BEFORE THE INDEPENDENT COMMISIONER ON BEHALF OF THE SELWYN DISTRICT COUNCIL

In the matter of the Resource Management Act 1991

And

In the matter of Plan Change 72 on the Operative Selwyn District Plan

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BRIEF OF EVIDENCE OF LISA MARIE WILLIAMS
13 January 2022

QUALIFICATIONS AND EXPERIENCE

1 My full name is Lisa Marie Williams. I am a transport engineer and planner employed by Novo Group Limited, a Christchurch based resource management and traffic engineering consulting company. I hold the qualifications of a Master of Engineering (Transport) from the University of Canterbury. I have 15 years of experience as a Transport Engineer and Planner in New Zealand. I am a Transport Group member of Engineering New Zealand.

2 My experience relevant to this evidence includes processing and preparing traffic assessments under the Resource Management Act, for notified and non-notified applications on a range of land-use activities. This specifically includes a variety of Plan Change and Outline Plan applications in Selwyn District.

3 I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014. I have complied with it in preparing this evidence and I agree to comply with it in presenting evidence at this hearing. The evidence that I give is within my area of expertise except where I state that my evidence is given in reliance on another person's evidence. I have considered all material facts that are known to me that might alter or detract from the opinions that I express in this evidence.

4 I prepared an Integrated Transport Assessment[1] (ITA) for the Trices Road Rezoning Group Plan Change 72 Application (lodged 11/11/2021). As a result of the Private Plan Change process and the Council's Request for Further Information (RFI), I provided a further information response[2] (dated 15/02/2021). For clarity, I do not depart from the findings of those reports.

[1] Available here: https://www.selwyn.govt.nz/__data/assets/pdf_file/0019/460252/Appendix-10-Integrated-Transport-Assessment.pdf
[2] Available here: https://www.selwyn.govt.nz/__data/assets/pdf_file/0020/432353/20210524-PC72-Final-addtional-RFI_response.pdf

SUMMARY STATEMENT

5 The following statement of evidence includes a summary of the transport related aspects of the Plan Change, a response to the submissions relating to transport and a discussion of the recommendations of the Council Officers' s.42A report (here-in s.42A report). I have also considered the transport related criteria in the Councils s42A Rezoning Framework Report (hereafter 's.42 Framework Report')[3].

6 They key parts of the PC72 proposal includes:

a) The rezoning application sought up to 290 residential dwellings generating 263 trips in the peak hour (166 arrivals and 97 departures in the evening peak and 68 arrivals and 195 departures in the morning peak). In response to submissions filed and the recommendations within the 42A Report, I have considered whether an increase to 320+ dwellings would materially impact my original ITA.

b) Proposed Primary Road connections are to Trices Road, Hamptons Road and Birchs Road. Proposed Secondary Road connections are to Trices Road and toward the undeveloped land to the east.

c) Shared path[4] connections are proposed to Birchs Road, Trices Road and Hamptons Road as well as the undeveloped land to the east.

d) All proposed roads and frontage roads will be upgraded / constructed to an urban standard, including pedestrian and cycle facilities, in accordance with the District Plan[5] road standards.

7 The Further Information Response also confirmed that the Councils Hamptons Road / Springs Road intersection upgrade won't alter the

[3] https://www.selwyn.govt.nz/__data/assets/pdf_file/0018/515151/Re-Zoning-Framework-s42A-report.pdf
[4] For pedestrians and cyclists.
[5] Either the Operative or Proposed District Plan as applicable at the time of subdivision. It is noted that the difference between the standards of the Operative and Proposed Plan do not vary to an extent material to this evidence as either would achieve appropriate pedestrian and cycle facilities relative to the function of the road.

conclusions of the ITA in respect of the operation of the Trices Road / Birchs Road intersection.

8 In summary, the site location provides access to an existing public transport route servicing Prebbleton and provides options for any future public transport routes to operate along the proposed Primary Roads. The proposed ODP includes pedestrian and cycle connections to existing facilities, enabling access to a variety of destinations within walking and cycling distance of the site. The site location is also well connected with the existing and planned transport network including access to the strategic road network. Any effects on the transport network are appropriately managed through the proposed or planned upgrades and road layout. I therefore consider the residential zoning sought in the submission to be appropriate and supportable.

OTHER MATTERS ARISING THROUGH PC72 SUBMISSIONS

9 A variety of matters have been raised through submissions on PC72. I have read the Councils summary of submissions and reviewed those submissions where transport related matters have been raised.

10 I agree with Mr Collins identification of matters raised in these submissions that warrant consideration and the Council Officers rational for an issue-based approach to evaluating submissions. I largely agree with the response provided by Mr Collins although have added some further discussion in respect of each matter. For consistency, I have retained the headings used by Mr Collins where possible below:

<u>Traffic Congestion and Safety Effects</u>

11 Olwyn Mulligan and Allan Mulligan (PC72-0040 and PC72-0041) have requested consideration to open fencing along the Birches and Trices Road, particularly at the Birchs Road / Trices Road intersection. Mr Collins also discusses this concern within the s.42A Report.

12 In respect of visibility at the intersection of Trices Road and Birchs Road, it appears that the existing hedge is beyond the legal boundary of the site, which indicates that there is a corner splay, as shown in Figure 1. The removal of this hedge and provision of fencing within the legal boundary is likely to be sufficient to address the visibility concern.

13 I agree with the Council Officers that any other safety upgrades at this intersection are best addressed at subdivision stage.

Figure 1: Legal boundary and hedge at Birchs Road / Trices Road intersection [Source: Canterbury Maps]

14 Various submitters have raised questions regarding what upgrades are proposed and the timing of these at the intersections of Hamptons Road with Springs Road and Shands Road. Council have advised these upgrades are planned for 2024/25, which is considered to be appropriate relative to likely full development and occupation of the future lots. These intersections are proposed to be upgraded to roundabouts to improve safety and efficiency outcomes for the key commuter routes and provide connectivity to the southern motorway.

15 In respect of submissions relating to cumulative effects, including with PC79, the Retirement Complex and Prebbleton park, the ITA analysis included 20% growth in traffic volumes on the road network generally when considering capacity of intersections, which allows for increases in traffic volume from the above, or other development such as in Lincoln. Mr Collins has also addressed the wider road network effects and referred to the study undertaken by QTP and I generally agree with his comments in

this regard. I have commented further on this under the response to the s.42A report below.

Traffic effects on Prebbleton School, children walking or cycling to school and pedestrians and cyclists generally at the Trices Road / Birchs Road intersection.

16 In respect of submissions relating to effects on Prebbleton School, I agree with Mr Collins that the location of the school is not in close proximity to PC72 and as such effects are from increases in traffic associated with growth in the district rather than specifically the location of the proposed rezoning.

Public Transport

17 Submitters have requested additional bus-stops to service the development. As outlined in the ITA, the #80 bus route travels along Birchs Road and provides connections to Lincoln and Christchurch (refer to paragraph 80 of the ITA). Whether additional bus stops are required will be responsive to an increase in demand over time. The additional residential population may support increased public transport. There is also a school bus route from Prebbleton to Lincoln High School.

18 I note that the Primary Roads within the proposed ODP would be constructed to a standard suitable for use as future public transport routes which would enable extension of services, should that be deemed appropriate by the public transport providers. Any further consideration or provision of public transport services is the responsibility of other parties.

Walking and Cycling

19 I agree with Mr Collins that property access over the Rail Trail on Birchs Road will require appropriate design including signs and markings. Property access arrangements would however be considered at subdivision stage including whether direct access is appropriate for some or all sites fronting Birchs Road. Whilst also a matter to be addressed outside of this Plan Change process, the ODP does include several pedestrian and cycle connections and may present opportunities to re-route the Rail Trail through the new subdivision. This would require

consultation with relevant parties and appropriate design at subdivision stage.

The upgrading of the frontage roads including Trices Road and Birchs Road will ensure an urban traffic environment with footpaths. Pedestrian crossing (splitter islands) have recently been provided on Trices Road on both approaches to the intersection with Birchs Road and a similar facility is also anticipated to be included as part of the upgrade of Hamptons Road. Consideration of a further pedestrian crossing point on Trices Road near Stonebridge Way and on Birchs Road could also be included at subdivision stage. Speed Limits

20 It is my understanding that Council are already in the process of moving the 60km/h speed limit on Birchs Road to a point south of Leadleys Road in conjunction with the development of Prebbleton Park. It is reasonably anticipated that the speed limit adjacent to the ODP area will be changed to 50km/h to reflect the urban landscape created and it is agreed (with Mr Collins) that such processes are appropriately progressed at a later point.

Inclusion of adjacent areas within PPC72

21 In respect of the submission by GM and J Drinnan to include a block of adjacent land within the rezoning, Mr Collins[6] has estimated that this would generate an additional 22 peak hour trips. I concur that this would not likely change any of the conclusions reached in the ITA in respect of intersection capacity.

RESPONSE TO S.42 REPORT – PC72

22 On 15 December 2021, the Council released the s.42A report – Plan Change 72. The Councils s.42A report includes several recommendations that relate to transport, mostly arising from Mr Collins report. However, there are also several urban design recommendations that have transport implications and as such I have also commented on those matters. The recommendations and response are set out in turn below.

23 In respect of the recommended Living Z zoning for the whole ODP area (i.e., instead of Living 3 for the “Tuff” block) I have been advised that at a

[6] In section 7.5 of Appendix B to the S.42A report.

density of 12 households per hectare this would equate to around 320 lots, an increase of around 30 lots from the 290 considered in the ITA. This represents a small increase in traffic (27 peak hour trips[7]) which would not materially alter the assessment of effects provided in the ITA. As such I see no reason from a transport perspective that this option could not be accommodated if considered preferrable by Council.

An assessment of the Springs Road / Birchs Road intersection, including any mitigations required, should be provided as this intersection tends to be somewhat congested during peak periods and is likely to be a key commuting route to and from PPC72.

24 Analysis of existing traffic volumes on key routes to and from the Plan Change area suggested that if the additional traffic was to follow the same distribution this would result in around 76 additional peak hour trips (29% of trips associated with PC72) through this intersection (being 20 arrival trips and 56 departure trips in the AM peak and 48 arrival and 28 departure trips in the PM peak[8]).

25 I am not aware of any existing traffic counts at the Springs Road / Birchs Road intersection and noting the holiday period, any counts undertaken prior to the hearing are not likely to reflect normal traffic conditions. As such, the ability to survey and model this intersection prior to the hearing is severely limited. In order to provide some consideration of this intersection I have estimated the turning movements using the peak hour counts on Birchs Road undertaken at the Birchs Road / Trices Road intersection (refer to the ITA) with an adjustment factor of 0.87 for traffic that may instead use Trents Road[9]. I have estimated the Springs Road volumes based on the traffic counts provided in the Plan Change #68[10] application. Turning movements have been estimated based on the proportionate directional flows.

[7] At the rate of 0.9 peak hour trips per dwelling as set out in the ITA.
[8] Adopting the same arrival and departure splits as set out in the ITA i.e., 63% arrivals and 37% departures in the weekday PM peak and 26% arrivals and 74% departures in the AM Peak
[9] This factor was determined based on proportionate daily traffic volumes from: https://mobileroad.org/desktop.html
[10] Refer to Table 7.1 of Plan Change 68 Appendix E, prepared by Abley Transport. The survey was undertaken in 2020 at a location north of Trents Road.

26 Using the above estimates, a SIDRA[11] analysis suggested the worst movement was the right turn from Birchs Road and that this may be operating at Level of Service[12] C (LOS C) during the peak hours. Whilst this has not been able to be validated, it appears reasonable noting the submitters description of some congestion at this point but that the existing traffic volumes using this route also suggest the delay is not so significant that noticeable volumes of traffic are detouring to other routes.

27 Using the SIDRA model above, an analysis has been undertaken for two scenarios:

A. **Estimated existing + additional trips for PC72.** This shows that the intersection would continue to operate similar to that of the current operation described above (LOS C for the right turn from Birchs Road and LOS A for other movements).

B. **Estimated existing + additional trips for PC72 and 20% traffic growth on Springs Road.** This shows that the right turn from Birchs Road would operate at LOS D in the morning peak hour and continue to operate at LOS C in the evening peak hour with other movements continuing at LOS A.

28 A copy of the SIDRA outputs are included in **Attachment A**.

29 Whilst the increase in traffic on Springs Road as a result of other Plan Changes in Prebbleton, Lincoln and Rolleston is not certain, it is noted that there is also traffic calming proposed on Springs Road and that there is limited capacity at the intersection with Marshs Road. As such, a 20% growth factor on Springs Road is considered reasonable for the purposes of this analysis.

30 The above scenarios suggest that there is some capacity to absorb the additional traffic generated by PC72. It is noted that if the estimated turning volumes were understated (due to the absence of surveyed turning movements), the model does still indicate some spare capacity

[11] SIDRA Intersection 9.0
[12] A performance rating from A best to F worst.

before LOS F would be reached for the worst turning movement (the right turn from Birchs Road).

31 Noting the location of PC72 and the 2024/25 Hamptons Road / Springs Road roundabout upgrade, if cumulative traffic growth on Springs Road did result in additional delays at the Birchs Road / Springs Road intersection, then turning right at the Hamptons Road / Springs Road roundabout would be a direct and convenient alternative. As such right turn volumes from Birchs Road to Springs Road are unlikely to be compounded directly by demand from PC72.

32 I consider it is unlikely that there would be 20% general growth in traffic volumes on Birchs Road in this location noting the variety of more favourable routes available for traffic from Rolleston and Lincoln. However, for completeness, a test of the model with this extra growth did indicate that the Birchs Road, right turn movement could approach LOS F however could be significantly improved by widening of the Birchs Road approach to provide separate left and right turning lanes. Such an upgrade, if required in the future, could be reasonably easily achieved noting there is ample width available within the road reserve to accommodate this. For the reasons above, I don't however consider such an upgrade, if needed, would necessarily be a direct consequence of PC72 traffic.

ODP Narrative to include: "The Trices Road, Birchs Road and Hamptons Road frontages are to be upgraded to an urban standard in accordance with the Engineering Code of Practice"

33 These upgrades are anticipated as confirmed in the RFI Response and this text has been included in the amended ODP narrative.

Extension of the primary east/west road to the eastern boundary of PPC72

34 The ODP already indicated two future road connections to the land east of the ODP and the amended ODP shows the Primary East to West connection has been extended and the location of one of those points adjusted to suit. This provides four East to West connections to any land to the east (including Trices Road and an extension of Hamptons Road).

This is considered to be sufficient to provide good connectivity to any future development.

Additional cycling routes within PPC72. I consider that PPC72 should provide shared pedestrian/cycle facilities on Trices Road and Hampton Road along the site frontage, and a safe crossing point on Trices Road near Stonebridge Way.

35 The amended ODP includes extension of the pedestrian and cycle connection along the East to West Primary Road.

36 Upgrades in respect of Hamptons Road and Trices Road to an urban standard would include consideration of appropriate pedestrian and cycle facilities and the above ODP narrative amendment is considered to address this.

37 Noting that there may be opportunity to re-route the Rail Trail through the development specific upgrade details for pedestrian crossing points and shared paths on Trices Road and Hamptons Road have not been included in the ODP to enable flexibility to consider the best options at subdivision stage.

Cumulative Wider Road Network Effects

38 I generally agree with the analysis provided by Mr Collins is respect to cumulative effects on the wider road network. I note that the QTP analysis assumes that job opportunities remain similar and therefore commuter trends are also similar to that existing. In reality increasing opportunities to work from home and increased business growth in Selwyn District to meet the additional residential demand, may over time reduce the extent of commuters to Christchurch for employment. Regardless, assuming such change take time, the QTP report provides a reasonable analysis of the potential impact on the transport network. I agree with Mr Collins that the planning and co-ordination of the road network improvements to accommodate the cumulative growth is a matter to be addressed at District and Regional level.

Urban Design Recommendations

39 The alignment of the north-south Primary Road as shown on the ODP provided with the RFI response was specifically designed to avoid creation of a cross roads intersection with Stonebridge Way. Stonebridge Way is a cul de sac and connection of the ODP to this road does not therefore provide any wider transport connections to the north. Separate "T" intersections would be anticipated to perform better, particularly if traffic volumes on Trices Road were to increase over time. "T" intersections also generally have a lower crash rate that a cross roads intersection. The off-set of the two roads is not such that it would create an impediment to pedestrians and cyclists noting that a crossing point could be provided between the two intersections. Such a location would also result in an easier crossing task than a similar facility at a cross roads intersection. As such the original location of the Primary North-South road at both the Hamptons Road and Trices Road intersections is preferred from a transport perspective.

40 The urban design recommendations also include an additional Primary Road connection to the east and an additional Primary road connection between Trices Road and Hamptons Road.

41 A second road connection to the east is already signalled on the ODP and as such a road in this location is generally anticipated, albeit this would likely be a lower volume local road for property access and pedestrian and cycle connectivity rather than needing to be a primary through route. Combined with the primary road, Trices Road and any future extension of Hamptons Road, this provides four East to West connections to accommodate good connectivity to any future development.

42 A second road connection to Hamptons Road could also be accommodated, however this would need to be close to the eastern side of the ODP area to ensure good separation of the intersections from each other (refer to paragraphs 41-45 of the ITA). Noting that the ODP already provides for pedestrian and cycle connection in this location, connectivity for pedestrians and cyclists is already achieved. It is unlikely that motorists would benefit greatly from another road less than 200m from the proposed Primary Road, particularly noting the direction of travel from the ODP along Hamptons Road would be towards the west. As such, I see little benefit to provision of a second Primary Road to Hamptons Road.

43 Flexibility is required in respect to the location of secondary level roads to service property access at subdivision stage. As such it is preferred to indicate the location of these connections with the external road network and undeveloped land to the east rather than depict the internal alignment within the ODP. Mr Fox has prepared a 'Concept Plan" which identifies how these secondary roads could be connected and indicates they can achieve good connectivity.

44 Overall, I consider the ODP provides sufficient information regarding the location of primary and other key roads and shared paths to determine that good connectivity can be achieved through the subsequent subdivision whilst also ensuring the location of intersections is appropriate from a transport perspective.

RESPONSE TO S42A FRAMEWORK REPORT

45 The Councils s.42A Rezoning Framework Report outlines a range of criteria applicable to rezoning submissions under the District Plan Review Process. I acknowledge that the s.42A Rezoning Report is not directly relevant to this proceeding, however, for completeness, I have assessed the PC72 proposal against the relevant criteria to provide guidance on transport related urban growth matters and on whether the proposal contributes to a "well-functioning urban environment". Those aspects of relevance to transport are identified and discussed in table below.

Table 1: Consideration of Transport Related Criteria of the Framework Report

Transport Related Criteria	**Comments / Discussion**
Demonstrates how it connects to current, or planned, or will support future, public transport systems.	As outlined in the ITA the #80 bus route travels along Birchs Road and provides connections to Lincoln and Christchurch (refer to paragraph 80 of the ITA). The additional residential population base may also support increases in public transport patronage.
Demonstrates how it provides for active transport accessibility.	Paragraphs 30 and 31 of the ITA outline key destinations within walking and cycling

Transport Related Criteria	Comments / Discussion
Demonstrates how it links to jobs, open spaces, and community services.	distance of the site. The ODP also indicates proposed shared paths. Further connections will be provided through the future local road network.
Demonstrates how it is connected to key strategic transport routes.	The ITA identifies and assesses the connections to strategic routes for travel in all directions including access to the Christchurch Southern Motorway. This concludes that the site is well located and connected to strategic transport routes.
Outlines how it is consistent with the principles and plans within the relevant Area or Structure Plan.	There are no specific connections identified on the Prebbleton Structure Plan to this block of land. However (to the extent that it is relevant to Birchs Road and Trices Road) the ODP is consistent with the Structure Plan. It is also consistent with the proposed upgrades to Hamptons Road / Springs Road and Hamptons Road / Shands Road routes.
Does not effect the safe, efficient, and effective functioning of the strategic transport network. I.e., demonstrates how it connects with the wider transport network and addresses any potential impact on the network.	This has been specifically considered in the ITA and it is concluded that the location is appropriate and there is sufficient capacity to accommodate the traffic associated with the proposed residential zoning. The proposed road connections are appropriate noting the existing and planned transport network.
Does not foreclose opportunity of planned strategic transport requirements? i.e., Outlines how it aligns with any planned strategic transport work.	The proposal does not restrict any planned strategic transport infrastructure from proceeding. The submission is aligned with the planned upgrades of Hamptons Road with Springs Road and Shands Road.
How it aligns with existing or planned infrastructure, including public transport services, … i.e., outline what infrastructure is	Planned road infrastructure has been considered above. The proposed residential area is located in close proximity to the existing #80 bus route on Birchs Road. The ODP also

Transport Related Criteria	Comments / Discussion
existing or planned and how the re-zoning aligns with it.	includes Primary Road connections between Birchs Road, Trices Road and Hamptons Road that could accommodate bus routes if any new or extended routes were considered by ECAN in the future.
Promotes walking, cycling and public transport access i.e., Demonstrates where these routes could be.	The ODP includes shared path connections and the local road network will also support convenient access to the existing Rail Trail on Birchs Road and towards existing bus stops. The frontage roads are proposed to be upgraded to an urban standard including footpaths. These connections will promote walking and cycling to the range of destinations near the site (refer Paragraphs 30 and 31 of the ITA).
Creates and maintains connectivity through the zoned land, including access to parks, commercial areas and community services i.e., Demonstrates connectivity through the rezoning as well as with adjoining land. Demonstrates where parks, commercial and community spaces are and how accessible they are.	

46 Having considered the relevant transport related criteria within the s.42A Framework Report summarised above, I consider the residential rezoning sought in the submission addresses the transport related criteria of the Framework Report. As discussed below, I also consider that these factors also contribute to a well-functioning urban environment in accordance with the NPS-UD 2020.

NPS-UD 2020

47 The ITA contained an assessment of the relevant Objectives and Policies within the Operative District Plan.[13]

48 In addition to my previous objective and policy assessment, the NPS-UD 2020 contains guidance on what contributes to a "well-functioning urban-environment". Where relevant to transportation, I have commented below in respect of the transport aspects which contribute to a "well-functioning urban environment".

Table 2: Consideration of relevant objectives and policies of NPS-UD 2020

NPS-UD 2020 Guidance	**Comments / Discussion**
Objective 1: New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future	The NPS-UD applies the terminology 'well-functioning urban environment'. While this is not defined, specific guidance can be taken from Policy 1 (and clause 3.8. Guidance includes the following considerations: (1) Has good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and…. (2) is well-connected along transport corridors. I also acknowledge that these factors are not exhaustive (or defined with much specificity). To comprehensively assess compliance with the NPS-UD, I have also undertaken an assessment of the Transport Related Criteria contained within the s.42A Framework Report. The 'Transport Related Criteria' listed
Policy 1: Planning decisions contribute to well-functioning urban environments, which are urban environments that, as a minimum;… (a) have or enable a variety of homes that: c. have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and….	
Policy 6: When making planning decisions that affect urban environments, decision-makers have particular regard to the following matters: (c) the benefits of urban development that are consistent with well-functioning urban environments (as described in Policy 1)	

[13] Appendix 5, Assessment 10/11/2021

NPS-UD 2020 Guidance	Comments / Discussion
Policy 8: Local authority decisions affecting urban environments are responsive to plan changes that would add significantly to development capacity and contribute to well-functioning urban environments, even if the development capacity is: (a) unanticipated by RMA planning documents; or (b) out-of-sequence with planned land release.	in Table 1 are all matters that contribute to the assessment of 'well-functioning urban environment'. Having undertaken this exercise (in conjunction with my original ITA), I consider that the proposal contributes to a well-functioning urban environment as required by the NPS-UD 2020. PC72 makes efficient use of the existing traffic infrastructure. Prebbleton is well placed provide efficient modes of transport to locations such as central Christchurch. The proposal is well connected to existing public transportation routes. Travel distances to key facilities are likely to be similar (or less) compared to alternative residential development sites within the Selwyn District.
Subpart 2 – Responsive Planning. Clause 3.8 Unanticipated or out-of-0sequence developments. (2) Every local authority must have particular regard to the development capacity provided by the plan change if that development capacity: a. would contribute to a well-functioning urban environment; and b. is well-connected along transport corridors; and	

CONCLUSION

49 The Applicant's preferred proposal will provide up to 290 residential dwellings generating 263 trips in the peak hour (of which 166 are arrivals and 97 are departures in the evening peak hour and 68 are arrivals and 195 are departures in the morning peak hour). The Living Z option if applied to the whole ODP would result in approximately 320 lots and around 27 additional peak hour trips and not change my conclusions.

50 The proposed ODP includes Primary Road connections to Trices Road, Hamptons Road and Birchs Road, Secondary Road connections to Trices Road and future road connections to the east (undeveloped land) and shared path connections to Birchs Road and Hamptons Road.

51 All proposed roads and frontage roads will be upgraded / constructed to an urban standard, including pedestrian and cycle facilities, in accordance with the District Plan road standards.

52 There is sufficient capacity within the existing and planned road network to accommodate the traffic associated with the rezoning sought in the submission. The site is well located to provide access to the wider strategic road network. There are also a variety of destinations within walking and cycling distance of the site and access to an existing public transport route.

53 Overall, the location provides access to existing public transport route servicing Prebbleton and provides options for any future public transport routes to operate through the area. The proposed ODP includes pedestrian and cycle connections to existing facilities enabling access to a variety of destinations within walking and cycling distance of the site. The location is also well connected with the existing and planned transport network including access to the strategic road network.

54 I consider the residential zoning sought in the submission to be appropriate and addresses the transport related criteria of the Councils s.42A Rezoning Framework Report and the recent s.42A Report in relation to PC72.

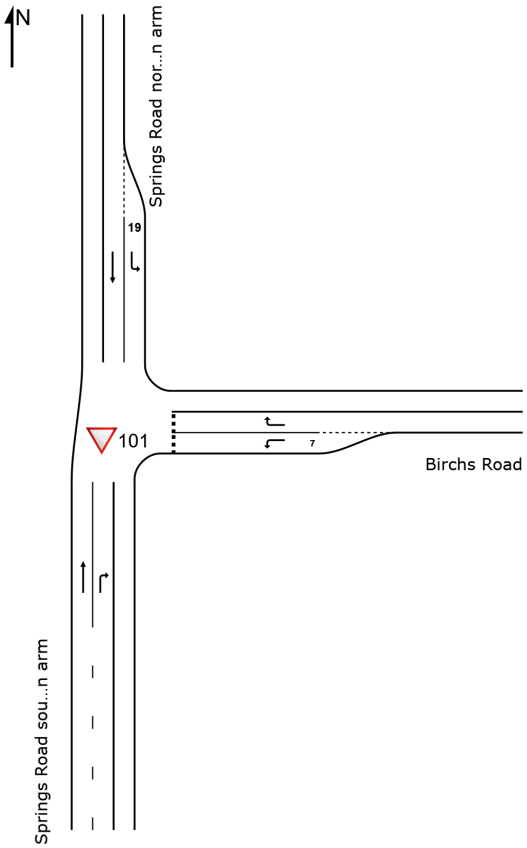
ATTACHMENT A: SIDRA ANALYSIS OF BIRCHS ROAD / SPRINGS ROAD INTERSECTION

SITE LAYOUT

Site: 101 [Springs Road / Birchs Road AM Existing Estimate (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Springs Road / Birchs Road AM Existing Estimate (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Springs Road southern arm														
2	T1	322	6.0	339	6.0	0.181	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	76	6.0	80	6.0	0.094	7.0	LOS A	0.4	2.7	0.49	0.68	0.49	45.0
Approach		398	6.0	419	6.0	0.181	1.4	NA	0.4	2.7	0.09	0.13	0.09	48.9
East: Birchs Road														
4	L2	142	8.0	149	8.0	0.172	6.6	LOS A	0.6	4.8	0.44	0.66	0.44	45.4
6	R2	118	8.0	124	8.0	0.409	19.5	LOS C	1.8	13.7	0.81	1.00	1.09	39.0
Approach		260	8.0	274	8.0	0.409	12.5	LOS B	1.8	13.7	0.61	0.82	0.74	42.2
North: Springs Road northern arm														
7	L2	91	6.0	96	6.0	0.054	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.5
8	T1	335	6.0	353	6.0	0.188	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		426	6.0	448	6.0	0.188	1.0	NA	0.0	0.0	0.00	0.11	0.00	49.2
All Vehicles		1084	6.5	1141	6.5	0.409	3.9	NA	1.8	13.7	0.18	0.29	0.21	47.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Springs Road / Birchs Road PM Existing Estimate (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Springs Road southern arm														
2	T1	213	6.0	224	6.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3	R2	100	6.0	105	6.0	0.143	8.0	LOS A	0.6	4.1	0.55	0.76	0.55	44.4
Approach		313	6.0	329	6.0	0.143	2.6	NA	0.6	4.1	0.18	0.24	0.18	48.0
East: Birchs Road														
4	L2	98	8.0	103	8.0	0.123	6.8	LOS A	0.4	3.3	0.45	0.66	0.45	45.3
6	R2	58	8.0	61	8.0	0.198	15.8	LOS C	0.7	5.3	0.75	0.89	0.77	40.6
Approach		156	8.0	164	8.0	0.198	10.1	LOS B	0.7	5.3	0.56	0.75	0.57	43.4
North: Springs Road northern arm														
7	L2	171	6.0	180	6.0	0.101	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.5
8	T1	363	6.0	382	6.0	0.204	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		534	6.0	562	6.0	0.204	1.5	NA	0.0	0.0	0.00	0.17	0.00	48.8
All Vehicles		1003	6.3	1056	6.3	0.204	3.2	NA	0.7	5.3	0.14	0.28	0.14	47.6

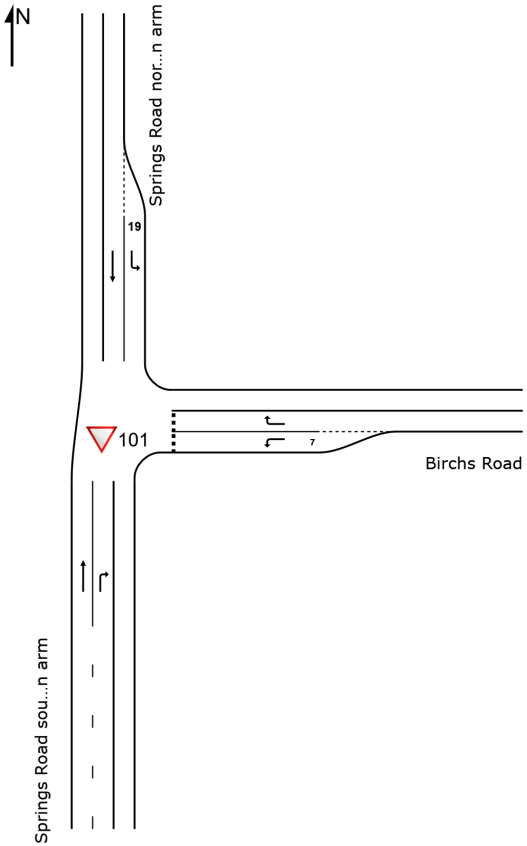
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Springs Road / Birchs Road AM Existing Estimate +PC72 (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Springs Road / Birchs Road AM Existing Estimate +PC72 (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Springs Road southern arm														
2	T1	322	6.0	339	6.0	0.181	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	85	6.0	89	6.0	0.107	7.2	LOS A	0.4	3.1	0.50	0.69	0.50	44.9
Approach		407	6.0	428	6.0	0.181	1.5	NA	0.4	3.1	0.10	0.14	0.10	48.8
East: Birchs Road														
4	L2	172	8.0	181	8.0	0.208	6.7	LOS A	0.8	6.0	0.45	0.67	0.45	45.3
6	R2	144	8.0	152	8.0	0.512	22.0	LOS C	2.5	19.0	0.84	1.07	1.28	37.9
Approach		316	8.0	333	8.0	0.512	13.7	LOS B	2.5	19.0	0.63	0.85	0.83	41.6
North: Springs Road northern arm														
7	L2	102	6.0	107	6.0	0.060	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.5
8	T1	335	6.0	353	6.0	0.188	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		437	6.0	460	6.0	0.188	1.1	NA	0.0	0.0	0.00	0.12	0.00	49.1
All Vehicles		1160	6.5	1221	6.5	0.512	4.7	NA	2.5	19.0	0.21	0.33	0.26	46.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Springs Road / Birchs Road PM Existing Estimate +PC72 (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Springs Road southern arm														
2	T1	213	6.0	224	6.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	50.0
3	R2	118	6.0	124	6.0	0.176	8.4	LOS A	0.7	5.1	0.58	0.79	0.58	44.2
Approach		331	6.0	348	6.0	0.176	3.0	NA	0.7	5.1	0.21	0.28	0.21	47.7
East: Birchs Road														
4	L2	116	8.0	122	8.0	0.146	6.8	LOS A	0.5	4.0	0.45	0.67	0.45	45.3
6	R2	68	8.0	72	8.0	0.246	17.5	LOS C	0.9	7.0	0.78	0.92	0.86	39.8
Approach		184	8.0	194	8.0	0.246	10.7	LOS B	0.9	7.0	0.57	0.77	0.60	43.1
North: Springs Road northern arm														
7	L2	201	6.0	212	6.0	0.119	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.5
8	T1	363	6.0	382	6.0	0.204	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		564	6.0	594	6.0	0.204	1.7	NA	0.0	0.0	0.00	0.19	0.00	48.6
All Vehicles		1079	6.3	1136	6.3	0.246	3.6	NA	0.9	7.0	0.16	0.31	0.17	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
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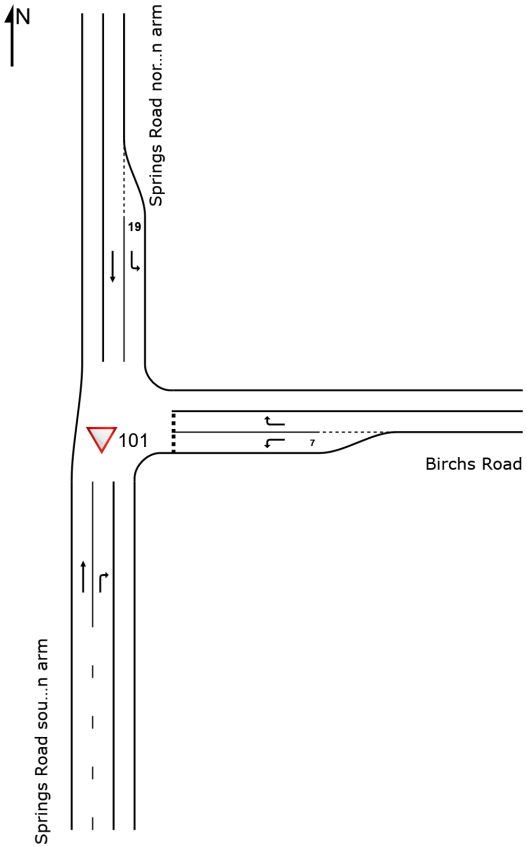
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Springs Road / Birchs Road AM Existing Estimate +PC72 + 20% on Springs (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Springs Road / Birchs Road AM Existing Estimate +PC72 + 20% on Springs (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Springs Road southern arm														
2	T1	322	6.0	407	6.0	0.217	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	85	6.0	89	6.0	0.118	7.8	LOS A	0.5	3.3	0.54	0.73	0.54	44.6
Approach		407	6.0	496	6.0	0.217	1.5	NA	0.5	3.3	0.10	0.13	0.10	48.9
East: Birchs Road														
4	L2	172	8.0	181	8.0	0.228	7.3	LOS A	0.9	6.5	0.50	0.73	0.50	45.0
6	R2	144	8.0	152	8.0	0.669	33.6	LOS D	3.6	26.6	0.92	1.20	1.67	33.9
Approach		316	8.0	333	8.0	0.669	19.3	LOS C	3.6	26.6	0.69	0.94	1.03	39.1
North: Springs Road northern arm														
7	L2	102	6.0	107	6.0	0.060	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.5
8	T1	335	6.0	423	6.0	0.225	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		437	6.0	531	6.0	0.225	1.0	NA	0.0	0.0	0.00	0.11	0.00	49.2
All Vehicles		1160	6.5	1359	6.5	0.669	5.6	NA	3.6	26.6	0.20	0.32	0.29	46.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Springs Road / Birchs Road PM Existing Estimate +PC72 + 20% on Springs (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Springs Road southern arm														
2	T1	213	6.0	269	6.0	0.143	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	118	6.0	124	6.0	0.197	9.2	LOS A	0.8	5.6	0.61	0.82	0.61	43.8
Approach		331	6.0	393	6.0	0.197	2.9	NA	0.8	5.6	0.19	0.26	0.19	47.8
East: Birchs Road														
4	L2	116	8.0	122	8.0	0.162	7.5	LOS A	0.6	4.4	0.50	0.73	0.50	44.9
6	R2	68	8.0	72	8.0	0.314	23.0	LOS C	1.2	9.0	0.84	0.98	1.00	37.6
Approach		184	8.0	194	8.0	0.314	13.2	LOS B	1.2	9.0	0.63	0.82	0.69	41.9
North: Springs Road northern arm														
7	L2	201	6.0	212	6.0	0.119	4.6	LOS A	0.0	0.0	0.00	0.53	0.00	46.5
8	T1	363	6.0	459	6.0	0.244	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		564	6.0	670	6.0	0.244	1.5	NA	0.0	0.0	0.00	0.17	0.00	48.8
All Vehicles		1079	6.3	1257	6.3	0.314	3.8	NA	1.2	9.0	0.16	0.30	0.17	47.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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