as Trustee for C & B Unit Trust ABN 27 623 918 759

Our Ref: TR/11436/mc

20 July, 2022

Transport Planning
Traffic Studies
Parking Studies

Frasers Property Australia Level 2 IC Homebush Bay Drive RHODES NSW 2138

Attention: Raj Sharma

Email: raj.sharma@frasersporperty.com.au

Dear Sir,

# RE: STAGE 3 (DFO) EASTERN CREEK QUARTER UPDATED TRAFFIC MODELLING TECHNICAL NOTE ROOTY HILL ROAD SOUTH – CHURCH STREET – ST AGNES AVENUE

- I. As requested, we have updated the technical note on the modelling of the proposed four-way traffic signal controlled intersection of Church Street with Rooty Hill Road South (RHRS) and St Agnes Avenue. The technical note has been updated to include comments provided in TfNSW in an email dated 8 July, regarding the design of the intersection. These comments are set out below:
  - 1) The pedestrian crossing on the northern leg is to be located closer to Church Street. As a result the existing drainage pit at the northwest corner will require relocation.
  - 2) It is understood that a kerb ramp exists at the northwest corner which is used as a driveway by the resident. Once the marked crossing is installed, this kerb ramp should be removed and reinstated to match existing kerb and gutter.
  - 3) It is noted that due to the single lane approach from St Agnes Avenue, the access routes (St Agnes Avenue and Church Street) will operate in either split phases or single phase. Traffic modelling should be updated for the following 2 options:
    - Option I Single Diamond Overlap (SDO) phasing on Rooty Hill Road South and single phase (with both pedestrian features) for Church Street and St Agnes Avenue.
    - 2) Option 2 Single Diamond Overlap (SDO) phasing on Rooty Hill Road South and 'Split Approach' phasing for Church Street and St Agnes Avenue with both pedestrian features on the Church Street signal phase.

The following criteria should be considered in the traffic modelling for the worst case scenario:

 The maximum cycle time will be 120 seconds. (SCATS will adjust the cycle time responding to the prevailing traffic conditions on site).

Suite 1801/Tower A, Zenith Centre, 821 Pacific Highway, Chatswood NSW 2067 P.O. Box 5186 West Chatswood NSW 1515

Directors - Geoff Budd - Stan Kafes - Tim Rogers - Joshua Hollis ACN 002 334 296

EMAIL: cbrk@cbrk.com.au

- Total Intergreen time should be 6 seconds 4 seconds yellow + 2 seconds all red.
- TfNSW advises that the pedestrian protection time would typically be 1 I seconds at the Rooty Hill Road South/Church Street intersection, which will be determined on site and dependent on pedestrian behaviour. As such, the percentage of pedestrian protection time being activated should be considered with reasonable assumptions in the traffic modelling.
- The network modelling should include the following intersections:
  - Rooty Hill Road South and Church
  - o Rooty Hill Road South and Cable place
  - Rooty Hill Road South and Great Western Highway
- 4) The turn path for MRV turning left from Rooty Hill Road South into St Agnes Avenue encroaches on the kerb, please address this issue.
- 5) TfNSW raises no objection to the Rooty Hill Road South realignment near Beggs Road with the suggested radius. At the 65m length from the stop line, the width of the right turn lane taper is 2.5m, which can only accommodate a car. It is recommended that the median width be reduced to 1.2m from Beggs Road and then transition through the taper to the 1.5m median width. This will allow the width in this area (65m from stopline) increased to 2.9m providing a better outcome.
- 6) TfNSW notes that there is an existing driveway at the southwest conner of St Agnes Avenue. On safety grounds, the driveway should be relocated to St Agnes Avenue, providing a safer access to the resident also in addition to other road users. Please note, it is the responsibility of applicant to obtain written agreement from the landowner, permitting the relocation and any works required by the applicant.
- 7) The concept design plan, TCS plan, traffic modelling (both report and SIDRA files) and swept path diagram should be updated to address the above concerns and submitted, together as one package, to TfNSW for review and approval.
- 2. The technical note has been updated to incorporate the above comments through the following sections:
  - Intersection Layout;
  - Traffic Signal Phasing; and
  - Traffic effects.

### Rooty Hill Road South/Church Street/St Agnes Avenue Intersection Layout

- 3. Concept plans of the proposed four way intersection of RHRS/Church Street/St Agnes Avenue have been prepared by Henry & Hymas and are provided in Attachment A. Key elements of the new four way intersection include:
  - Right turn lane into St Agnes Avenue of 55 metres (similar to right turn bay into Cable Place);

- Right turn bay into Church Street of 65 metres
- St Agnes Avenue remains as one traffic lane in each direction at the intersection;
- Church Street provides one traffic lane eastbound and two traffic lanes westbound at the intersection (designated left turn lane and shared through and right turn lane): and
- Signalised pedestrian crossings on the all legs of the intersection.

### Rooty Hill Road South/Church Street/St Agnes Avenue Traffic Signal Phasing

4. TfNSW has requested that two phasing options be modelled for the intersections of RHRS/Church Street/St Agnes Avenue. Option I is a Single Diamond Overlap (SDO) phasing on Rooty Hill Road South and single phase (with both pedestrian features) for Church Street and St Agnes Avenue. Option 2 is a Single Diamond Overlap (SDO) phasing on Rooty Hill Road South and 'Split Approach' phasing for Church Street and St Agnes Avenue with both pedestrian features on the Church Street signal phase. For both options, a leading right turn into Church Street (Phase DI) has been included as the traffic flow turning right into Church Street is significantly higher than the traffic flow turning right into St Agnes Avenue. The phasing diagrams are shown in Figures I and 2 below.

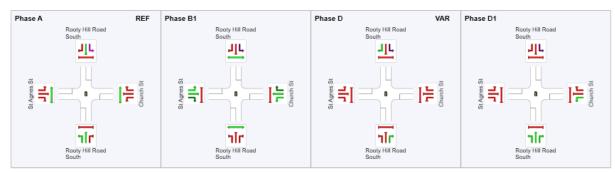


Figure I – Signal Phasing Sequence Option I

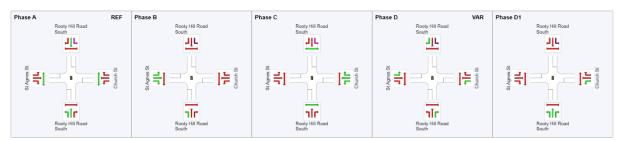


Figure 2 – Signal Phasing Sequence Option 2

5. Due to the low traffic flows turning to/from St Agnes Avenue, phases D would not be called up every cycle in both options and Phase B would also not be called up every cycle in Option 2.

### Traffic Effects

- 6. The proposed intersection has been analysed using SIDRA, as part of a network along RHRS with the intersection of RHRS/Cable Place/Goldsbro Glade and RHRS/Great Western Highway (GWH)/Wallgrove Road, to determine its level of intersection operation and the feasibility of this intersection layout. The analysis has been updated to incorporate TfNSW's comments above, including cycle time (120 seconds), pedestrian protections and intergreen times.
- 7. The analysis is being undertaken with the traffic flows from the "Base + 10 years after Open (2034)" scenario with and without development traffic, as detailed in our previous technical note dated 10 March 2022. This is the worst case scenario where traffic flows are highest. The model also includes upgrades to the intersections of RHRS/Goldsbro Glade and RHRS/GWH/Wallgrove Road as per our Traffic report for Stage 3. These upgrades are:
  - reconfiguring the Goldsbro Grove Road approach to the intersection with RHRS/Cable Place to provide a right turn lane, shared right turn/though lane and extended separate left turn lane. Adjustments the signal phasing are required to accommodate these modifications; and
  - additional right turn lane on the northern (RHRS) approach to the intersection with GWH. This is a requirement of the approved concept plan.
- 8. The SIDRA analysis is summarised in Table 1 below:

Table I:	Sidra Analysis	s (Base +	- 10 Ye	ars After (	Open (203	4))	
Intersection	Output	N	0	+ Deve	lopment	+ Deve	lopment
	-	Develo	pment	(Phasing (	Option I)	(Phasing	Option 2)
		Thu	Sat	Thu	Sat	Thu	Sat
RHRS / Church St/	Ave Delay (s)	-	-	16	22	14	23
St Agnes Ave	LOS	-	-	В	В	Α	В
RHRS / Cable Place	Ave Delay (s)	21	27	20	22	21	23
/ Goldsbro Glade	LOS	В	В	В	В	В	В
RHRS / GWH /	Ave Delay (s)	154	51	68	48	69	48
Wallgrove Road	LOS	F	D	Е	D	Е	D

### 9. The analysis showed that:

- The realigned intersection of RHRS/Church Street/St Agnes Avenue will operate with average delays per vehicle of less than 25 seconds during the weekday afternoon and Saturday midday peak periods. This represents level of service B, an acceptable level of intersection operation for both options;
- Phasing option I has slightly better average delays than phasing option 2;

- 95<sup>th</sup> percentile queue lengths will not exceed the 65 metre storage area for the right turn into Church Street; and
- The intersections of RHRS/Cable Place/Goldsbro Glade and RHRS/GWH/ Wallgrove Road will operate better than in the 'do nothing' scenario.
- 10. SIDRA movement summaries have been provided in Attachment B and electronic files will be provided separately.
- II. We trust the above provides the information you require. Finally, if you should have any queries, please do not hesitate to contact us.

Yours faithfully,

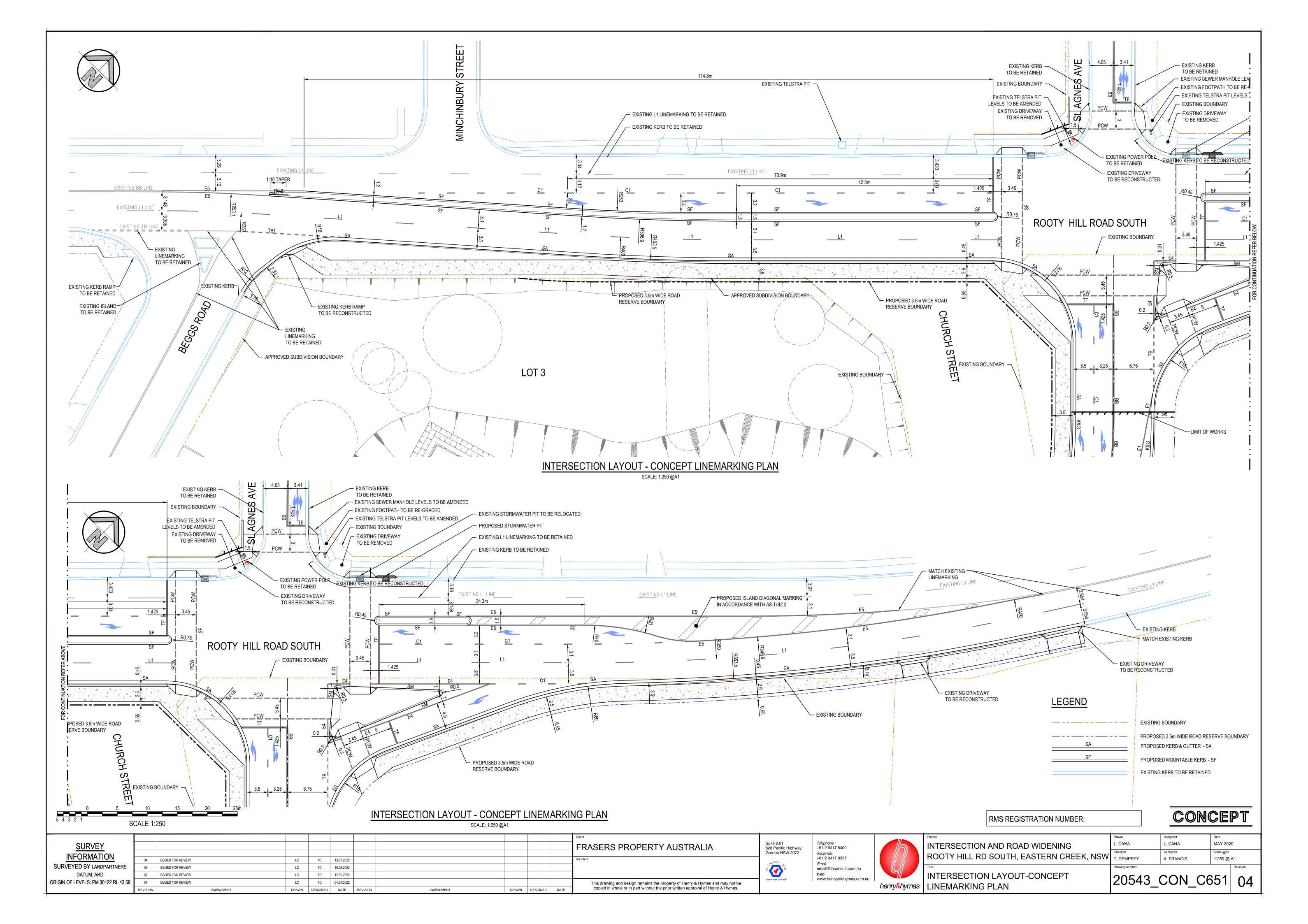
COLSTON BUDD ROGERS & KAFES PTY LTD

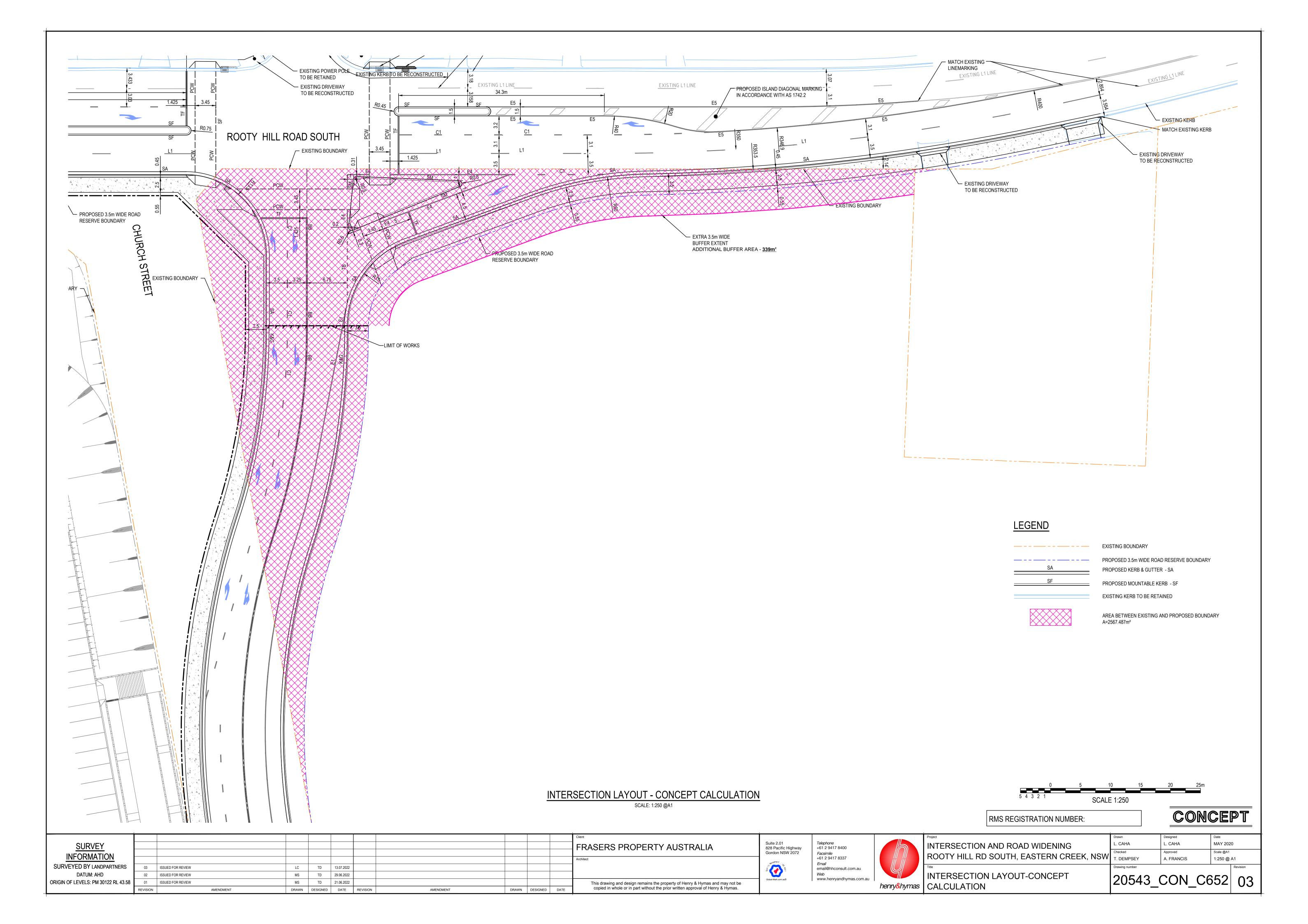
T. Rogers

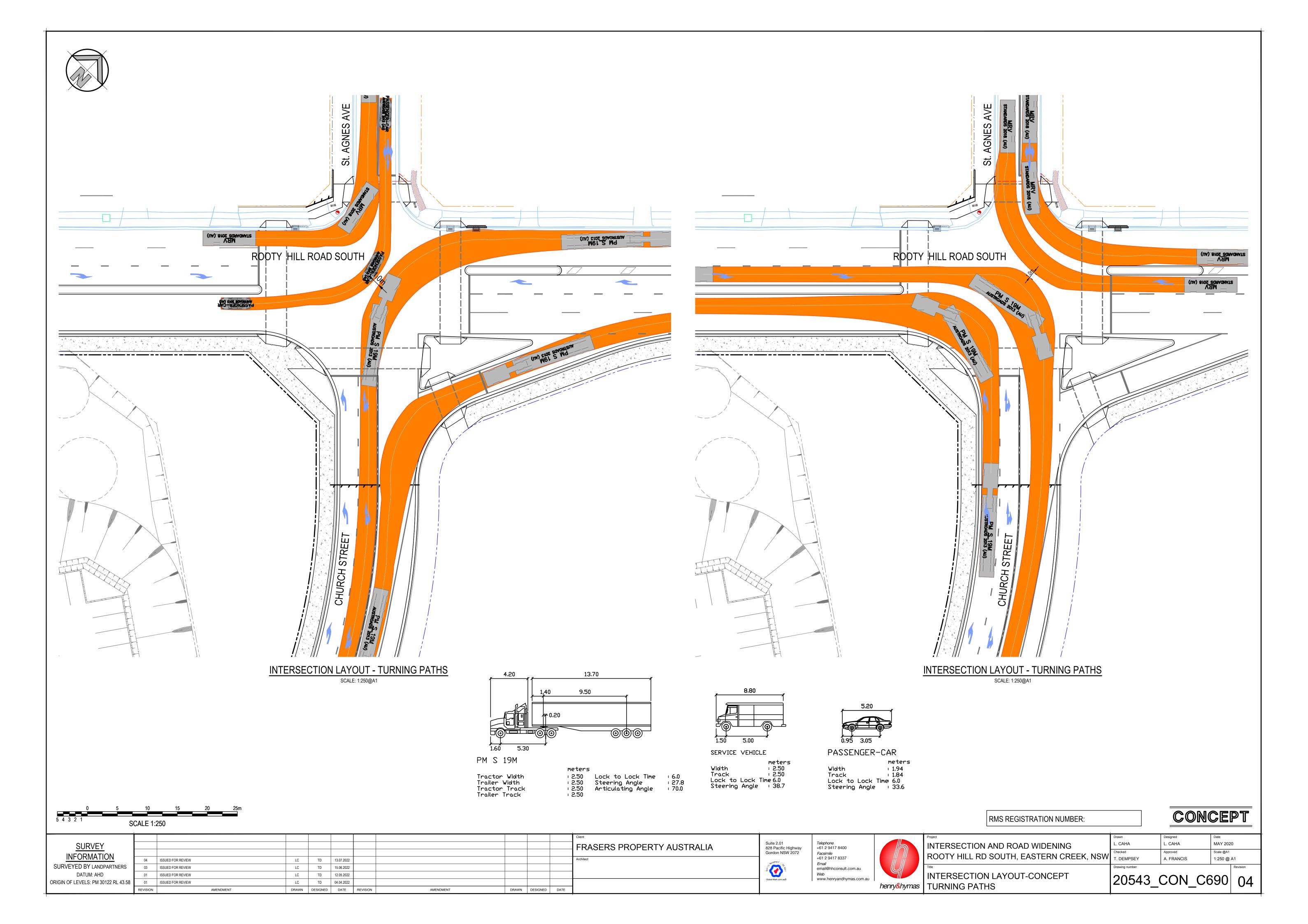
Director

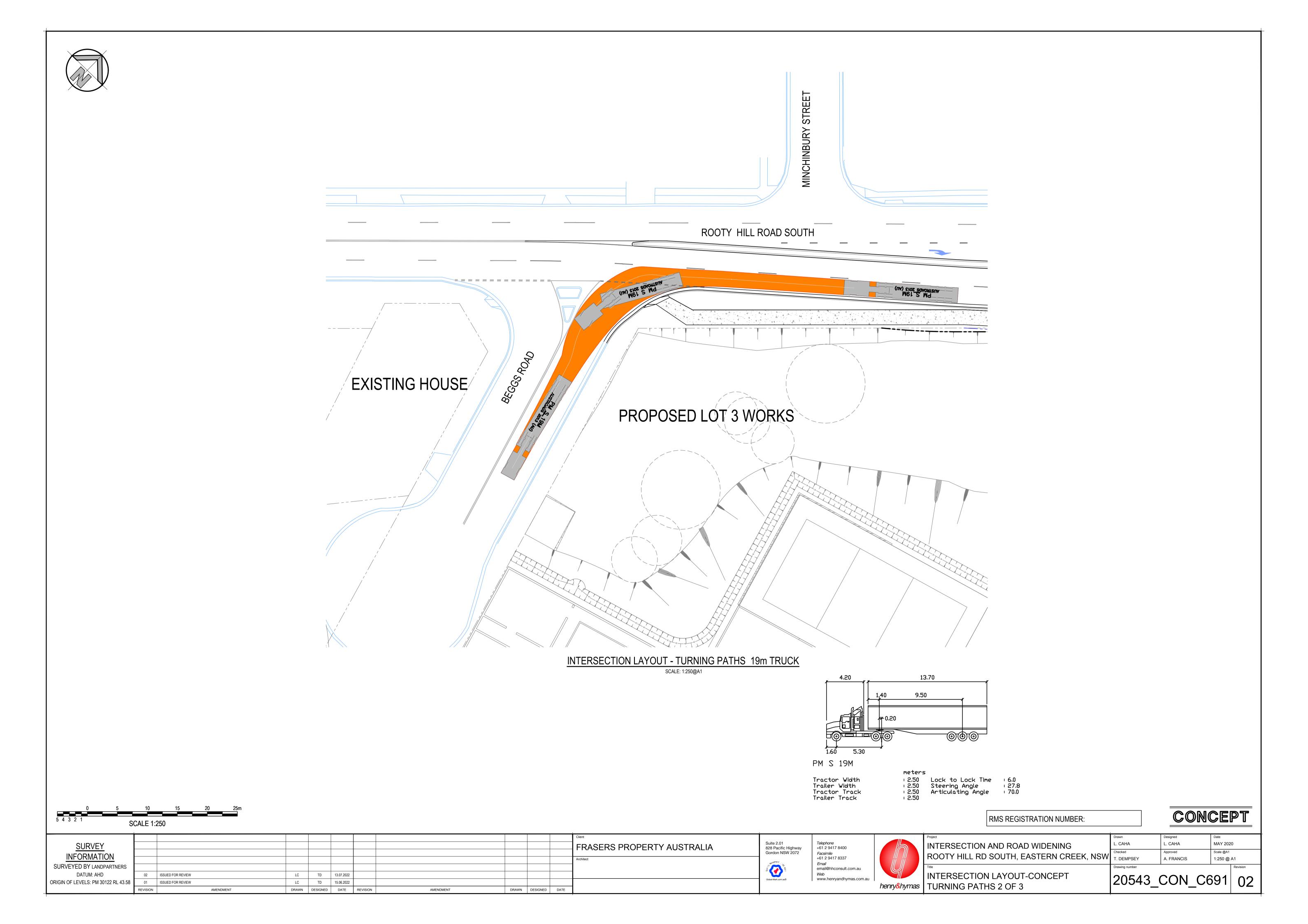
### ATTACHMENT A

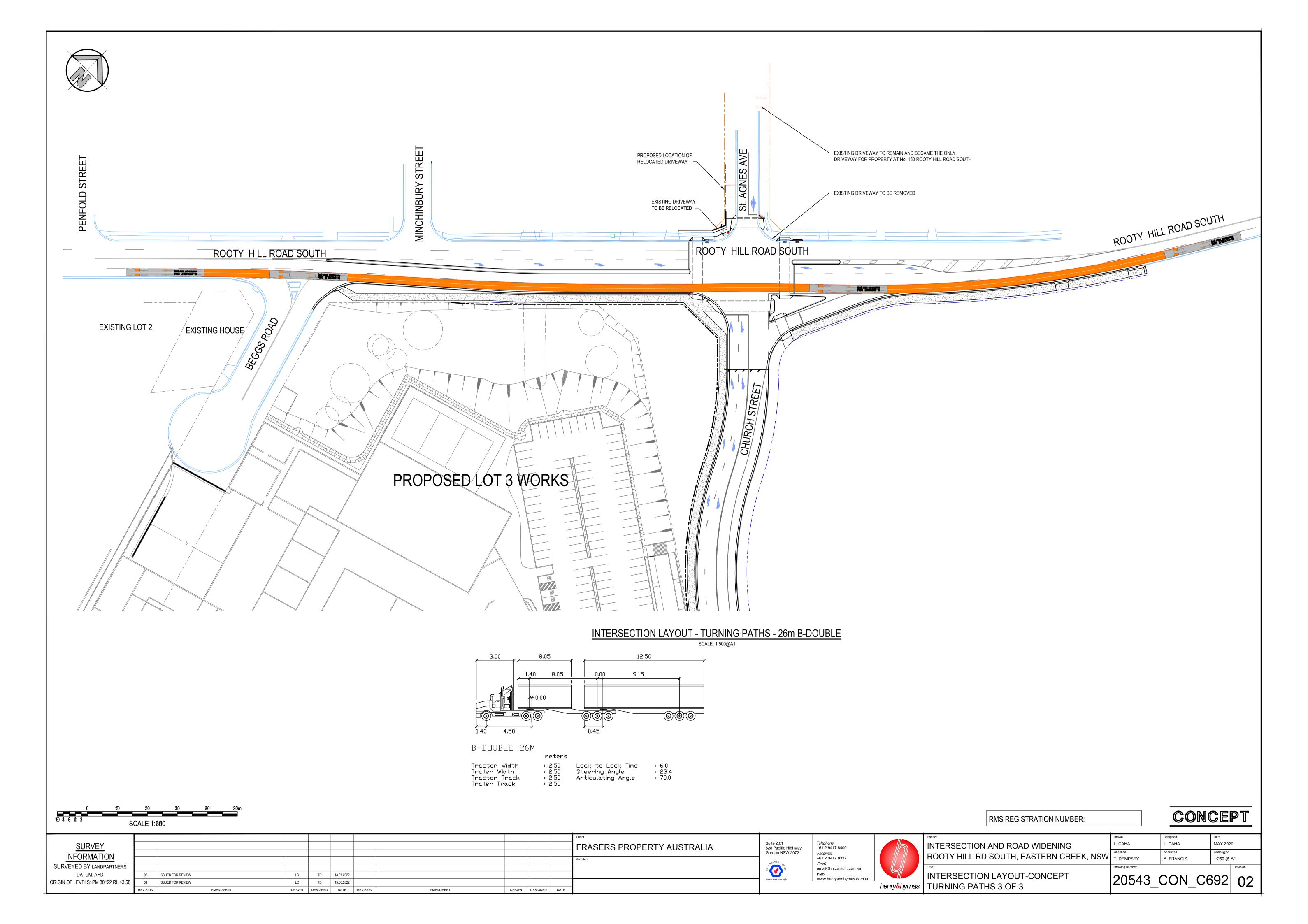
ROOTY HILL ROAD SOUTH / CHURCH STREET INTERSECTION LAYOUT AND VEHICLE SWEPT PATHS (Prepared by Henry and Hymas)











### ATTACHMENT B

SIDRA MOVEMENT SUMMARIES

**All Movement Classes** 

Project: 11436 ECQ Stage 3

**Template: Movement Summaries** 

Site: 102 [Thu PM Base + 10 Years Open -Rooty Hill Rd - Cable PI (Site Folder: Weekday

■■ Network: 4 [Thu PM Base + 10 Years Open

(Network Folder: Base + 10 Years)]

Afternoon +10 Years)]

Rooty Hill Road (north) - twin RT lanes into Spien Road, 4 lanes on Spine Road approach

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Green Split Priority has been specified Phase Sequence: Variable Phasing Reference Phase: Phase C

Input Phase Sequence: B1, B2, C, D1, D Output Phase Sequence: B1, B2, C, D1, D

Vehi	icle Mo	vement	Perfo	rmano	се									
Mov ID	Turn	DEMA FLO\ [ Total		ARRI FLO' [ Total	WS	Deg. Satn		Level of Service		ACK OF EUE Dist ]	Prop. Que	EffectiveA Stop Rate	ver. No. Cycles	Aver. Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
Sout	h: Root	y Hill Roa	ıd (sou	th)										
1	L2	5	2.0	4	2.0	0.520	8.6	LOS A	4.7	33.7	0.16	0.15	0.16	54.7
2	T1	1300	2.0	1113	2.0	0.520	1.9	LOS A	4.7	33.7	0.10	0.09	0.10	58.1
3	R2	216	2.0	185	2.0	0.505	52.2	LOS D	10.1	72.0	0.97	0.82	0.97	20.3
Appr	oach	1521	2.0	1303 <sup>N</sup>	2.0	0.520	9.1	LOS A	10.1	72.0	0.23	0.20	0.23	51.3
East	Spine	Road												
4	L2	205	2.0	205	2.0	0.323	15.2	LOS B	3.8	27.0	0.63	0.74	0.63	21.7
5	T1	2	2.0	2	2.0	0.005	38.0	LOS C	0.1	0.7	0.79	0.50	0.79	30.2
6	R2	195	2.0	195	2.0	<b>*</b> 0.917	78.5	LOS F	13.5	96.0	1.00	1.02	1.45	22.3
Appr		402	2.0	402	2.0	0.917	46.0	LOS D	13.5	96.0	0.81	0.87	1.03	22.3
North	n: Rooty	Hill Roa	d (nort	h)										
7	L2	179	2.0	179	2.0	0.127	7.1	LOS A	1.6	11.6	0.22	0.61	0.22	51.2
8	T1	905	2.0	905	2.0	<b>*</b> 0.565	27.7	LOS B	20.1	142.8	0.81	0.71	0.81	35.5
9	R2	5	2.0	5	2.0	0.041	63.7	LOS E	0.3	2.0	0.96	0.65	0.96	31.0
Appr	oach	1089	2.0	1089	2.0	0.565	24.4	LOS B	20.1	142.8	0.71	0.69	0.71	37.6
West	t: Cable	Place												
10	L2	5	2.0	5	2.0	0.028	56.5	LOS E	0.3	2.3	0.91	0.65	0.91	33.0
11	T1	1	2.0	1	2.0	0.028	50.9	LOS D	0.3	2.3	0.91	0.65	0.91	24.5
12	R2	5	2.0	5	2.0	<b>*</b> 0.157	76.2	LOS F	0.3	2.3	1.00	0.63	1.00	17.3
Appr	oach	11	2.0	11	2.0	0.157	64.9	LOS E	0.3	2.3	0.95	0.64	0.95	25.7
All Ve	ehicles	3023	2.0	2805 <sup>N</sup>	2.2	0.917	20.5	LOS B	20.1	142.8	0.50	0.49	0.53	41.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

\* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 101 [Thu PM Base + 10 Years Open - Great Western Hwy - Rooty Hill Rd - Wallgrove rd (Site Folder: Weekday Afternoon +10 Years)]

Network: 4 [Thu PM Base + 10 Years Open (Network Folder: Base + 10 Years)]

Saturday Midday Peak Hour Traffic

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Split Phasing Reference Phase: Phase A

Input Phase Sequence: A, B, B1, C, D, D1\*
Output Phase Sequence: A, B, B1, C, D

(\* Variable Phase)

Vehi	cle Mo	vement	Perfo	rmano	ce									
Mov	Turn	DEMA		ARRI		Deg.		Level of		ACK OF		EffectiveA		Aver.
ID		FLO\ [Total	WS HV1	FLO\ [ Total		Satn	Delay	Service	QUE [Veh.	EUE Dist ]	Que	Stop Rate	Cycles	Speed
		veh/h	%	veh/h		v/c	sec		veh	m m		Nate		km/h
South	n: Wallg	rove Roa	ad											
1	L2	490	3.0	490	3.0	0.588	24.9	LOS B	12.5	89.8	0.79	0.84	0.79	46.2
2	T1	1015	3.0	1015	3.0	<b>*</b> 1.179	226.3	LOS F	67.7	486.0	1.00	1.90	2.44	7.2
3	R2	365	3.0	365	3.0	0.803	66.6	LOS E	11.3	81.3	1.00	0.91	1.20	21.8
Appro	oach	1870	3.0	1870	3.0	1.179	142.4	LOS F	67.7	486.0	0.95	1.43	1.76	13.2
East:	Great \	Nestern	Highwa	ay										
4	L2	325	3.0	325	3.0	0.523	26.9	LOS B	11.0	78.8	0.85	0.82	0.85	36.1
5	T1	1510	3.0	1510	3.0	<b>*</b> 1.215	256.7	LOS F	71.7	514.5	1.00	1.77	2.60	8.0
6	R2	400	3.0	400	3.0	<b>*</b> 1.200	251.9	LOS F	27.3	195.8	1.00	1.42	2.64	2.0
Appro	oach	2235	3.0	2235	3.0	1.215	222.4	LOS F	71.7	514.5	0.98	1.57	2.35	7.9
North	: Rooty	Hill Roa	d Sout	h										
7	L2	165	2.0	165	2.0	0.246	43.2	LOS D	8.4	59.8	0.93	0.81	0.93	22.7
8	T1	695	2.0	695	2.0	0.802	59.0	LOS E	21.0	149.2	1.00	0.90	1.05	27.9
9	R2	280	2.0	280	2.0	<b>*</b> 1.223	266.7	LOS F	39.0	277.8	1.00	1.60	2.55	9.4
Appro	oach	1140	2.0	1140	2.0	1.223	107.7	LOS F	39.0	277.8	0.99	1.06	1.40	18.2
West	: Great	Western	Highw	ay										
10	L2	125	3.0	125	3.0	0.129	22.1	LOS B	3.6	25.8	0.53	0.72	0.53	41.3
11	T1	910	3.0	910	3.0	0.443	31.4	LOS C	13.5	96.6	0.81	0.70	0.81	38.6
12	R2	790	3.0	790	3.0	<b>*</b> 1.185	217.7	LOS F	43.8	314.5	1.00	1.42	2.49	12.1
Appro	oach	1825	3.0	1825	3.0	1.185	111.4	LOS F	43.8	314.5	0.87	1.01	1.52	17.6
All Ve	ehicles	7070	2.8	7070	2.8	1.223	154.1	LOS F	71.7	514.5	0.94	1.31	1.83	12.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

**All Movement Classes** 

Project: 11436 ECQ Stage 3 Template: Movement Summaries

Site: 101 [Thu PM Base + 10 Years Open + Dev - RHRS - Church St - St Agnes St (Opt1) (Site Folder: Weekday Afternoon +10 Years + Development)]

■■ Network: 1 [Thu PM Base + 10 Years Open + Dev (Phasing Option 1) (Network Folder: Base + 10 Years Open + Development (Phasing Option 1))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Leading Right Turn Reference Phase: Phase A Input Phase Sequence: A, B1, D\*, D1 Output Phase Sequence: A, B1, D\*, D1

(\* Variable Phase)

Veh	icle Mo	vement	Perfo	rmano	се									
Mov ID	Turn	DEM/ FLO\	NS	ARRI FLO	WS	Deg. Satn		Level of Service	QUI	ACK OF EUE	Prop. Que	Effective A Stop	ver. No. Cycles	Aver. Speed
		[ Total veh/h	HV J %	[ Total veh/h		v/c	sec		[ Veh. veh	Dist ] m		Rate		km/h
Sout	h: Rooty	Hill Roa			70	V/C	300		VCII	'''				IXIII/II
1	L2	5	2.0	5	2.0	0.592	14.6	LOS B	17.6	125.6	0.45	0.41	0.45	50.0
2	T1	1465	2.0	1465	2.0	0.592	8.8	LOS A	17.6	125.6	0.43	0.40	0.43	49.3
3	R2	42	2.0	42	2.0	* 0.174	62.0	LOS E	2.4	17.4	1.00	0.75	1.00	27.7
Appr	oach	1512	2.0	1512	2.0	0.592	10.3	LOS A	17.6	125.6	0.45	0.41	0.45	47.9
East	: Church	St												
4	L2	147	2.0	147	2.0	0.540	46.6	LOS D	7.3	51.9	0.97	0.79	0.97	24.0
5	T1	2	0.0	2	0.0	0.747	63.0	LOS E	6.7	47.6	1.00	0.87	1.19	28.3
6	R2	105	2.0	105	2.0	<b>*</b> 0.747	68.5	LOS E	6.7	47.6	1.00	0.87	1.19	23.9
Appr	oach	255	2.0	255	2.0	0.747	55.8	LOS D	7.3	51.9	0.98	0.82	1.06	24.0
Nortl	h: Rooty	Hill Roa	d South	า										
7	L2	58	2.0	58	2.0	0.688	17.6	LOS B	12.5	89.1	0.53	0.53	0.53	46.5
8	T1	1110	2.0	1110	2.0	* 0.688	13.7	LOS A	22.4	159.8	0.57	0.54	0.57	32.4
9	R2	5	2.0	5	2.0	0.174	76.6	LOS F	0.3	2.5	1.00	0.63	1.00	22.2
Appr	oach	1173	2.0	1173	2.0	0.688	14.2	LOS A	22.4	159.8	0.57	0.54	0.57	33.5
Wes	t: St Agr	es St												
10	L2	2	2.0	2	2.0	0.061	60.6	LOS E	0.5	3.7	0.94	0.67	0.94	25.9
11	T1	2	2.0	2	2.0	0.061	55.0	LOS D	0.5	3.7	0.94	0.67	0.94	30.4
12	R2	5	2.0	5	2.0	0.061	60.6	LOS E	0.5	3.7	0.94	0.67	0.94	20.6
Appr	oach	9	2.0	9	2.0	0.061	59.3	LOS E	0.5	3.7	0.94	0.67	0.94	24.5
All V	ehicles	2950	2.0	2950	2.0	0.747	15.9	LOS B	22.4	159.8	0.54	0.50	0.55	39.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 102 [Thu PM Base + 10 Years Open + ■ Network: 1 [Thu PM Base + 10 Years Open + Dev + Upgrades - Rooty Hill Rd - Cable Pl (Site Dev (Phasing Option 1) (Network Folder: Base Folder: Weekday Afternoon +10 Years + + 10 Years Open + Development (Phasing Development)] Option 1))]

Rooty Hill Road (north) - twin RT lanes into Spien Road, 4 lanes on Spine Road approach

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Green Split Priority has been specified Phase Sequence: Variable Phasing Reference Phase: Phase C

Input Phase Sequence: B1, B2, C, D1, D Output Phase Sequence: B1, B2, C, D1, D

Veh	icle Mo	vement	Perfo	rmano	е									
Mov ID	Turn	DEM/ FLO\ [ Total veh/h		ARRI FLO' [ Total veh/h	WS HV]	Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist ] m	Prop. Que	EffectiveA Stop Rate	ver. No. Cycles	Aver. Speed km/h
Sout	h: Rooty	/ Hill Roa	ıd (sou	th)										
1	L2	5	2.0	5	2.0	0.473	12.3	LOS A	13.5	96.2	0.39	0.35	0.39	51.3
2	T1	1320	2.0	1320	2.0	0.473	6.4	LOS A	14.1	100.4	0.39	0.36	0.39	45.5
3	R2	279	2.0	279	2.0	<b>*</b> 0.575	46.3	LOS D	14.1	100.6	0.92	0.83	0.92	21.0
Appr	oach	1604	2.0	1604	2.0	0.575	13.4	LOS A	14.1	100.6	0.48	0.44	0.48	36.4
East	: Spine I	Road												
4	L2	263	2.0	263	2.0	0.293	11.4	LOS A	5.9	42.0	0.45	0.70	0.45	23.6
5	T1	2	2.0	2	2.0	* 0.925	78.1	LOS F	7.0	49.6	1.00	1.02	1.61	18.5
6	R2	195	2.0	195	2.0	0.925	83.2	LOS F	7.0	49.6	1.00	1.02	1.60	4.8
Appr	oach	460	2.0	460	2.0	0.925	42.1	LOS C	7.0	49.6	0.69	0.83	0.94	9.0
Nort	h: Rooty	Hill Roa	d (nort	h)										
7	L2	179	2.0	179	2.0	0.131	6.1	LOS A	0.4	3.1	0.06	0.57	0.06	47.4
8	T1	1035	2.0	1035	2.0	<b>*</b> 0.584	22.1	LOS B	20.0	142.7	0.69	0.61	0.69	31.8
9	R2	5	2.0	5	2.0	0.330	82.4	LOS F	0.4	2.5	1.00	0.62	1.00	23.7
Appr	oach	1219	2.0	1219	2.0	0.584	20.0	LOS B	20.0	142.7	0.59	0.60	0.59	33.7
Wes	t: Cable	Place												
10	L2	5	2.0	5	2.0	0.046	62.7	LOS E	0.3	2.4	0.95	0.65	0.95	20.1
11	T1	1	2.0	1	2.0	0.046	57.1	LOS E	0.3	2.4	0.95	0.65	0.95	22.5
12	R2	5	2.0	5	2.0	0.065	69.4	LOS E	0.3	2.1	0.99	0.63	0.99	18.5
Appr	oach	11	2.0	11	2.0	0.065	65.2	LOS E	0.3	2.4	0.97	0.64	0.97	19.6
All V	ehicles	3294	2.0	3294	2.0	0.925	20.0	LOS B	20.0	142.7	0.56	0.56	0.59	30.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [Thu PM Base + 10 Years Open + Dev + Upgrades - GWH - Rooty Hill Rd -Wallgrove Rd (Site Folder: Weekday Afternoon +10 Years + Development)]

■ Network: 1 [Thu PM Base + 10 Years Open + Dev (Phasing Option 1) (Network Folder: Base + 10 Years Open + Development (Phasing Option 1))]

Weekday Mornign Peak Hour Traffic

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

**Phase Sequence: Split Phasing** Reference Phase: Phase B

Input Phase Sequence: A, B1\*, B, C, D1\*, D Output Phase Sequence: A, B1\*, B, C, D

(\* Variable Phase)

Veh	icle Mo	vement	Perfo	rmano	се									
Mov	Turn	DEMA		ARRI		Deg.		Level of		ACK OF	Prop.	EffectiveA		Aver.
ID		FLO'		FLO'		Satn	Delay	Service		EUE	Que	Stop	Cycles	Speed
		[ Total veh/h	HV ] %	[ Total veh/h		v/c	sec		[ Veh. veh	Dist ] m		Rate		km/h
Sout	th: Wallg	rove Roa	ad											
1	L2	490	3.0	490	3.0	0.573	40.2	LOS C	20.5	147.2	0.78	0.81	0.78	42.2
2	T1	130	3.0	130	3.0	0.172	43.0	LOS D	3.2	22.7	0.87	0.67	0.87	25.6
3	R2	365	3.0	365	3.0	<b>*</b> 1.014	114.0	LOS F	15.6	112.2	1.00	1.22	1.83	15.1
App	roach	985	3.0	985	3.0	1.014	67.9	LOS E	20.5	147.2	0.87	0.94	1.18	26.6
East	:: Great \	Nestern	Highwa	ау										
4	L2	325	3.0	325	3.0	0.425	32.4	LOS C	13.2	95.0	0.75	0.80	0.75	33.3
5	T1	1510	3.0	1510	3.0	* 0.983	90.0	LOS F	41.9	301.1	1.00	1.19	1.50	20.3
6	R2	430	3.0	430	3.0	0.552	52.2	LOS D	11.3	81.4	0.94	0.82	0.94	9.2
App	roach	2265	3.0	2265	3.0	0.983	74.5	LOS F	41.9	301.1	0.95	1.06	1.29	20.3
Nort	h: Rooty	Hill Roa	d Sout	h										
7	L2	230	2.0	230	2.0	0.271	28.2	LOS B	9.2	65.8	0.74	0.78	0.74	28.5
8	T1	750	2.0	750	2.0	* 0.981	71.2	LOS F	27.4	195.0	1.00	1.11	1.37	25.1
9	R2	335	2.0	335	2.0	0.921	77.1	LOS F	11.3	80.5	1.00	1.01	1.40	24.7
App	roach	1315	2.0	1315	2.0	0.981	65.2	LOS E	27.4	195.0	0.95	1.03	1.27	25.3
Wes	t: Great	Western	Highw	ay										
10	L2	150	3.0	150	3.0	0.192	29.7	LOSC	5.4	38.4	0.65	0.75	0.65	35.4
11	T1	910	3.0	910	3.0	0.565	39.6	LOS C	15.2	109.1	0.91	0.78	0.91	34.0
12	R2	790	3.0	790	3.0	<b>*</b> 0.976	93.7	LOS F	31.7	227.3	1.00	1.07	1.52	25.0
App	roach	1850	3.0	1850	3.0	0.976	61.9	LOS E	31.7	227.3	0.93	0.90	1.15	28.4
All V	ehicles	6415	2.8	6415	2.8	1.014	68.0	LOS E	41.9	301.1	0.93	0.99	1.23	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

**All Movement Classes** 

Project: 11436 ECQ Stage 3 Template: Movement

**Summaries** 

Site: 101 [Sat MD Base + 10 Years Open + Dev - RHRS - Church St - St Agnes St (Opt1) (Site Folder: Saturday Midday +10 Years + Development)]

■■ Network: 2 [Sat MD Base + 10 Years Open + Dev (Phasing Option 1) (Network Folder: Base + 10 Years Open + Development (Phasing Option 1))]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Leading Right Turn Reference Phase: Phase A Input Phase Sequence: A, B1, D\*, D1 Output Phase Sequence: A, B1, D\*, D1

(\* Variable Phase)

Veh	icle Mo	vement	Perfo	rmano	се									
Mov ID	Turn	DEM/ FLO	WS	ARRI FLO	WS	Deg. Satn		Level of Service	QU	ACK OF EUE	Prop. Que	Effective A Stop	ver. No. Cycles	Aver. Speed
		[ Total veh/h	HV] %	[ Total veh/h		v/c	sec		[ Veh. veh	Dist ] m		Rate		km/h
Sou	th: Rooty				70	V/ O	300		VO.11	- '''				KIII/II
1	L2	5	2.0	5	2.0	0.448	10.9	LOS A	6.6	47.3	0.24	0.22	0.24	53.0
2	T1	1037	2.0	1037	2.0	0.448	9.1	LOS A	15.6	111.3	0.40	0.36	0.40	48.9
3	R2	132	2.0	132	2.0	* 0.543	48.6	LOS D	6.6	46.9	0.87	0.77	0.87	31.3
Арр	roach	1174	2.0	1174	2.0	0.543	13.5	LOS A	15.6	111.3	0.45	0.41	0.45	45.2
Eas	t: Church	st St												
4	L2	242	2.0	242	2.0	* 0.615	41.6	LOS C	11.4	81.2	0.96	0.82	0.96	25.6
5	T1	2	2.0	2	2.0	0.772	58.0	LOS E	11.0	78.6	1.00	0.89	1.15	29.4
6	R2	179	2.0	179	2.0	0.772	63.6	LOS E	11.0	78.6	1.00	0.89	1.15	24.9
Арр	roach	423	2.0	423	2.0	0.772	51.0	LOS D	11.4	81.2	0.97	0.85	1.04	25.3
Nort	th: Rooty	Hill Roa	d South	า										
7	L2	179	2.0	179	2.0	0.764	21.9	LOS B	19.7	140.5	0.72	0.73	0.73	42.7
8	T1	1089	2.0	1089	2.0	<b>*</b> 0.764	19.5	LOS B	28.3	201.2	0.74	0.70	0.74	27.0
9	R2	5	2.0	5	2.0	0.347	83.3	LOS F	0.4	2.7	1.00	0.63	1.00	21.1
Арр	roach	1274	2.0	1274	2.0	0.764	20.1	LOS B	28.3	201.2	0.74	0.70	0.74	30.4
Wes	st: St Agr	es St												
10	L2	2	2.0	2	2.0	0.040	53.8	LOS D	0.5	3.4	0.89	0.66	0.89	27.6
11	T1	2	2.0	2	2.0	0.040	48.2	LOS D	0.5	3.4	0.89	0.66	0.89	32.2
12	R2	5	2.0	5	2.0	0.040	53.8	LOS D	0.5	3.4	0.89	0.66	0.89	22.3
Арр	roach	9	2.0	9	2.0	0.040	52.6	LOS D	0.5	3.4	0.89	0.66	0.89	26.2
All \	/ehicles	2880	2.0	2880	2.0	0.772	22.1	LOS B	28.3	201.2	0.66	0.60	0.67	35.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 102 [Sat MD Base + 10 Years Open + Dev - Rooty Hill Rd - Cable PI (Site Folder: Saturday Midday +10 Years + Development)]

■■ Network: 2 [Sat MD Base + 10 Years Open + Dev (Phasing Option 1) (Network Folder: Base + 10 Years Open + Development (Phasing Option 1))]

Rooty Hill Road (north) - twin RT lanes into Spien Road, 4 lanes on Spine Road approach

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Green Split Priority has been specified Phase Sequence: Variable Phasing Reference Phase: Phase C

Input Phase Sequence: B1, B2, C, D1, D Output Phase Sequence: B1, B2, C, D1, D

Vehi	cle Mo	vement	Perfo	rmano	се									
Mov	Turn	DEM/		ARRI		Deg.		Level of	95% BA		Prop.	EffectiveA		Aver.
ID		FLO <sup>\</sup> [Total	ws HV1	FLO\ [ Total		Satn	Delay	Service	QUE [Veh.	EUE Dist ]	Que	Stop Rate	Cycles	Speed
		veh/h	%	veh/h		v/c	sec		veh	m				km/h
Sout	h: Rooty	/ Hill Roa	ad (sou	th)										
1	L2	5	2.0	5	2.0	0.318	10.1	LOS A	6.0	42.5	0.26	0.23	0.26	53.2
2	T1	875	2.0	875	2.0	0.318	4.3	LOS A	6.0	42.5	0.24	0.22	0.24	49.3
3	R2	505	2.0	505	2.0	<b>*</b> 0.758	12.4	LOS A	10.6	75.2	0.38	0.69	0.38	39.9
Appr	oach	1385	2.0	1385	2.0	0.758	7.3	LOS A	10.6	75.2	0.29	0.39	0.30	44.7
East	Spine I	Road												
4	L2	442	2.0	442	2.0	0.449	16.7	LOS B	11.8	83.9	0.57	0.79	0.57	20.4
5	T1	5	2.0	5	2.0	* 0.927	77.9	LOS F	8.1	57.3	1.00	1.04	1.59	18.9
6	R2	221	2.0	221	2.0	0.927	83.1	LOS F	8.1	57.3	1.00	1.03	1.59	5.5
Appr	oach	668	2.0	668	2.0	0.927	39.2	LOSC	11.8	83.9	0.72	0.87	0.91	11.0
North	n: Rooty	Hill Roa	d (nort	h)										
7	L2	226	2.0	226	2.0	0.180	6.3	LOS A	0.9	6.4	0.10	0.58	0.10	49.1
8	T1	980	2.0	980	2.0	<b>*</b> 0.750	35.4	LOSC	26.1	185.7	0.92	0.82	0.93	24.8
9	R2	5	2.0	5	2.0	0.330	82.4	LOS F	0.4	2.5	1.00	0.62	1.00	23.7
Appr	oach	1211	2.0	1211	2.0	0.750	30.1	LOSC	26.1	185.7	0.77	0.77	0.78	28.0
West	: Cable	Place												
10	L2	5	2.0	5	2.0	0.046	62.7	LOS E	0.3	2.4	0.95	0.65	0.95	20.1
11	T1	1	2.0	1	2.0	0.046	57.1	LOS E	0.3	2.4	0.95	0.65	0.95	23.0
12	R2	5	2.0	5	2.0	0.065	69.4	LOS E	0.3	2.1	0.99	0.63	0.99	18.5
Appr	oach	11	2.0	11	2.0	0.065	65.2	LOS E	0.3	2.4	0.97	0.64	0.97	19.6
All Ve	ehicles	3276	2.0	3276	2.0	0.927	22.4	LOS B	26.1	185.7	0.56	0.63	0.60	29.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [Sat MD Base + 10 Years Open + Dev + Upgrades - GWH - Rooty Hill Rd - Wallgrove Rd (Site Folder: Saturday Midday +10 Years + Development)]

■■ Network: 2 [Sat MD Base + 10 Years Open + Dev (Phasing Option 1) (Network Folder: Base + 10 Years Open + Development (Phasing Option 1))]

Weekday Mornign Peak Hour Traffic

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Split Phasing Reference Phase: Phase B

Input Phase Sequence: A, B1\*, B, C, D1\*, D Output Phase Sequence: A, B1\*, B, C, D

(\* Variable Phase)

Veh	icle Mo	vement	Perfo	rmano	се									
Mov	Turn	DEMA		ARRI		Deg.		Level of	95% BA		Prop.	EffectiveA		Aver.
ID		FLO'		FLO'		Satn	Delay	Service	QUE		Que	Stop	Cycles	Speed
		[ Total veh/h	HV ] %	[ Total veh/h		v/c	sec		[ Veh. veh	Dist ] m		Rate		km/h
Sout	th: Wallg	rove Roa	ad											
1	L2	565	3.0	565	3.0	0.589	29.3	LOS C	22.2	159.6	0.73	0.81	0.73	44.2
2	T1	715	3.0	715	3.0	* 0.839	54.5	LOS D	22.0	157.8	1.00	0.97	1.16	22.2
3	R2	225	3.0	225	3.0	0.625	64.3	LOS E	6.6	47.7	1.00	0.81	1.04	22.3
App	roach	1505	3.0	1505	3.0	0.839	46.5	LOS D	22.2	159.6	0.90	0.88	0.98	30.0
East	:: Great \	Nestern	Highwa	ay										
4	L2	270	3.0	270	3.0	0.409	36.8	LOS C	11.7	84.1	0.79	0.80	0.79	31.3
5	T1	1030	3.0	1030	3.0	* 0.837	56.2	LOS D	21.1	151.6	1.00	0.95	1.16	27.8
6	R2	390	3.0	390	3.0	0.566	54.8	LOS D	10.5	75.6	0.96	0.82	0.96	8.9
App	roach	1690	3.0	1690	3.0	0.837	52.8	LOS D	21.1	151.6	0.96	0.89	1.06	24.9
Nort	h: Rooty	Hill Roa	d Sout	h										
7	L2	365	2.0	365	2.0	0.430	28.3	LOS B	14.1	100.4	0.71	0.79	0.71	28.5
8	T1	715	2.0	715	2.0	0.831	52.3	LOS D	21.0	149.4	0.99	0.93	1.10	29.7
9	R2	305	2.0	305	2.0	* 0.839	57.7	LOS E	9.1	64.5	1.00	0.84	1.08	29.3
App	roach	1385	2.0	1385	2.0	0.839	47.2	LOS D	21.0	149.4	0.92	0.87	0.99	29.4
Wes	t: Great	Western	Highw	ay										
10	L2	295	3.0	295	3.0	0.378	31.9	LOS C	11.6	83.2	0.72	0.79	0.72	34.0
11	T1	895	3.0	895	3.0	0.556	39.5	LOS C	14.9	106.9	0.91	0.77	0.91	34.1
12	R2	780	3.0	780	3.0	* 0.839	59.6	LOS E	23.8	171.0	1.00	0.92	1.15	32.4
App	roach	1970	3.0	1970	3.0	0.839	46.3	LOS D	23.8	171.0	0.92	0.84	0.97	33.2
All V	ehicles	6550	2.8	6550	2.8	0.839	48.2	LOS D	23.8	171.0	0.92	0.87	1.00	29.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

\* Critical Movement (Signal Timing)

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**All Movement Classes** 

Project: 11436 ECQ Stage 3 Template: Movement Summaries

Site: 101 [Thu PM Base + 10 Years Open + Dev - RHRS - Church St - St Agnes St (Opt2) (Site Folder: Weekday Afternoon +10 Years + Development)]

■■ Network: 5 [Thu PM Base + 10 Years Open + Dev (Phasing Option 2) (Network Folder: Base + 10 Years Open + Development (Phasing Option 2)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog Phase Times determined by the program Downstream lane blockage effects included in determining phase times

Phase Sequence: Leading Right Turn Reference Phase: Phase A Input Phase Sequence: A, B, C, D\*, D1 Output Phase Sequence: A, B, C, D\*, D1

(\* Variable Phase)

Veh	icle Mo	vement	Perfo	rmano	e									
Mov ID	Turn	DEMA FLOV [ Total veh/h		ARRI FLO' [ Total veh/h	WS HV]	Deg. Satn v/c	Delay	Level of Service		ACK OF EUE Dist ]	Prop. Que	EffectiveA Stop Rate	ver. No. Cycles	Aver. Speed km/h
Sout	h: Rootv	ve⊓/⊓ / Hill Roa			70	V/C	sec		ven	m		_		KIII/II
1	L2	5	2.0	5	2.0	0.607	13.6	LOS A	15.7	111.6	0.40	0.37	0.40	50.8
2	T1	1465	2.0	1465	2.0	0.607	8.0	LOSA	15.7	111.6	0.40	0.37	0.40	50.0
3	R2	42	2.0	42	2.0	* 0.463	69.7	LOSE	2.6	18.5	1.00	0.73	1.00	26.1
Appr	oach	1512	2.0	1512		0.607	9.8	LOS A	15.7	111.6	0.42	0.38	0.42	48.4
East	: Church	n St												
4	L2	147	2.0	147	2.0	0.423	52.1	LOS D	7.7	54.8	0.93	0.80	0.93	22.4
5	T1	2	0.0	2	0.0	0.641	59.2	LOS E	6.4	45.5	1.00	0.81	1.06	29.1
6	R2	105	2.0	105	2.0	<b>*</b> 0.641	64.8	LOS E	6.4	45.5	1.00	0.81	1.06	24.7
Appr	oach	255	2.0	255	2.0	0.641	57.4	LOS E	7.7	54.8	0.96	0.80	0.98	23.6
Nortl	h: Rooty	Hill Road	d Soutl	h										
7	L2	58	2.0	58	2.0	0.640	12.9	LOS A	8.6	61.0	0.38	0.40	0.38	50.4
8	T1	1110	2.0	1110	2.0	<b>*</b> 0.640	9.1	LOS A	17.6	125.0	0.43	0.41	0.43	38.3
9	R2	5	2.0	5	2.0	0.347	83.3	LOS F	0.4	2.7	1.00	0.63	1.00	21.1
Appr	oach	1173	2.0	1173	2.0	0.640	9.6	LOS A	17.6	125.0	0.43	0.41	0.43	39.1
Wes	t: St Agr	nes St												
10	L2	2	2.0	2	2.0	0.430	52.5	LOS D	0.5	3.4	1.00	0.66	1.06	28.0
11	T1	2	2.0	2	2.0	<b>*</b> 0.430	46.9	LOS D	0.5	3.4	1.00	0.66	1.06	32.6
12	R2	5	2.0	5	2.0	0.430	52.5	LOS D	0.5	3.4	1.00	0.66	1.06	22.6
Appr	oach	9	2.0	9	2.0	0.430	51.2	LOS D	0.5	3.4	1.00	0.66	1.06	26.6
All V	ehicles	2950	2.0	2950	2.0	0.641	13.9	LOS A	17.6	125.0	0.47	0.43	0.47	41.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 102 [Thu PM Base + 10 Years Open + ■■ Network: 5 [Thu PM Base + 10 Years Open + Dev + Upgrades - Rooty Hill Rd - Cable Pl (Site Dev (Phasing Option 2) (Network Folder: Base Folder: Weekday Afternoon +10 Years + + 10 Years Open + Development (Phasing Development)] Option 2)]

Rooty Hill Road (north) - twin RT lanes into Spien Road, 4 lanes on Spine Road approach

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Green Split Priority has been specified Phase Sequence: Variable Phasing Reference Phase: Phase C

Input Phase Sequence: B1, B2, C, D1, D Output Phase Sequence: B1, B2, C, D1, D

Vehi	cle Mo	vement	Perfo	rmano	е									
Mov ID	Turn	DEM/ FLO\ [ Total veh/h		ARRI FLO\ [ Total veh/h	WS HV]	Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist ] m	Prop. Que	EffectiveA Stop Rate	ver. No. Cycles	Aver. Speed km/h
South	n: Rooty	/ Hill Roa	d (sou	th)										
1 2 3	L2 T1 R2	5 1320 279	2.0 2.0 2.0	5 1320 279	2.0 2.0 2.0	0.473 0.473 * 0.575	12.3 6.4 46.3	LOS A LOS A LOS D	13.5 14.1 14.1	96.2 100.4 100.7	0.39 0.39 0.92	0.35 0.36 0.83	0.39 0.39 0.92	51.3 45.5 21.0
Appro	oach	1604	2.0	1604	2.0	0.575	13.4	LOS A	14.1	100.7	0.48	0.44	0.48	36.4
East:	Spine I	Road												
4 5	L2 T1	263	2.0	263	2.0	0.292 * 0.925	11.3 78.1	LOS A	5.9 7.0	41.7 49.6	0.45 1.00	0.70 1.02	0.45 1.61	23.6 18.5
6 Appro	R2	195 460	2.0	195 460	2.0	0.925 0.925	83.2 42.1	LOS F	7.0 7.0	49.6 49.6	1.00 0.68	1.02 0.83	1.60 0.94	4.8 9.0
					2.0	0.925	42.1	LUS C	7.0	49.0	0.00	0.63	0.94	9.0
North	n: Rooty	Hill Roa	d (nort	h)										
7	L2	179	2.0	179	2.0	0.131	6.8	LOS A	1.1	7.7	0.14	0.59	0.14	46.5
8	T1	1035	2.0	1035		<b>*</b> 0.580	23.8	LOS B	19.8	141.2	0.71	0.63	0.71	30.7
9	R2	5	2.0	5	2.0	0.330	82.4	LOS F	0.4	2.5	1.00	0.62	1.00	23.7
Appro	oach	1219	2.0	1219	2.0	0.580	21.6	LOS B	19.8	141.2	0.63	0.62	0.63	32.6
West	: Cable	Place												
10	L2	5	2.0	5	2.0	0.046	62.7	LOS E	0.3	2.4	0.95	0.65	0.95	20.1
11	T1	1	2.0	1	2.0	0.046	57.1	LOS E	0.3	2.4	0.95	0.65	0.95	22.5
12	R2	5	2.0	5	2.0	0.065	69.4	LOS E	0.3	2.1	0.99	0.63	0.99	18.5
Appro	oach	11	2.0	11	2.0	0.065	65.2	LOS E	0.3	2.4	0.97	0.64	0.97	19.6
All Ve	ehicles	3294	2.0	3294	2.0	0.925	20.6	LOS B	19.8	141.2	0.57	0.56	0.60	30.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [Thu PM Base + 10 Years Open + Dev + Upgrades - GWH - Rooty Hill Rd -Wallgrove Rd (Site Folder: Weekday Afternoon +10 Years + Development)]

■■ Network: 5 [Thu PM Base + 10 Years Open + Dev (Phasing Option 2) (Network Folder: Base + 10 Years Open + Development (Phasing Option 2)]

Weekday Mornign Peak Hour Traffic

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

**Phase Sequence: Split Phasing** Reference Phase: Phase B

Input Phase Sequence: A, B1\*, B, C, D1\*, D

Output Phase Sequence: A, B, C, D

(\* Variable Phase)

Vehi	cle Mo	vement	Perfo	rmano	се									
Mov ID	Turn	DEMA FLOV [ Total veh/h		ARRI FLO' [ Total veh/h	WS HV]	Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist ] m	Prop. Que	EffectiveA Stop Rate	ver. No. Cycles	Aver. Speed km/h
South	n: Wallg	rove Roa	d											
1	L2	490	3.0	490	3.0	0.573	40.2	LOS C	20.5	147.2	0.78	0.81	0.78	42.2
2	T1	130	3.0	130	3.0	0.172	43.0	LOS D	3.2	22.7	0.87	0.67	0.87	25.6
3	R2	365	3.0	365	3.0	<b>*</b> 1.014	114.0	LOS F	15.6	112.2	1.00	1.22	1.83	15.1
Appro	oach	985	3.0	985	3.0	1.014	67.9	LOS E	20.5	147.2	0.87	0.94	1.18	26.6
East:	Great \	Nestern H	Highwa	ay										
4	L2	325	3.0	325	3.0	0.425	32.4	LOS C	13.2	95.0	0.75	0.80	0.75	33.3
5	T1	1510	3.0	1510	3.0	<b>*</b> 0.983	89.8	LOS F	41.9	300.8	1.00	1.19	1.50	20.3
6	R2	430	3.0	430	3.0	0.531	51.2	LOS D	11.2	80.4	0.93	0.82	0.93	9.4
Appro	oach	2265	3.0	2265	3.0	0.983	74.2	LOS F	41.9	300.8	0.95	1.06	1.29	20.4
North	: Rooty	Hill Road	Sout	h										
7	L2	230	2.0	230	2.0	0.266	28.8	LOS C	9.5	67.9	0.77	0.79	0.77	28.2
8	T1	750	2.0	750	2.0	<b>*</b> 0.981	82.8	LOS F	28.9	205.4	1.00	1.18	1.47	22.9
9	R2	335	2.0	335	2.0	0.921	77.1	LOS F	11.3	80.5	1.00	1.01	1.40	24.7
Appro	oach	1315	2.0	1315	2.0	0.981	71.9	LOS F	28.9	205.4	0.96	1.06	1.33	23.9
West	: Great	Western	Highw	ay										
10	L2	150	3.0	150	3.0	0.196	30.3	LOS C	5.4	39.0	0.66	0.76	0.66	35.0
11	T1	910	3.0	910	3.0	0.583	40.6	LOSC	15.4	110.5	0.92	0.78	0.92	33.6
12	R2	790	3.0	790	3.0	<b>*</b> 0.976	93.7	LOS F	31.7	227.3	1.00	1.07	1.52	25.0
Appro	oach	1850	3.0	1850	3.0	0.976	62.4	LOS E	31.7	227.3	0.93	0.90	1.16	28.3
All Ve	ehicles	6415	2.8	6415	2.8	1.014	69.4	LOS E	41.9	300.8	0.94	1.00	1.24	24.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

\* Critical Movement (Signal Timing)

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**All Movement Classes** 

Project: 11436 ECQ Stage 3 Template: Movement

**Summaries** 

Site: 101 [Sat MD Base + 10 Years Open + Dev - RHRS - Church St - St Agnes St (Opt2) (Site Folder: Saturday Midday +10 Years + Development)]

■■ Network: 6 [Sat MD Base + 10 Years Open + Dev (Phasing Option 2) (Network Folder: Base + 10 Years Open + Development (Phasing Option 2)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Leading Right Turn Reference Phase: Phase A Input Phase Sequence: A, B, C, D\*, D1

Output Phase Sequence: A, B, C, D\*, D1

(\* Variable Phase)

Vehicle Movement Performance														
Mov ID	FLOWS		WS	ARRIVAL FLOWS		Deg. Satn		Level of Service	95% BACK OF QUEUE		Prop. Que	EffectiveAver. No. Stop Cycles		
		[ Total veh/h	HV] %	[ Total veh/h		v/c	sec		[ Veh. veh	Dist ] m		Rate		km/h
Sou	th: Rooty				/0	V/C	360		Ven	- '''				KIII/II
1	L2	5	2.0	5	2.0	0.494	15.0	LOS B	11.8	84.0	0.40	0.36	0.40	49.8
2	T1	1037	2.0	1037	2.0	0.494	11.6	LOSA	15.2	108.1	0.49	0.44	0.49	46.6
3	R2	132	2.0	132	2.0	* 0.724	57.7	LOSE	7.5	53.7	0.98	0.81	1.01	28.8
App	roach	1174	2.0	1174		0.724	16.8	LOS B	15.2	108.1	0.54	0.48	0.54	42.7
Eas	East: Church St													
4	L2	242	2.0	242	2.0	0.470	43.9	LOS D	11.7	83.6	0.88	0.81	0.88	24.8
5	T1	2	2.0	2	2.0	0.745	57.2	LOS E	10.8	77.2	1.00	0.87	1.12	29.6
6	R2	179	2.0	179	2.0	<b>*</b> 0.745	62.8	LOS E	10.8	77.2	1.00	0.87	1.12	25.1
App	roach	423	2.0	423	2.0	0.745	52.0	LOS D	11.7	83.6	0.93	0.84	0.98	25.0
Nor	North: Rooty Hill Road Sout			h										
7	L2	179	2.0	179	2.0	0.743	19.9	LOS B	18.3	130.6	0.69	0.69	0.69	44.1
8	T1	1089	2.0	1089	2.0	<b>*</b> 0.743	17.5	LOS B	26.8	190.8	0.70	0.66	0.70	28.5
9	R2	5	2.0	5	2.0	0.347	83.3	LOS F	0.4	2.7	1.00	0.63	1.00	21.1
App	roach	1274	2.0	1274	2.0	0.743	18.2	LOS B	26.8	190.8	0.70	0.67	0.70	32.0
West: St Agnes St														
10	L2	2	2.0	2	2.0	0.430	50.3	LOS D	0.5	3.2	1.00	0.66	1.06	28.6
11	T1	2	2.0	2	2.0	<b>*</b> 0.430	44.7	LOS D	0.5	3.2	1.00	0.66	1.06	33.3
12	R2	5	2.0	5	2.0	0.430	50.3	LOS D	0.5	3.2	1.00	0.66	1.06	23.2
App	roach	9	2.0	9	2.0	0.430	49.1	LOS D	0.5	3.2	1.00	0.66	1.06	27.2
All \	/ehicles	2880	2.0	2880	2.0	0.745	22.7	LOS B	26.8	190.8	0.67	0.61	0.68	35.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 102 [Sat MD Base + 10 Years Open + Dev - Rooty Hill Rd - Cable PI (Site Folder: Saturday Midday +10 Years + Development)]

■■ Network: 6 [Sat MD Base + 10 Years Open + Dev (Phasing Option 2) (Network Folder: Base + 10 Years Open + Development (Phasing Option 2)]

Rooty Hill Road (north) - twin RT lanes into Spien Road, 4 lanes on Spine Road approach

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Green Split Priority has been specified Phase Sequence: Variable Phasing Reference Phase: Phase C

Input Phase Sequence: B1, B2, C, D1, D Output Phase Sequence: B1, B2, C, D1, D

Vehicle Movement Performance														
Mov ID	Turn	DEMA FLO\ [ Total veh/h		ARRI FLO' [ Total veh/h	WS HV]	Deg. Satn v/c	Aver. Delay sec	Level of Service		ACK OF EUE Dist ] m	Prop. Que	EffectiveA Stop Rate	ver. No. Cycles	Aver. Speed km/h
South	n: Rooty	/ Hill Roa												
1 2 3	L2 T1 R2	5 875 505	2.0 2.0 2.0	5 875 505	2.0 2.0 2.0	0.318 0.318 * 0.741	9.8 3.9 12.2	LOS A LOS A LOS A	5.6 5.6 10.0	39.7 39.7 71.5	0.24 0.22 0.37	0.22 0.20 0.68	0.24 0.22 0.37	53.5 50.3 40.1
Appro	oach	1385	2.0	1385	2.0	0.741	6.9	LOS A	10.0	71.5	0.27	0.38	0.27	45.3
East:	East: Spine Road													
4 5 6	L2 T1 R2	442 5 221	2.0 2.0 2.0	442 5 221	2.0 2.0 2.0	0.446 * 0.927 0.927	16.6 77.9 83.1	LOS B LOS F LOS F	11.6 8.1 8.1	82.5 57.3 57.3	0.56 1.00 1.00	0.79 1.04 1.03	0.56 1.59 1.59	20.5 18.9 5.5
Appro		668	2.0	668	2.0	0.927	39.1	LOS C	11.6	82.5	0.71	0.87	0.91	11.0
North	North: Rooty Hill Road (nor		d (nort	h)										
7 8 9	L2 T1 R2	226 980 5	2.0 2.0 2.0	226 980 5	2.0 2.0 2.0	0.181 * 0.767 0.330	6.5 36.8 82.4	LOS A LOS C LOS F	1.5 27.0 0.4	10.3 192.0 2.5	0.16 0.93 1.00	0.60 0.84 0.62	0.16 0.96 1.00	48.7 24.3 23.7
Appro		1211	2.0	1211	2.0	0.767	31.3	LOS C	27.0	192.0	0.79	0.79	0.81	27.4
West: Cable Place														
10	L2	5	2.0	5	2.0	0.046	62.7	LOS E	0.3	2.4	0.95	0.65	0.95	20.1
11	T1	1	2.0	1	2.0	0.046	57.1	LOS E	0.3	2.4	0.95	0.65	0.95	23.0
12	R2	5	2.0	5	2.0	0.065	69.4	LOSE	0.3	2.1	0.99	0.63	0.99	18.5
Appro	oach	11	2.0	11	2.0	0.065	65.2	LOS E	0.3	2.4	0.97	0.64	0.97	19.6
All Ve	ehicles	3276	2.0	3276	2.0	0.927	22.7	LOS B	27.0	192.0	0.56	0.63	0.60	28.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 101 [Sat MD Base + 10 Years Open + Dev + Upgrades - GWH - Rooty Hill Rd - Wallgrove Rd (Site Folder: Saturday Midday +10 Years + Development)]

■■ Network: 6 [Sat MD Base + 10 Years Open + Dev (Phasing Option 2) (Network Folder: Base + 10 Years Open + Development (Phasing Option 2)]

Weekday Mornign Peak Hour Traffic

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Split Phasing Reference Phase: Phase B

Input Phase Sequence: A, B1\*, B, C, D1\*, D Output Phase Sequence: A, B1\*, B, C, D

(\* Variable Phase)

Vehicle Movement Performance														
Mov ID	Turn	n DEMAND FLOWS		ARRIVAL FLOWS		Deg.	Aver. Delav	Level of	95% BACK OF QUEUE		Prop.	EffectiveA Stop		Aver.
טו		Total	WS HV1	Total		Satn	Delay	Service	[ Veh.	Dist ]	Que	Rate	Cycles	Speed
		veh/h	%	veh/h		v/c	sec		veh	m				km/h
Sout	th: Wallo	rove Roa	ad											
1	L2	565	3.0	565	3.0	0.589	29.3	LOS C	22.2	159.6	0.73	0.81	0.73	44.2
2	T1	715	3.0	715	3.0	* 0.839	54.5	LOS D	22.0	157.8	1.00	0.97	1.16	22.2
3	R2	225	3.0	225	3.0	0.625	64.3	LOS E	6.6	47.7	1.00	0.81	1.04	22.3
App	roach	1505	3.0	1505	3.0	0.839	46.5	LOS D	22.2	159.6	0.90	0.88	0.98	30.0
East	East: Great Western Highw			ау										
4	L2	270	3.0	270	3.0	0.409	36.8	LOS C	11.7	84.1	0.79	0.80	0.79	31.3
5	T1	1030	3.0	1030	3.0	<b>*</b> 0.837	56.2	LOS D	21.1	151.6	1.00	0.95	1.16	27.8
6	R2	390	3.0	390	3.0	0.566	54.8	LOS D	10.5	75.6	0.96	0.82	0.96	8.9
App	roach	1690	3.0	1690	3.0	0.837	52.8	LOS D	21.1	151.6	0.96	0.89	1.06	24.9
Nort	North: Rooty Hill Road South		d Sout	h										
7	L2	365	2.0	365	2.0	0.430	28.3	LOS B	14.1	100.4	0.71	0.79	0.71	28.5
8	T1	715	2.0	715	2.0	0.831	52.0	LOS D	21.1	150.0	0.99	0.93	1.10	29.8
9	R2	305	2.0	305	2.0	* 0.839	56.7	LOS E	9.0	64.2	1.00	0.84	1.08	29.6
App	roach	1385	2.0	1385	2.0	0.839	46.8	LOS D	21.1	150.0	0.92	0.87	0.99	29.5
West: Great Western Highway														
10	L2	295	3.0	295	3.0	0.378	31.9	LOS C	11.6	83.2	0.72	0.79	0.72	34.0
11	T1	895	3.0	895	3.0	0.556	39.5	LOS C	14.9	106.9	0.91	0.77	0.91	34.1
12	R2	780	3.0	780	3.0	* 0.839	59.6	LOS E	23.8	171.0	1.00	0.92	1.15	32.4
App	roach	1970	3.0	1970	3.0	0.839	46.3	LOS D	23.8	171.0	0.92	0.84	0.97	33.2
All V	ehicles	6550	2.8	6550	2.8	0.839	48.1	LOS D	23.8	171.0	0.92	0.87	1.00	29.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab). 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.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.