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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SUMMARY 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 have been asked by the Applicant to provide evidence in relation to Plan Change 68 for traffic and transportation matters, and my qualifications are set out in my evidence-in-chief (EIC).

2 Summary of Evidence

2.1 I have prepared an Integrated Transportation Assessment (ITA) 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.

2.2 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.

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

2.4 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.

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

2.6 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.

2.7 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. I revisit this matter later in this summary.

2.8 Mr Collins makes several 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.

3 Additional Shands / Trents Road Roundabout Modelling Assessment

3.1 Subsequent to the lodgement of my EIC, I have received feedback from and engaged in several discussions with Mr Collins and Mr Mazey from Selwyn District Council (Council) regarding the proposed enhanced roundabout configuration noted above in paragraph 2.7. Mr Collins has raised concerns about the level of delays in the morning peak period on the Shands Road southern approach heading towards Christchurch.

3.2 Whilst I remain of the view that the configuration presented in my EIC provides satisfactory level of service in the morning and evening peak periods, I agree that there is an opportunity to deliver further benefits to existing and future road users and to further futureproof the roundabout. I also acknowledge that the addition of PC68 traffic results in an increase in delays on the Shands Road southern approach in the morning peak from 7 seconds to 30 seconds[1].

3.3 I consider that this increase in delay can be offset by further enhancements to the roundabout, specifically the provision of a second approach lane and circulating lane for northbound through movements on Shands Road. This approximately doubles the capacity of the northbound through movement with the resultant intersection configuration shown in the figure below[2]. The additional approach lane from the north for left turning traffic into Trents Roads (as proposed in my EIC) has been retained.

[1] Refer to Table 5 in my EIC.
[2] The 60 metre lane lengths on the short approach and exit lanes included in this figure are indicative default values and would require additional design work to refine.

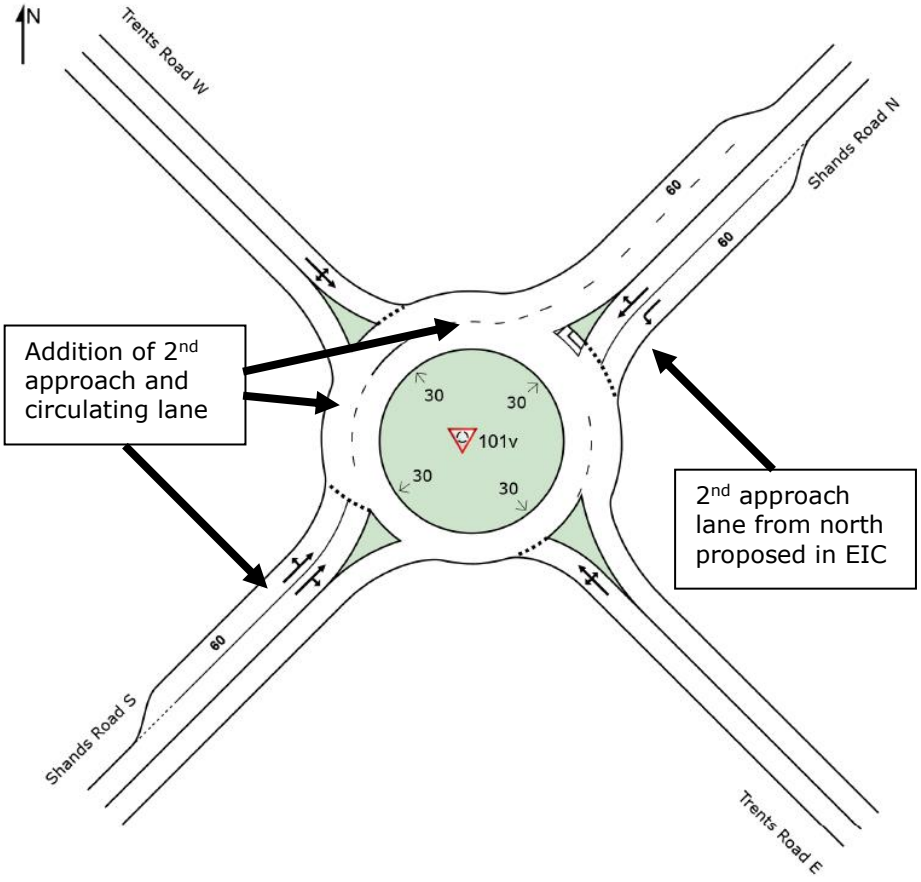


Figure 1 Indicative layout of enhanced Shands / Trents roundabout

3.4 I have undertaken transportation modelling of the Shands / Trents Road configuration shown in Figure 1 using Sidra Intersection software. The modelling methodology and assumptions are otherwise consistent with and comparable to those presented in my EIC. A summary of the intersection delays for each approach (in seconds) and intersection Level of Service is presented in the Table below. The columns with the enhanced Figure 1 layout are highlighted in bold text and compared to the layout presented in my EIC and the base case whereby a single lane roundabout is constructed (in the absence of PC68 traffic). Detailed model outputs are included in the attachment to this summary statement.

Approach	AM no PC68	AM with PC68 and EIC layout	AM with PC68 and figure 1 layout	PM no PC68	AM with PC68 and EIC layout	AM with PC68 and figure 1 layout
Trents East (from PC68)	11.2	13.6	**13.6**	29.1	72.9	**70.2**
Shands North (from Chch)	6.4	5.9	**6.3**	9.5	7.4	**7.4**
Trents West (towards PC68)	19.7	34.3	**14.3**	10.8	12.1	**9.8**
Shands South (towards Chch)	7.3	29.7	**8.3**	4.3	7.5	**7.2**
Overall Intersection delay	7.7	21	**8.6**	9.3	11.6	**11.2**
Overall intersection LoS	A	C	**A**	A	B	**B**

Table 1: Shands / Trents roundabout assessment with Figure 1 layout

3.5 The results demonstrate that the updated enhanced layout from Figure 1 reduces morning peak delays on the Shands southern approach from 30 seconds to 8 seconds. The overall performance of the intersection is comparable with the base case (ie with a single lane roundabout and no PC68) with very low intersection delays and excellent Level of Service.

3.6 I have advised the Applicant team that I support this enhancement which will deliver benefits to PC68 traffic as well as wider benefits to existing and future road users in the vicinity of the PC68 site. I understand from discussions with Mr Collins and Mr Mazey that this updated layout is acceptable to Council and preliminary scoping design work is already underway at the instruction of Council at the time of preparing this summary statement.

3.7 I further understand that the Applicant team is now working with Selwyn District Council towards a Developer Agreement to deliver the improvements shown in Figure 1.

4 Review of Submitter's Evidence

4.1 I have reviewed the evidence prepared by submitters and note that no new technical transportation evidence has been presented.

4.2 Of note Mr Langman's evidence prepared on behalf of Canterbury Regional Council and Christchurch City Council addresses transportation-related policy matters in paragraphs 134-145.

4.3 Mr Langman in paragraph 136 states CCC is concerned about the current reliance of Prebbleton on Christchurch for employment and notes no employment is included within PC68. Prebbleton is located in close proximity to four Key Activity Centres (identified under the Canterbury Land Use Recovery Plan) being Rolleston, Lincoln, Hornby and Halswell. These centres all offer employment, retail and commercial services and are located 11km, 7km, 6km and 7km from PC68 respectively.

4.4 Mr Colegrave has supplied me with business demographic data from Statistics New Zealand (included below in Table One) which shows that employment in the Hornby and Halswell areas has increased by 52% in the past 10 years compared to 12% for the remainder of Christchurch City. In the last year alone there has been continued 3% growth in employment in Hornby and Halswell and a shrinkage of 2% in employment elsewhere within the city boundary. This demonstrates that whilst Prebbleton residents may be reliant on Christchurch for employment, there is significant and an increasing quantity of employment within 7km of the PC68 site and Prebbleton residents (including potential future PC68 residents) are not necessarily reliant on long-distance travel across the City for employment.

Year	Hornby/Halswell	Rest of City	City Total
2000	15,910	142,680	158,590
2006	17,410	171,630	189,040
2011	19,090	166,180	185,270
2016	25,010	181,350	206,360
2021	28,990	185,990	214,980
2020-21 growth	3%	-2%	-2%
2016-21 growth	16%	3%	4%
2011-21 growth	52%	12%	16%
2000-21 growth	82%	30%	36%

Table One Christchurch City Employment by Ward 2000-2021[3]

[3] Source: Business demographic data from Statistics New Zealand

4.5 Mr Langman raises concerns about cumulative downstream traffic effects including PC68 despite the comprehensive modelling assessment undertaken by QTP and conclusions presented by Mr Collins on behalf of Selwyn District Council which I accept and address in paragraphs 12.8-12.12 of my EIC. Mr Langman also raises the matter of Medium Density Residential Standards (MDRS) and states "*there is no indication that the implications of the MDRS have been taken into account as part of the transport modelling*".

4.6 I have reviewed the QTP modelling report appended to Mr Collin's Transportation Hearing Report and note from Appendix A that Scenario 2 (which is the scenario relied upon by Mr Collins to understand the cumulative effect of Plan Changes in Selwyn District) includes 10,049 households developed between 2018 and 2038 which is consistent with the full development of the Plan Changes listed in Appendix A including PC68.

4.7 These 10,049 households have been included in the model over and above the Statistics New Zealand medium-high growth projection taken from Statistics New Zealand subnational population forecasts[4] for the 2018-2038 period which is 9,105 households[5] in the portion of Selwyn District located within the model study area. This means that the network model testing is highly conservative in that it considers a scenario which is more than double the anticipated growth forecast to occur within the District.

4.8 I have 22 years of transportation modelling experience and have worked with the Canterbury Transportation Model (CTM) used by WTP for this testing since 2016 including developing and testing land use scenarios. Based on my experience in using the CTM, I am aware that the allocation of the 9,105 households within the CTM model over the next 20 years to align with the medium-high growth scenarios is made up of a combination of greenfield and infill growth with both being included in the model. The adoption of a growth forecast from Statistics New Zealand and subsequent allocation of that residential growth to greenfield and infill areas is consistent with transportation modelling best practice.

4.9 On this basis there is already an allocation within the transportation modelling in the QTP report for infill development such as would be enabled by the MDRS. The Scenario 2 modelling assessment presents the cumulative effect of both greenfield and infill development to match a medium-high growth forecast as well as 14 private plan changes delivering a further 10,049 households. I consider this to be an extremely conservative scenario which provides confidence that as Mr Collins states on page 8 of his report "*Shands Road and*

[4] Refer paragraph 2.1.3 of QTP report
[5] Refer Selwyn Scenario 1 table in Appendix A of QTP report

Springs Road are expected to experience little change in forecast traffic growth when comparing a 2038 scenario with 10,000 additional dwellings than forecast".

4.10 I further note that not all of the Plan Changes (that have been heard to date) have been recommended by independent commissioners to be granted, so the 10,000 households included in this assessment is an upper limit on the cumulative land use growth forecast and resultant cumulative transportation network effects.

4.11 Mr Langman states the PC68 site is not currently serviced by public transport (PT) with the nearest bus route being located 1-2km away. Access to PT is a matter I address in paragraphs 12.19-12.22 of my EIC. Simply put there are no adjacent PT services as the PC68 site is currently predominantly rural and does not have the density of land use activity to currently support PT, however, should PC68 be approved there are options to redirect existing PT services or provide new PT services through and adjacent to the site. PC68 does not preclude any such services from being established and has been specifically designed to accommodate the future movement of buses along the primary road within the ODP.

4.12 I fully expect that the central Primary Road shown on the ODP will be designed to the Council's required engineering standards and will therefore be able to accommodate buses. It is possible to identify on the ODP an indicative location for a bus stop, and to include supporting text within the Movement Network section of the ODP to reinforce a requirement that the design of the Primary Road facilitates public transport.

4.13 I agree with the principle from the Regional Public Transport Plan included in paragraph 142 of Mr Langman's evidence that "*the integration of public transport and land use planning is essential to managing (population) growth*". As Greater Christchurch develops including the establishment of new growth areas there are mechanisms in place to regularly review bus services either through regular service reviews initiated by CRC or through requests made by the public. As Prebbleton and other Selwyn towns grow I would expect several new services to be established to integrate PT with land use growth in much the same fashion as the #820 Burnham-Rolleston-Lincoln service, #86 Darfield-West Melton-Christchurch, #87 Southbridge-Leeston-Lincoln and #85 Rolleston-Christchurch express Park and Ride services. All of these services have been introduced in recent years in response to growth in Selwyn District and demand for public transport.

4.14 I remain of the view as stated in section 11 of my EIC that PC68 is consistent with the relevant regional and local transportation policy documents.

5 Conclusions

5.1 Based on my assessment of effects in the ITA and following consideration of submissions, the Section 42A Transportation Hearing Report, additional modelling presented in my EIC and summary statement, and evidence prepared by submitters, I am of the view that the Plan Change can be supported in relation to transportation matters.

David Smith

19 March 2022

ATTACHMENT A **Additional SIDRA Traffic Modelling Outputs**

Shands Road / Trents Road single lane roundabout intersection models (pages 1-3)

1 Enhanced roundabout configuration with additional northbound through circulating lane

2 Movement summary 2030 morning peak with PC68

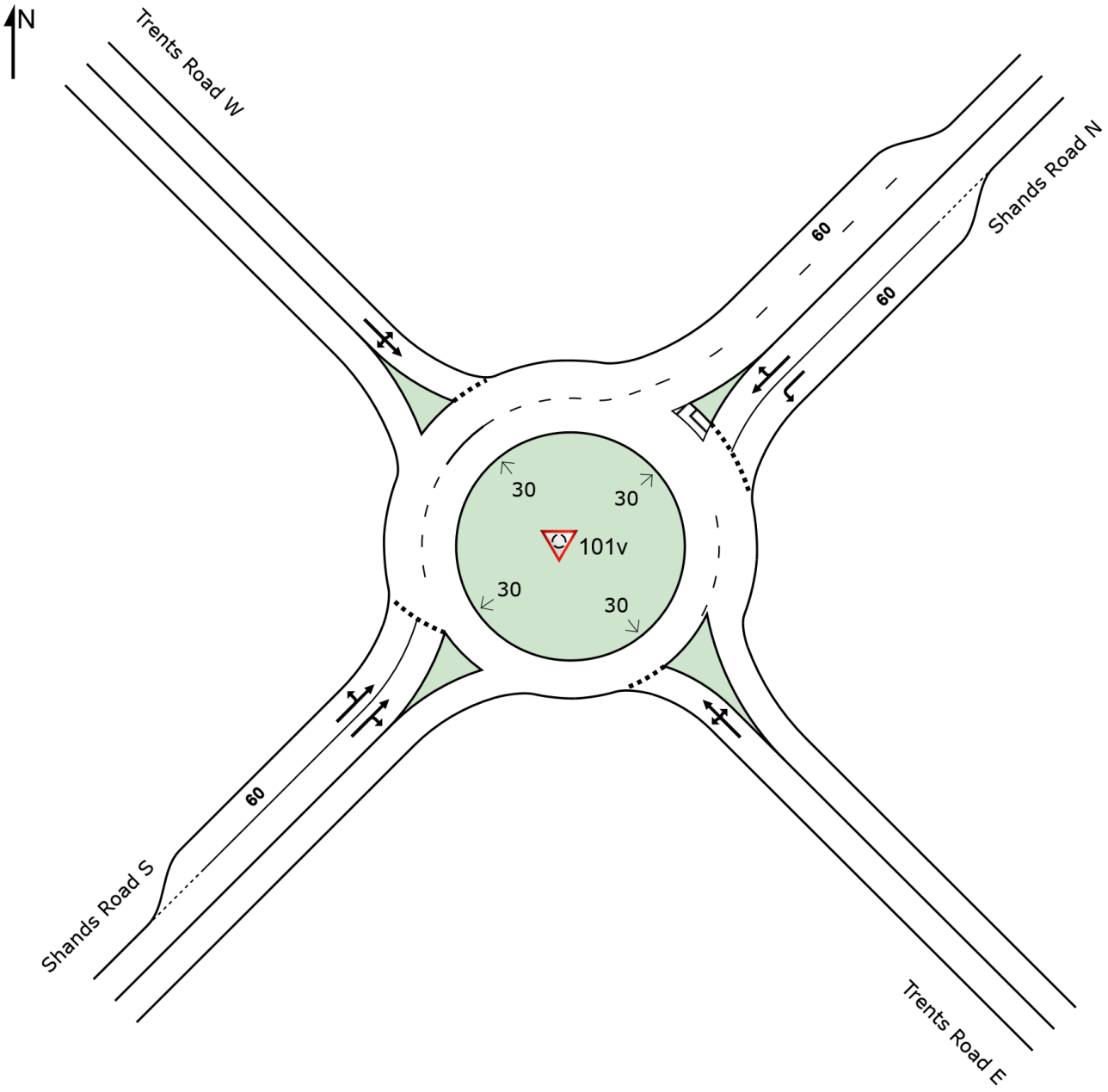
3 Movement summary 2030 evening peak with PC68

SITE LAYOUT

Site: 101v [Shands Road / Trents Road Single PM Peak 2030 +PC 30m flat dual al - Copy (Site Folder: Future 2030+PC)]

New Site
Site Category: (None)
Roundabout

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



MOVEMENT SUMMARY

Site: 101v [Shands Road / Trents Road Hybrid AM Peak 2030 +PC 30m (Site Folder: Future 2030+PC)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Trents Road E														
4	L2	55	6.0	55	6.0	0.308	8.7	LOS A	1.9	14.3	0.68	0.79	0.68	66.6
5	T1	19	6.0	19	6.0	0.308	9.2	LOS A	1.9	14.3	0.68	0.79	0.68	69.4
6	R2	212	6.0	212	6.0	0.308	15.3	LOS B	1.9	14.3	0.68	0.79	0.68	69.2
Approach		286	6.0	286	6.0	0.308	13.6	LOS B	1.9	14.3	0.68	0.79	0.68	68.7
NorthEast: Shands Road N														
7	L2	98	6.0	98	6.0	0.086	6.0	LOS A	0.5	3.3	0.23	0.51	0.23	72.7
8	T1	515	6.0	515	6.0	0.322	6.1	LOS A	2.3	16.6	0.24	0.46	0.24	72.4
9	R2	23	6.0	23	6.0	0.322	12.0	LOS B	2.3	16.6	0.24	0.46	0.24	73.1
Approach		636	6.0	636	6.0	0.322	6.3	LOS A	2.3	16.6	0.24	0.47	0.24	72.5
NorthWest: Trents Road W														
10	L2	46	6.0	46	6.0	0.167	14.2	LOS B	0.9	6.4	0.82	0.92	0.82	68.2
11	T1	20	6.0	20	6.0	0.167	13.2	LOS B	0.9	6.4	0.82	0.92	0.82	69.4
12	R2	6	6.0	6	6.0	0.167	19.1	LOS B	0.9	6.4	0.82	0.92	0.82	66.4
Approach		72	6.0	72	6.0	0.167	14.3	LOS B	0.9	6.4	0.82	0.92	0.82	68.4
SouthWest: Shands Road S														
1	L2	15	6.0	15	6.0	0.321	7.3	LOS A	2.1	15.5	0.54	0.61	0.54	69.4
2	T1	1189	6.0	1189	6.0	0.650	8.1	LOS A	6.5	48.0	0.66	0.61	0.66	70.3
3	R2	38	6.0	38	6.0	0.650	13.4	LOS B	6.5	48.0	0.70	0.61	0.70	69.7
Approach		1242	6.0	1242	6.0	0.650	8.3	LOS A	6.5	48.0	0.66	0.61	0.66	70.3
All Vehicles		2236	6.0	2236	6.0	0.650	8.6	LOS A	6.5	48.0	0.55	0.61	0.55	70.6

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

MOVEMENT SUMMARY

Site: 101v [Shands Road / Trents Road Hybrid PM Peak 2030 +PC (Site Folder: Future 2030+PC)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
SouthEast: Trents Road E														
4	L2	53	6.0	53	6.0	0.674	66.6	LOS E	7.8	57.3	1.00	1.23	1.77	41.6
5	T1	18	6.0	18	6.0	0.674	67.1	LOS E	7.8	57.3	1.00	1.23	1.77	45.3
6	R2	87	6.0	87	6.0	0.674	73.1	LOS F	7.8	57.3	1.00	1.23	1.77	45.2
Approach		158	6.0	158	6.0	0.674	70.2	LOS F	7.8	57.3	1.00	1.23	1.77	44.0
NorthEast: Shands Road N														
7	L2	215	6.0	215	6.0	0.199	6.4	LOS A	1.1	8.1	0.34	0.55	0.34	72.3
8	T1	1336	6.0	1336	6.0	0.851	7.5	LOS A	14.5	107.0	0.73	0.54	0.73	70.0
9	R2	28	6.0	28	6.0	0.851	13.4	LOS B	14.5	107.0	0.73	0.54	0.73	71.0
Approach		1579	6.0	1579	6.0	0.851	7.4	LOS A	14.5	107.0	0.67	0.54	0.67	70.4
NorthWest: Trents Road W														
10	L2	60	6.0	60	6.0	0.153	8.9	LOS A	0.7	5.0	0.62	0.79	0.62	70.5
11	T1	36	6.0	36	6.0	0.153	9.2	LOS A	0.7	5.0	0.62	0.79	0.62	71.8
12	R2	14	6.0	14	6.0	0.153	15.1	LOS B	0.7	5.0	0.62	0.79	0.62	69.0
Approach		110	6.0	110	6.0	0.153	9.8	LOS A	0.7	5.0	0.62	0.79	0.62	70.8
SouthWest: Shands Road S														
1	L2	13	6.0	13	6.0	0.182	6.3	LOS A	1.1	8.3	0.38	0.50	0.38	70.3
2	T1	687	6.0	687	6.0	0.370	6.6	LOS A	2.9	21.6	0.40	0.52	0.40	71.4
3	R2	77	6.0	77	6.0	0.370	12.3	LOS B	2.9	21.6	0.41	0.52	0.41	70.9
Approach		777	6.0	777	6.0	0.370	7.2	LOS A	2.9	21.6	0.40	0.52	0.40	71.4
All Vehicles		2624	6.0	2624	6.0	0.851	11.2	LOS B	14.5	107.0	0.61	0.59	0.66	68.0

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.