents Road priority intersection – Stop controlled in Base and Future Scenarios

10.7 To consider the effects of the development it is helpful to see the results of intersection performance for each scenario side-by-side. The Future Base Scenario (2030) and the Future Development Scenario (2030) are shown in the following tables for each of the intersections. A summary of the approach with the greatest delay and LoS of each intersection with and without Plan Change traffic in the morning (am) and evening (pm) is shown in **Table 3**.

	Future Base Model			Future Development Model		
Intersection	**Vehs/ hour**	**Delay (sec)**	**LoS**	**Vehs/ hour**	**Delay (Sec)**	**LoS**
a. Shands / Trents (am)	2000	7.2	A	2354	8.7	A
a. Shands / Trents (pm)	2426	7.4	A	2762	8.2	A
b. Shands / Hamptons (am)	1765	6.9	A	1961	7.5	A
b. Shands / Hamptons (pm)	2407	7.7	A	2601	8.4	A
c. Springs / Hamptons (am)	942	5.9	A	1115	6.5	A
c. Springs / Hamptons (pm)	1274	6.6	A	1449	7.2	A
d. Springs / Trents (am)	1062	15.4	C	1312	19.4	C
d. Springs / Trents (pm)	1494	20.1	C	1759	25.5	D

Table 3: Intersection assessment summary

10.8 The assessment demonstrates that the performance of the key intersections is similar under each scenario with average intersection delays at all but Springs Road / Trents Road, increasing by four seconds in the morning and just over five seconds at the three intersections which operates at LoS C or D. All other intersections operate at Los A with the largest change in delay being 1.5 seconds. Overall, I conclude that the changes in road and intersection performance in relation to the Plan Change are minimal and the effects are acceptable given the construction of the three roundabouts as intended by Council through the delivery of the LTP.

11 Strategic Planning Framework

11.1 Section 8 of the ITA includes a review of the Plan Change against both regional and local policy documents. I have concluded as set out in the ITA that the Plan Change is not anticipated to give rise to adverse effects on the strategic transport network and does not require any new external roading links. I consider that the Plan Change is consistent with and/or not contrary to the Canterbury Regional Land Transport Plan 2021-31, Canterbury Regional Public Transport Plan 2018-28, and the objectives and policies of the District Plan to the extent that these documents contain provisions in respect of transportation.

11.2 The Canterbury Regional Land Transport Plan (2021-2031) sets out the vision and strategic objectives for the transport system, priorities for investment and the regional programme of transport activities. The vision of the plan is to "provide all transport users with sustainable options that move people and freight around and through our region in a safe and efficient way that enables responses to future challenges." The plan sets out strategic objectives including mode shift, and reliable and consistent journeys. I consider that the Plan Change is not inconsistent with these objectives as the site is within walking and cycling distance of Prebbleton town centre with good infrastructure provision for these modes. The Plan Change is also well located to support the provision of high-quality public transport which could be delivered along Springs Road or through the Plan Change site using the primary road.

11.3 The Canterbury Regional Public Transport Plan (2018-2028) sets out Environment Canterbury's objectives and policies for delivering public transport in Canterbury. One of the key objectives of the plan is to achieve "*A network of public transport services in the Greater Christchurch and Timaru urban areas that provides people with access to key destinations."* This includes service to and from satellite centres, including Prebbleton. To achieve this, four new high frequency routes are proposed. The proposed bus route network shows a high frequency service between Prebbleton and Christchurch CBD. This route was implemented with the opening of CSM2 in September 2020, travelling along the Springs Road corridor stopping at existing bus stops. This has resulted in improved public transport accessibility between the site and the Christchurch CBD.

11.4 I consider that the proposed plan change is consistent, or not contrary, with the objectives and policies of the Operative Selwyn District Plan. It is anticipated that at resource consent stage of any development, the transport related District Plan Rules will form an appropriate basis for the design and layout of the internal site.

12 Submissions

12.1 I have reviewed the submissions received on the Plan Change and address the issues raised in turn in the following paragraphs. I have categorised the submissions into different themes as follows:

(a) congestion and traffic volumes,

(b) cumulative effects,

(c) road safety,

(d) public transport connectivity,

(e) sustainability,

(f) walking and cycling, and

(g) site specific issues.

Congestion and Traffic Volumes

12.2 Submissions #4, #12, #25, #26, #33, #34, #36, #40 and #41 raise concerns relating to the congestion on the road network and increased travel to and from Christchurch.

12.3 Submissions #4, #40 and #41 state that congestion is an existing issue and the anticipated traffic generated from the plan change traffic from the plan change will exacerbate this. I have undertaken a capacity assessment reported in Section 7.3 of the ITA and section 10 of this statement of evidence. This concludes that with the addition of ten years of traffic growth, Shands Road and Springs Road in the vicinity of the Plan Change site have sufficient capacity to accommodate the full development of the site. As noted in section 6 of this evidence statement, three of the adjacent intersections are also funded by Council to be upgraded to roundabouts with resultant improvements in safety and efficiency. Following the installation of these roundabouts I expect that the local network will operate in a much more efficient manner with reduced congestion levels relative to those observed by submitters.

12.4 Submissions #2, #8, #28, #29 and #38 raise similar concerns over the increased traffic in the plan change area and the capacity of the roads on the network. I have presented evidence within the capacity assessment and intersection modelling undertaken within Section 7 of the ITA. The results of my analysis demonstrated that future receiving environment has sufficient capacity to accommodate the increased traffic that would result from the plan change. Furthermore, the Springs and Shands Road corridors have residual capacity and the stop-controlled intersection on Springs Road at Trents Road adjacent to the site corridors operates with satisfactory level of service during peak periods.

12.5 Concerns over Trents Road ability to handle more traffic have been raised by Submitters #12, #25, #33 and #36. I recorded traffic volumes on Trents Road in October 2020 peak hours and identified 88 vehicles and 110 vehicles travelling eastbound in the morning and westbound in the afternoon peak hours respectively. In comparison this is 6-7% of Shands Road and 9-12% of Springs Roads traffic volume, indicating minimal flows on Trents Road in relative terms. Trents Road has funding allocated for seal widening and the upgrade of Shands Rd/ Trents Road intersection within the Selwyn LTP will further improve the operation of this corridor. The SIDRA modelling I report on in section 12 later in this evidence statement demonstrates the upgraded Shands Road / Trents Road intersection will operate at a LoS C. The Springs

Road / Trents Road intersection will operate at a LoS D with the future development which I consider to be acceptable in an urban peak hour context with the development traffic adding no more than 5 seconds of delay at this location.

12.6 Submissions #28 and #34 consider that there has been no consideration for the wider effects on Christchurch City with the road network not being able to handle the growth. As reported in paragraph 9.3-9.4 of this evidence, Statistics New Zealand 2018 Journey to Work data[7] indicates that 55% of Prebbleton vehicle trips recorded in the 2018 census travel towards Christchurch and the remaining 45% of trips will travel towards Prebbleton, Rolleston and Lincoln. This equates to approximately 406 trips travelling towards or from Christchurch in peak hour.

12.7 A more detailed assessment of the Journey to Work data shows that the most significant workplace attractors in Christchurch include Middleton, Hornby Central and Christchurch Central and education attractors include Ilam University and Bush Inn (location of Riccarton High School) which demonstrates the likely dispersed nature of locations of traffic from the Plan Change site. I expect that traffic accessing Christchurch suburbs will disperse between Springs Road and Shands Road and to a lesser extent may use Trents Road and Trices Roads to access the westernmost and southernmost suburbs. These vehicle trips will become increasingly dispersed and diluted as they travel further from the Plan Change site across the road network and will have an increasingly lessened effect across the wider Christchurch City transport network.

Cumulative effects

12.8 Submissions #13, #22, #23, #35 and #41 have stated concerns regarding the cumulative effects the plan change with other proposed development in the area. I have provided further information on this issue as follows.

12.9 The modelling assessment which has been undertaken and reported in section 10 of this statement of evidence included 28% growth in traffic to replicate the cumulative effect of ten years of further development in the District based on future forecast population increases. This growth rate aligns well with the Selwyn District forecast included in Appendix 2 to the QTP report included with the Section 42A report for the Plan Change. The QTP report presents 'Scenario 1' which is a forecast agreed by the Greater Christchurch Partnership Committee and included 34% growth from 2018-2028 and 53% growth from 2018-2038. When rebased to 2021 (as is consistent with my modelling) this

[7] Sourced from https://www.stats.govt.nz/tools/commuter-waka-2018-census-data-visualisation

equates to 2.3% per annum out to 2038. As such I consider that my modelling provides a robust assessment of the likely future traffic demands in the vicinity of the Plan Change site if Prebbleton, Rolleston and Lincoln continue to develop in line with Statistics New Zealand forecasts and the expectations of the Greater Christchurch Partnership Committee.

12.10 Selwyn District Council have also signalled their commitment through the Selwyn District Long Term Plan 2021-31 to upgrade transportation infrastructure to facilitate future traffic growth as the District continues to grow. Current and future traffic growth in Rolleston, Lincoln, Prebbleton and Leeston will feed traffic onto the Shands Road and Springs Road corridors, and the future operation of these corridors will be a function of the cumulative effect of this traffic as development occurs.

12.11 Whilst Shands Road and Springs Road have finite capacity based on the current intersection arrangements and carriageway capacity, Council has anticipated future growth and included upgrades in the vicinity of PC68 and further north along these corridors towards Christchurch. As such, the capacity of these corridors is anticipated to reduce over time and this will be a function of growth across the Selwyn District generally, rather than exclusively due to Plan Change 68.

12.12 Selwyn District Council's Development Contributions (DC) Policy is a suitable mechanism to fund future upgrades including additional works which may be required along the Shands and Springs Road corridor. The DC policy is currently regularly updated to align with infrastructure identified in the three-yearly Long Term Plan (LTP) cycle, therefore it is possible to levy for additional infrastructure which may not already by identified in the current LTP but is required in the future as a result of cumulative growth across the District. Whilst traffic associated with PC68 (and other Plan Changes that have been lodged or recently approved in the District) may bring forward the need for additional projects not currently in the LTP, the development contributions policy provides a means to levy developers to fund any network upgrades required because of cumulative effects.

Road Safety

12.13 Submitters have highlighted concerns as a result of increased traffic on the network. Submitters #8, #19, #29, #28, #33 have raised concerns over pedestrian and cyclist safety whilst submitters #12, #20, #25, #37, #38 and #41 have concerns regarding road safety in general.

12.14 I acknowledge that the site is located in an area that currently has limited provision for pedestrians and cyclists. I acknowledge that there are no

footpaths currently along the site frontage and there is on street cycle lanes located on Springs Road. However, a key future project that will be located along the Trents Road frontage is a cycleway between Templeton and Prebbleton which is within the draft LTP for 2023/24 [8]. I consider this project will increase cyclist safety in proximity to the site and is likely to be designed as a shared path to allow for pedestrian use.

12.15 The neighbouring subdivision to the site offers alternative routes to walk or cycle to Springs Road avoiding Trents Road and Hamptons Road. I am aware that Guinea Drive and Guilder Drive will be extended as per the ODP to connect the neighbouring subdivision to the east and two walking and cycling connections are also proposed in the ODP. As part of the Selwyn District Plan [9] speed environments and traffic volumes within local streets are low and best suited for walking and cycling between streets.

12.16 Submission #29 has raised the issue that an excessive amount of vehicle accesses can have safety implications. Currently there is one access point on Trents Road and five access points on Hamptons Road proposed. This access density is typical for an urban development and not expected to raise any atypical safety implications. The design of the access points will be similar to the neighbouring development and will be subject to a safety audit under Selwyn District Council's engineering code of practice. Consideration of access design will be addressed at subdivision consenting stage and safety considerations will be addressed in detail as part of that and subsequent design stages.

12.17 I have assessed the road safety in the site locality in Section 2.7 of the ITA and it is my view that there are no underlying safety issues along any of the corridors in terms of crash history or underlying risk assessment of the road environment. Selwyn District Council intend to upgrade Shands Road and Trents Road, Shands and Hamptons Road, and Springs Road and Hamptons Road intersections to roundabouts which will reduce vehicle speeds and will control all vehicle movements through each intersection. I further recommend that the speed environments on the adjoining corridors are evaluated should the plan change be approved to be consistent with an urban environment for all road users. I understand that speed limit changes are not an RMA matter and will have to be implemented by Selwyn District Council.

12.18 Submissions #20 and #41 have specific concerns relating to the safety of the upgraded intersections, regarding the potential conflict with vehicles and

[8] https://www.selwyn.govt.nz/__data/assets/pdf_file/0008/282563/Final-2018-Walking-and-Cycling-Strategy_v3-Adopted.pdf
[9] https://eplan.selwyn.govt.nz/eplan/#Rules/0/47/1/0/0

visibility at the intersections. Three of the four adjacent intersections are proposed to be upgraded into roundabouts. Roundabouts are designed to minimise head on collisions between vehicles and slow vehicles approaching in all directions. These upgrades alleviate safety risk at three of the four intersections. The intersection at Springs Road and Trents Road will continue to operate as a stop-controlled intersection and this intersection has had no recorded crashes in the past 5 years. Safety audit processes will be required in the design process of the roundabouts as required under the Selwyn District engineering code of practice and this would consider a broad range of considerations for all road users including sightlines to ensure there is satisfactory visibility on all intersection approaches.

Public Transport Connectivity

12.19 Concerns over a lack of public transport connectivity to the proposed plan change area has been raised by Submitters #18, #21, #25, #26, #28, #29, #30, #32 and #34. All concerns address a lack of public transport network or bus stops the locality of the Plan Change site.

12.20 As the site is currently undeveloped, I acknowledge that the existing level of public transport being provided nearby is limited. However, the Greater Christchurch Public Transport Combined Business Case[10] states an intention to enhance connections between Lincoln, Prebbleton and the activity centre along Riccarton Road in the medium term as part of an initiative to expand frequent network coverage. This acknowledges the need for and intention to deliver improvements in connectivity in the general vicinity as Selwyn District grows.

12.21 It is my view that as Prebbleton develops there are options available to redirect services to better serve PC68 in the future including running public transport services along Springs Road past the Plan Change site. I also consider that the primary road through the site would be a suitable corridor for future public transport movement and as a primary road will be engineered to a suitable standard to accommodate buses and public transport infrastructure such as bus stops.

12.22 This would be further supported by ensuring there is a high standard of access for walking within the Plan Change site to bus stops which will be key to a well-integrated transport network to maximise potential future public transport opportunities. I note that there would likely need to be a sufficient residential

[10] https://api.ecan.govt.nz/TrimPublicAPI/documents/download/4106274states

catchment in the vicinity of the Plan Change site prior to a dedicated route being provided by the Regional Council.

Sustainability

12.23 Submissions #18, #21, #26, #34 and #40 have expressed concern over the sustainability of the proposed plan change, relating to emissions and reliance on the private car.

12.24 The Plan Change site is located 16km from the Christchurch central city which is in closer proximity then many other satellite towns with greenfield development including Kaiapoi (20km), Lincoln (22km), Rolleston (25km), West Melton (25km) and Rangiora (28km). The distance to Christchurch central city is comparable to and in many cases less than travel within the Christchurch City boundary. Whilst there is a level of reliance on Christchurch as the main centre for employment within the Region, I consider that Prebbleton is well located to restrict vehicular travel and associated emissions compared to other developing urban areas located further away.

12.25 Reducing vehicular travel is further supported by the potential to improve public transport provision to better connect the Plan Change site with Christchurch and Lincoln. The site also is well connected for walking and cycling to the Prebbleton town centre, school and other key destinations within the township. As new technologies become more established including the continued uptake of electric and hybrid vehicles and buses, vehicle-related emissions across the fleet are expected to decrease significantly as signalled in Waka Kotahi's Vehicle Emission Prediction Model [11]. The VEPM estimates that by 2048 two-thirds of New Zealand's vehicle fleet will be electric or hybrid vehicles and the average carbon dioxide equivalent emissions per vehicle will reduce by as much as 60% as shown in Figure 5 which I have developed from VPEM data.

[11] https://www.nzta.govt.nz/assets/Highways-Information-Portal/Technical-disciplines/Air-and-climate/Planning-and-assessment/Vehicle-emissions-prediction-model/VEPM-6.2-technical-report-2021.pdf

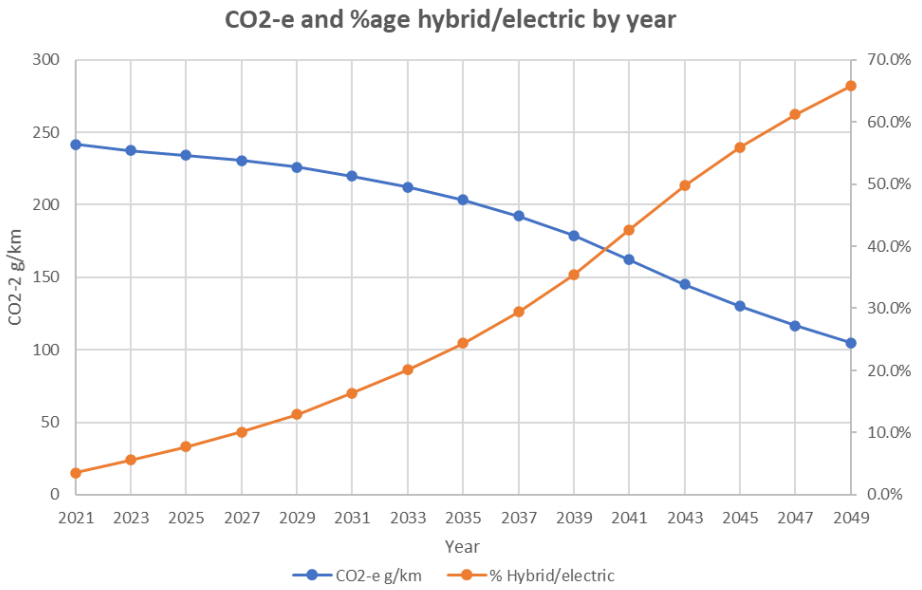

Figure 5 VPEM Fleet Composition and emissions trends over time

Walking and Cycling

12.26 Submissions #8, #19, #27, #29 and #33 have raised concerns over pedestrian and cycling infrastructure in the proposed area, and submitters #18 and #21 want more provision for walking and cycling.

12.27 I have provided an assessment of the walking and cycling provisions within Section 5 of the ITA. I highlighted the importance of the Templeton and Prebbleton link along Trents Road connecting Prebbleton to Christchurch City Councils cycling Infrastructure and the Little River Rail Trail. I understand this will be funded by Selwyn District Council and established in 2023/24 as per the LTP.

12.28 I understand that there is no further pedestrian or cycling infrastructure planned or to be developed on Shands Road or Hamptons Road. Pedestrian and cycling use will be limited as both Trents Road and Springs Road will offer more attractive pedestrian and cycling infrastructure. I consider Trents Road to be better located for the proposed pedestrian and cycle link as it is closer to the Prebbleton town centre and Springs Road has existing pedestrian and cycling facilities acting as a connector between Christchurch and Lincoln.

12.29 I understand that in terms of the wider pedestrian and cycling infrastructure there are new pathways and connections provided for in the design of the CSM2 that link Rolleston to the south of Templeton, and there is now an extension of the Rail Trail to the north of Prebbleton connecting to the Christchurch Southern Motorway separated shared path. Springs Road offers on road cycle

lanes and footpaths connecting the site to the separated shared path to Lincoln that follows Birches Road ending within the town centre.

Site Specific Matters

12.30 Safety concerns have arisen regarding travel to Prebbleton School by submissions #27 and #29. These concerns relate to the absence of footpaths and cycle facilities on Trents Road and Hamptons Road, putting pedestrians and cyclists at risk if they chose to take these routes. I have undertaken an assessment of the pedestrian network from the edge of the site to Prebbleton School. I consider that Hamptons Road does not need to be used for active modes to travel from the site to the school as the internal roading within the Plan Change site efficiently connects pedestrians and cyclists to Trents Road.

12.31 Trents Road will need to be crossed, however, as shown in **Figure 5** however it is noted that Trents Road can be crossed in the vicinity of Farthing Drive which is a 50km/h speed environment and experiences relatively low traffic volumes.

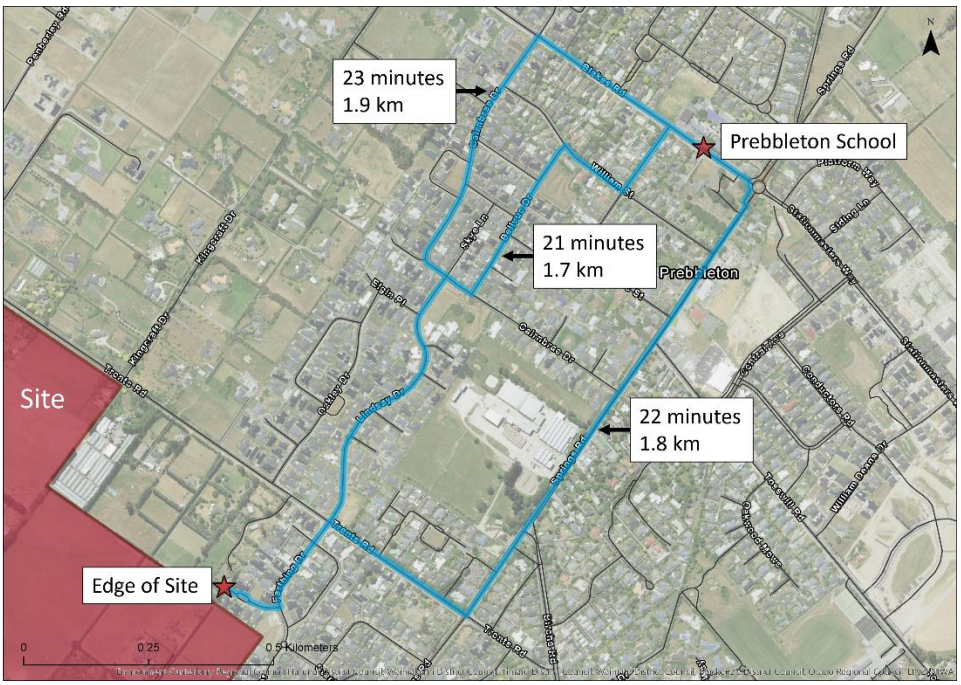

Figure 4: Walking distance and time to Prebbleton School from the edge of the site

12.32 The routes shown in **Figure 5** demonstrates that Prebbleton School is within walking distance of the school, taking a little over 20 minutes to walk from the edge of the site and is an approximate 5-6 minute bike ride from the edge of the site. The routes shown above I consider to be safe options for both pedestrians and cyclists with Springs Road having a shared path and the local

streets being design for a low-speed environment with low traffic volumes. Furthermore, a cycle facility (and likely shared path) is to be installed by Council on Trents Road to connect to these routes.

12.33 Submission #42 has expressed concern over the safety of their mowing operations in relation to the increase in traffic and widening of Hamptons Road which will change amenity and make roadside mowing more dangerous. I acknowledge there will be an increase in vehicle activity but expect that as the area becomes increasingly urbanised (as would happen if the Plan Change were approved) there would be a consequent speed reduction by Council to reflect the changing environment. I consider that a speed reduction along Hamptons Road would improve safety, including for farm staff undertaking roadside mowing along the corridor. The process of setting appropriate speed limits is a matter for Council and not the applicant.

Response to the Council's Transportation Evidence in the Section 42A Report

12.34 Mr Clease on behalf of Selwyn District Council has prepared the Section 42A which includes a Transportation Hearing Report produced by Flow Transportation Specialists as Appendix B. Mr Collins is the principal author of the Flow Report. This Report addresses the transportation matters associated with PC68 and makes recommendations around the site ODP and the effects of the Plan Change on the wider transport network. A transportation modelling assessment titled "Future Year Transport Model Outputs: Selwyn 2031 Update (Selwyn 2051)' prepared by QTP is appended to Mr Collin's report. I address the key points from the Flow Report in the following paragraphs.

Cumulative and Wider Effects of Plan Changes

12.35 In section 4 of the Transportation Hearing Report Mr Collins presents the results and his assessment of the effects of development scenarios in Selwyn District on Shands Road and Springs Road based on a modelling report prepared by QTP. The modelling results are presented in the QTP report which is appended to Mr Collins report and includes a high growth scenario where 10,000 more households are developed in Selwyn District out to 2038 compared to the 'standard' population growth forecast agreed by the Greater Christchurch Partnership Committee.

12.36 Mr Collins[12] concludes that "*…regional modelling indicates that Shands Road and Springs Road are expected to experience little change in forecast traffic growth, when comparing a 2038 scenario with 10,000 additional dwellings more than forecast.*" I have reviewed the QTP report and agree with Mr Collins'

[12] Page 8 of Transportation Hearing Report

conclusion. I note that Mr Collins has calculated the cumulative number of households included within the Plan Changes that have been lodged in within 10% of this total and therefore this scenario is largely consistent with an assessment of the cumulative effect of all Plan Changes (up to and including PPC82) located within south-west Selwyn being approved and fully developed. I therefore consider that this addresses the concerns raised by some submitters regarding the potential cumulative effects of the various Plan Changes which have been lodged across the District.

Traffic Modelling

12.37 In section 5.1 of the Transportation Hearing Report, Mr Collins reviews the modelling included in the ITA. Three concerns are raised which I address in turn in the following paragraphs.

12.38 Mr Collins considers that the capacity assessment presented in section 7.3 of 2,700 vehicles per hour per lane in the ITA, overestimates capacities and offers a range of 2,070-2,530 vehicles per hour per lane. Mr Collins does not provide references to the source of, or any assumptions included in his assessment. Regardless I consider this to be a moot point as the modelled traffic volumes presented in table 7.1 of the ITA are less than the upper range quoted by Mr Collins, which essentially validates my own assessment.

12.39 Mr Collins recommends that no dwellings are occupied within the Plan Change site until such time as the intersection and carriageway upgrades for Hamptons, Shands and Trents Roads are complete or under construction. For completeness I understand these works are the intersection upgrades I refer to in paragraph 6.1 of this evidence statement and seal-widening projects in the LTP as follows:

(a) Springs Road / Hamptons Road roundabout (programmed for 2024/5);

(b) Shands Road / Hamptons Road roundabout (programmed for 2023/4);

(c) Shands Road / Trents Road roundabout (programmed for 2022/3);

(d) Trents Road seal widening (programmed for 2022/23); and

(e) Hamptons Road seal widening (programmed for 2024/25).

12.40 With construction of these projects programmed to be completed in or before 2024/5, I consider that it is very likely that all five projects would be in place prior to substantial development of the Plan Change site, assuming the Plan Change is granted. I have undertaken an assessment to determine the effects

of a modest extent of development occurring prior to the completion of these projects.

12.41 I have interpolated traffic demands for a forecast year of 2024 and modelled the impact of 120 lots being established at the southern end of the Plan Change area with direct access through Sterling Park via Guinea Drive and the southernmost access onto Hamptons Road. I have also modelled the impact of the full development of PC68 on the existing Springs Road / Hamptons Road intersection without the proposed roundabout upgrade. The resultant modelling results are shown in Table 4 with detailed results included in pages 1-4 of the attachment to this statement of evidence.

	2024 Model with 120 lots on PC68			**2030 Model with full development of PC68**		
Intersection	**Vehs/ hour**	**Delay (sec)**	**LoS**	**Vehs/ hour**	**Delay (Sec)**	**LoS**
Hamptons Rd west approach (AM peak)	145	11.5	B	199	14.7	B
Hamptons Rd east approach (AM peak)	83	12.3	B	94	14.0	B
Hamptons Rd west approach (PM peak)	171	15.7	C	214	21.1	C
Hamptons Rd east approach (PM peak)	103	16.7	C	118	26.6	D

Table 4: Springs / Hamptons existing intersection assessment

12.42 I have concluded from this assessment that:

(a) The Shands Road / Trents Road roundabout upgrade is required prior to any development occurring on the Plan Change site which is evidenced by the current congestion experienced at this intersection;

(b) When the Shands Road / Trents Road roundabout upgrade is complete there is likely to be a temporary shift of right turning traffic from the Shands Road / Hamptons Road priority control intersection to the Shands Road / Trents Road roundabout until such time as the Shands Road / Hamptons Road roundabout is installed. I have estimated that 120 lots would only generate up to 30 movements in peak hour through this intersection which is only one vehicle every

two minutes and 1-1.5% of the total movements forecast through the intersection at 2024. I consider it is very likely that re-routing from Hamptons to Trents Road would exceed this amount, and on this basis the Shands / Trents roundabout is not required prior to 120 lots being established on the site; and

(c) The Springs Road / Hamptons Road upgrade is not relied upon by the Plan Change as the intersection has sufficient capacity to accommodate the full PC68 traffic volumes in its current form with modest delays and excellent Level of Service out to 2030 as shown in Table 4.

12.43 I am of the view that 120 lots of development at the southern end of the Plan Change site can occur once the Shands Road / Trents Road roundabout is operational. This is proposed to have direct access through Sterling Park via Guinea Drive and include the southernmost access onto Hamptons Road.

12.44 With respect to the other infrastructure improvements noted by Mr Collins and listed in this statement in paragraph 12.39, I accept that the Shands Road / Hamptons Road roundabout should be installed prior to more extensive development of the Site, based on observations made during surveys of the intersection and my base year modelling presented in Appendix C to the Abley ITA which indicates there are currently lengthy delays experienced by right turning traffic in peak periods. However, the modelling results in Table 4 demonstrate that the development does not require the Springs / Hamptons Road intersection upgrade to be complete prior to full development of PC68.

12.45 I further note that the Trents and Hamptons Road seal widening projects are timed in the LTP to be delivered at the same time as the intersection upgrades. I consider that it would be beneficial for these to be in place prior to wider development of PC68 as the carriageway would be better suited to accommodate the higher traffic volumes associated with the development. It would be pragmatic to time these upgrades to coincide with the construction of the corresponding Shands Road roundabouts and/or the Hamptons and Trents Road frontage upgrades noted in the ODP.

12.46 Mr Collins rightly points out that the modelling in the ITA assumes that the Shands Road / Trents Road roundabout will be a dual lane roundabout and has advised that Council intends to construct a single lane roundabout at this location. I have confirmed with Mr Collins and Mr Mazey from Selwyn District Council that this is correct and a preliminary design has been supplied by Mr Mazey specifying the roundabout is intended to have a 30m diameter island with single circulating lane. I have revisited the Sidra Intersection modelling

assessment on this basis with results presented in the following table with detailed modelling results attached to this statement of evidence.

	2030 No PC68			**2030 With PC68**		
Intersection	**Vehs/ hour**	**Delay (sec)**	**LoS**	**Vehs/ hour**	**Delay (Sec)**	**LoS**
Dual lane roundabout (am)	2000	7.2	A	2354	8.7	A
Dual lane roundabout (pm)	2426	7.4	A	2762	8.2	A
Single lane roundabout (am)	1900	7.7	A	2236	36.5	D
Single lane roundabout (pm)	2305	9.3	A	2624	74.0	F

Table 4: Shands / Trents dual and single lane roundabout assessment

12.47 The updated modelling results demonstrate that there is a step change deterioration in performance of the roundabout if it were constructed as a single lane roundabout.

12.48 I have undertaken a further sensitivity test whereby an additional approach lane for left turning traffic is added to the Shands Road north approach, as shown in the configuration in Figure 5 below (this is an indicative layout taken directly from the Sidra Modelling software as modelled).

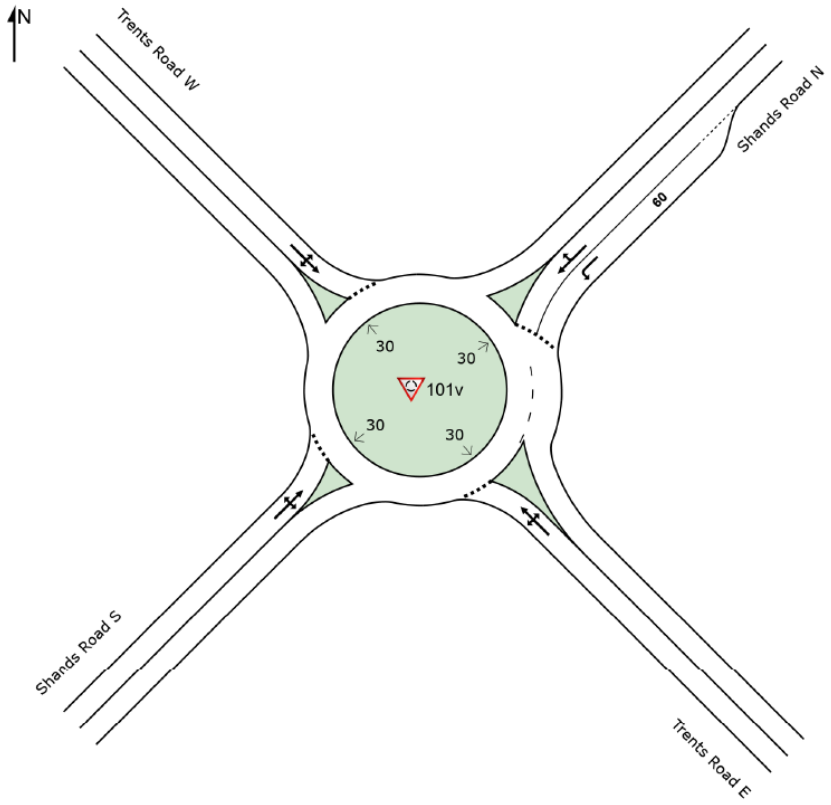

Figure 5: Proposed enhancement to Shands / Trents roundabout

12.49 The updated 2030 modelling results with the additional of the left turn are presented in Table 5 below. This presents morning (AM) and evening (PM) peak results with and without the Plan Change traffic alongside the results with the Plan Change and enhanced intersection layout. The key results are those in bold which represent the enhanced intersection performs well with PC68 traffic.

Approach	**AM no PC68**	**AM with PC68**	**AM with PC68 and 2 app lanes**	**PM no PC68**	**PM with PC68**	**PM with PC68 2 app lanes**
Trents East (from PC68)	11.2	13.5	**13.6**	29.1	44.7	**72.9**
Shands North (from Chch)	6.4	6.4	**5.9**	9.5	114	**7.4**
Trents West (towards PC68)	19.7	32.3	**34.3**	10.8	12.1	**12.1**
Shands South (towards Chch)	7.3	57.6	**29.7**	4.3	7.4	**7.5**
Overall Intersection delay	7.7	36.5	**21**	9.3	74	**11.6**
Overall intersection LoS	A	D	**C**	A	F	**B**

Table 5: Shands / Trents roundabout assessment with additional approach lane

12.50 In the morning peak hour the addition of a second through lane from the north results in a reduction in delays for northbound traffic due to a more steady stream of southbound through vehicles which previously may have been impeded by sharing a lane with left turners breaking up the flow of traffic from the PC68 (Trents East) approach. I also note based on the QTP cumulative effects modelling appended to Mr Collins' report that the Shands Marshes signals are expected to be the bottleneck along the corridor. Therefore, a delay of less than 30 seconds for northbound traffic in the morning is likely to be offset in part or full by a lower level of delay at Marshs Road, and in my view is acceptable in the context of a 15-30 minute journey to Christchurch or further afield.

12.51 In the evening peak hour, the addition of a second approach lane for left turners leads to a marked improvement in performance as the 215 left turning vehicles are no longer holding up southbound through traffic. The Trents Road east (from PC68) approach therefore has fewer gaps and delays do increase to LoS E/F range. However, given the relatively low flows on this approach in the evening peak there are no issues with vehicle queuing, all other approaches operate well and these levels of delay can be supported and are not atypical for urban areas in peak hour. This enhanced layout works better for the Shands Road north (from Christchurch) approach than the base model without PC68, and overall the intersection Level of Service is excellent with LoS C and B in the morning and evening peak respectively. The modelling results including the second approach lane from the north demonstrate excellent Level of Service and low levels of delay overall.

12.52 I consider that this proposed enhancement will maintain or improve the operational performance of the Shands Road corridor, will require less land take and be a lower cost solution compared to a full dual lane roundabout and is an appropriate design solution to integrate with the future Trents Road cycleway project. I have thereby recommended to the Applicant team that the addition of a second approach lane from the north along Shands Road as shown in Table 5 will benefit road users from within PC68 as well as other road users in the evening peak period. I understand that Urban Estates Limited are seeking to engage directly with Council to form a Developer Agreement in that regard.

12.53 I understand based on the preliminary plans supplied to me by Mr Mazey from Council that land acquisition is currently required on the north-eastern corner of the roundabout (being the property of 301 Trents Road) to accommodate a single lane roundabout. I have estimated that to accommodate the proposed second approach lane from the Shands Road north approach, an estimated up to 180 sqm of additional land would be required from the 301 Trents Road

property, however other properties would not be affected. I further consider that the size and location of the roundabout island and other geometric design features of the roundabout as proposed by Council, are suitable to accommodate the enhancement without requiring significant additional design work.

12.54 I have checked the future forecast traffic volumes on Shands Road for the forecast year of 2030 from my modelling against 2038 traffic volumes provided by Mr Collins from the QTP modelling assessment upon which he relies. I can confirm that my 2030 traffic volumes reconcile with the QTP 2038 traffic volumes in the morning peak period which provides an additional validation check on the robustness and reliance which can be placed on my modelling assessment.

Frontage Upgrades

12.55 Mr Collins recommends in section 5.2 of the Transportation Hearing Report that the ODP be updated to include the following wording: "*The Trents and Hamptons Road frontages are to be upgraded to an urban standard in accordance with the Engineering Code of Practice".* I support this inclusion and have recommended to Ms Harte to include this in the ODP for the Plan Change.

12.56 A further recommendation is made "*to deliver a continuous footpath on Hamptons Road and a foot path on Trents Road between PPC68 and Farthing Drive.*" I support the inclusion of a pedestrian facility along Trents Road and note that this may be delivered part of the future Trents Road section of the Templeton to Prebbleton cycleway. I also consider it is appropriate to provide a pedestrian footpath along the Hamptons Road frontage as part of the Plan Change as pedestrians will have direct access to Hamptons Road from properties. However, I note as there is no adjacent development to the south/west of the site and there is excellent pedestrian connectivity within the site there is little to no demand for a continuous footpath along Hamptons Road beyond the extents of the Plan Change site.

Provision for Cycling

12.57 Mr Collins seeks more detail regarding the provision for cycling within the Plan Change site, and recommends that the *"ODP should be amended to include additional cycling routes within PPC68*". I agree that indicative cycling routes can be added to the ODP and these would be confirmed and assessed in further detail as part of any future subdivision consent application. The recommended cycle routes presented by Mr Collins in Figure 6 of his report are supported as indicative routes for further assessment at the appropriate time. I have

recommended to Ms Harte that these be included in the ODP for the Plan Change.

Prebbleton Structure Plan

12.58 I agree with Mr Collins that the Plan Change site is located outside the urban area identified in the Prebbleton Structure Plan. Mr Collins further notes that there may be an additional impact on the Greater Christchurch network if growth in residential activity within the Selwyn District is not accompanied with a corresponding increase in employment and services. I agree with this broad observation and note that the modelling assessment undertaken by QTP upon which Mr Collins relies takes into consideration future forecasts of employment, education rolls and other factors which are inputs to the modelling process. This provides me with confidence that the future effects of anticipated residential development on the wider transport network have been assessed in an appropriate manner.

Responses to submissions

12.59 The Flow report addresses a range of points raised through submissions many of which are raised earlier in this statement of evidence and have been addressed through Mr Collin's own assessment of the Plan Change. I generally agree with Mr Collin's responses to submissions but have the following additional comments relating to Mr Collins assessment of transport-related submissions:

(a) Request for traffic calming on Springs Road, Trents Road and Hamptons Road (page 16 of report) – I agree this is a matter for Council and I would expect that as urban areas develop the speed environment and any treatments to manage speeds such as traffic calming would occur as a matter of course. My own safety assessment of the transport network in the vicinity of the Plan Change site does not conclude that traffic calming is required as a consequence of the Plan Change.

(b) Inclusion of adjacent areas within PPC68 – This is not a transport-related matter however the layout of the roading network in the ODP anticipates that these areas may become urbanised in the long term so has been designed to integrate well with potential future development adjacent to PPC68.

(c) Seeking a minimum density of 15 households/hectare to support public transport provisions – I agree that in theory higher densities support public transport outcomes but do not consider that a modest

increase in density would result in a step change in demand for public transport services.

(d) Truck access to 345 Trents Road – I agree with Mr Collins that the new intersection access would not necessitate turning restrictions for the submitters existing access, however, I also note that the design process for the new intersection would consider the needs of the submitter to ensure these trick movements are facilitated by the design. A safety audit would also be required to ensure safe design for all modes of transport.

(e) Inclusion of adjacent areas in PPC68 – Mr Collins addresses the traffic effects of rezoning requests by submitters, stating that "*once Council's proposed intersection upgrades are complete…the additional rezoning is unlikely to have a consequential effect to the conclusions of the ITA*". I agree with Mr Collins view on this matter, and note that the ODP includes transport links to the boundary of these adjacent undeveloped areas. This provides the opportunity for excellent connections for all road users should these areas develop in the future. I also agree that the urban frontages could be extended along Hamptons and Trents Roads at such a time as these areas develop, and conclude that from a transport perspective there is nothing in the Plan Change which would preclude the development of these areas.

13 Conclusions

13.1 I have prepared an Integrated Transportation Assessment to assess the potential transportation related effects of the proposed rezoning on the future transport network. I concluded in my assessment that the Plan Change can be supported based in relation to transportation matters, and any effects associated with the Plan Change were appropriately mitigated or have been anticipated by works identified in the Selwyn District 2021-31 LTP.

13.2 I recommend that 120 lots can be established in PC68 following the construction of the Shands Rd / Trents Rd roundabout with the remainder requiring the Shands / Hamptons roundabout upgrade and Trents and Hamptons Road seal widening projects to be built. I have further identified an enhancement to the planned single lane roundabout at Shands Rd / Trents Rd which will benefit PC68 and wider road users. Urban Estates Limited intend to enter into a Developer Agreement with Council to address this enhancement through the Plan Change.

13.3 I have reviewed submissions and the Section 42A report and consider that all matters raised are satisfactorily addressed by the Plan Change, can be addressed at subdivision consent stage or can be addressed through minor amendments to the ODP (which I have recommended to Ms Harte to be included). I remain of the view that the Plan Change can be supported in relation to transportation matters.

David Smith

8 March 2022

ATTACHMENT A Additional SIDRA Traffic Modelling Outputs

Springs Road / Hamptons Road existing intersection layout models (pages 1-4)

1 2024 morning peak with 120 lots on PC68

2 2024 evening peak with 120 lots on PC68

3 2030 morning peak with full development of PC68

4 2030 evening peak with full development of PC68

Shands Road / Trents Road single lane roundabout intersection models (pages 5-12)

5 Single-lane roundabout configuration as proposed by SDC

6 Movement summary 2030 morning peak no PC68

7 Movement summary 2030 morning peak with PC68

8 Movement summary 2030 evening peak no PC68

9 Movement summary 2030 evening peak with PC68

10 Single-lane roundabout configuration with 2nd approach lane from north

11 Movement summary 2030 morning peak with PC68 and 2nd approach lane from north

12 Movement summary 2030 evening peak with PC68 and 2nd approach lane from north