
Colston Budd Rogers & Kafes Pty Ltd

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

Our Ref: TR/10582/jj

27 March, 2018

Transport Planning
Traffic Studies
Parking Studies

Frasers Property Australia
Level 2
1C Homebush Bay Drive
RHODES NSW 2138

Attention: Mark Cleveland

Email: mark.cleveland@frasersproperty.com.au

Dear Sir,

RE: STAGE 1 DA (LOT 2) EASTERN CREEK BUSINESS HUB

1. As requested by RMS we have undertaken SIDRA modelling of the traffic effects of the Stage 1 DA on the intersections of Cable Place/Rooty Hill Road South/Site Access and Rooty Hill Road South/Great Western Highway/Wallgrove Road. In its letter dated 13 December 2017, RMS requested that SIDRA modelling be submitted to ensure that the proposed intersection works perform at an acceptable level of service.
2. We prepared the traffic assessment for the Stage 1 DA (Eastern Creek Business Hub Stage 1 DA - Proposed Retail Centre Lot 2 – Traffic Report, September 2017). In the report we noted the following with respect to traffic effects:
 - *Lot 2 forms part of the Eastern Creek Business Hub which is located on a parcel of land located between Rooty Hill Road South, the M7 Motorway and the Great Western Highway as shown in Figure 1. The site has development consent for a concept plan which includes 52,800m² GFA within three lots, comprising:*
 - *14,000m² large format retail (such as hardware/building supplies) on Lot 1;*
 - *9,500m² retail centre (including a 3,500m² – 4,000m² supermarket plus 5,500m² – 6,000m² specialty retail) on Lot 2; and*
 - *29,300m² bulky goods on Lot 3.*
 - *The main vehicular access to the site is approved from Rooty Hill Road South, via a new signalised intersection at Cable Place (with a left turn deceleration lane on Rooty Hill Road South into the site). This intersection would provide access to the site via a new internal access road. An upgrade to the intersection of Great Western Highway/Rooty Hill Road South/Wallgrove Road is required in association with the development.*
 - *The Stage 1 DA proposes the following development on Lot 2:*
 - *3,794m² supermarket;*

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- 5,435m² other retail (including medical centre, 541m² and gym, 392m²); and
 - child care centre (some 50 places).
- The road works required in association with the approved concept plan are based on a development which includes 9,500m² retail on Lot 2 (including a supermarket of 3,500m² to 4,000m²). The proposed scale of development on Lot 2 is similar to the approved concept plan. The agreed road works (traffic signal controlled intersection at Cable Place and an upgrade to the intersection of Great Western Highway/Rooty Hill Road South/Wallgrove Road) are therefore appropriate to cater for the proposed amended retail development
3. While the traffic effects of the Stage 1 DA for Lot 2 are the same as the approved concept plan, in response to the request by RMS we have assessed the operation of the intersections of Cable Place/Rooty Hill Road South/Site Access and Rooty Hill Road South/Great Western Highway/Wallgrove Road with Stage 1 DA traffic in place using SIDRA. As noted above both of these intersections are required to be upgraded as part of the concept approval. The intersection of Cable Place/Rooty Hill Road South/Site Access will be traffic signal control with provision of a second right turn lane on the Rooty Hill Road South approach to the intersection with Great Western Highway. The proposed road upgrades are shown on the attached plan prepared Henry & Hymas (DWG I5766_CI_CI00- REV 4).
4. The concept approval was based on the retail development on Lot 2 (some 9,500m²) generating some 500 vehicles per hour (two way) in the weekday afternoon peak hour. The Stage 1 DA has the same scale of development on Lot 2 as the concept approval (an increase of some 250m²) and would therefore generate a similar level of traffic. This additional traffic has been assigned to the road network, and the above intersections have been analysed using SIDRA (with the intersection upgrades identified in the concept approval).
5. SIDRA analyses intersections controlled by traffic signals, roundabouts and signs and provides a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS).
- For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:
- | | | | |
|----------|---|-----|--|
| 0 to 14 | = | "A" | Good |
| 15 to 28 | = | "B" | Good with minimal delays and spare capacity |
| 29 to 42 | = | "C" | Satisfactory with spare capacity |
| 43 to 56 | = | "D" | Satisfactory but operating near capacity |
| 57 to 70 | = | "E" | At capacity and incidents will cause excessive delays. |

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>70 = "F" Roundabouts require other control mode.
Unsatisfactory and requires additional capacity

6. The SIDRA analysis found that:


- the intersection of Rooty Hill Road South/Great Western Highway/Wallgrove Road currently operates with average delays per vehicle of 49.4 seconds in the weekday afternoon peak hour. This represents level of service D, a satisfactory level of service;
- with Stage I DA traffic in place and the concept approval identified improvements, the intersection of Rooty Hill Road South/Great Western Highway/Wallgrove Road would operate with average delays per vehicle of 49.1 seconds in the weekday afternoon peak hour. This represents level of service D, a satisfactory level of service; and
- with Stage I DA traffic in place and under traffic signal control, the intersection of Cable Place/Rooty Hill Road South/Site Access would operate with average delays per vehicle of 18.9 seconds per vehicle in the weekday afternoon peak hour. This represents level of service B, a good level of service with spare capacity.

7. Thus in summary the SIDRA analysis has found that with the identified intersection upgrades, the intersections will perform at acceptable levels of service and can satisfactorily accommodate Stage I DA traffic. Copies of the SIDRA movement summaries are attached.

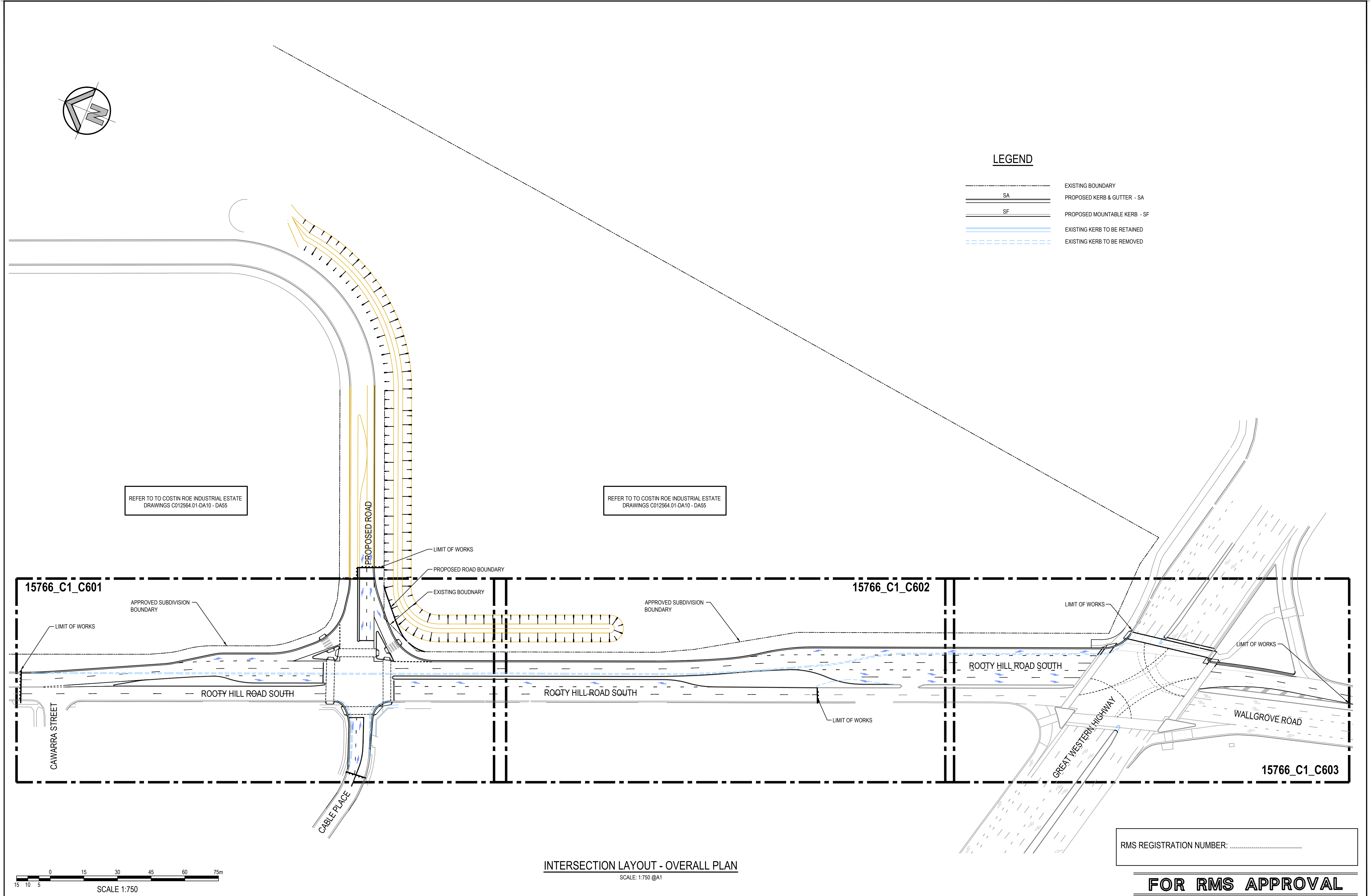
8. We trust the above provides the information you require. Finally, if you should have any queries, please do not hesitate to contact us.

Yours faithfully,

COLSTON BUDD ROGERS & KAFES PTY LTD

A handwritten signature in black ink, appearing to read 'Tim Rogers', with a stylized flourish at the end.

Tim Rogers
Director



SCALE: 1:750 @A1

FOR RMS APPROVAL

[illegible]

MOVEMENT SUMMARY

Site: 104 [Rooty Hill Road - GWH (Existing layout)]

New Site

Signals - Fixed Time Coordinated Cycle Time = 140 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wallgrove Road											
1	L2	595	5.0	0.737	39.4	LOS C	33.0	241.2	0.89	0.86	36.2
2	T1	789	5.0	0.836	59.2	LOS E	27.4	200.3	1.00	0.96	27.5
3	R2	368	5.0	0.899	85.8	LOS F	14.3	104.5	1.00	0.99	18.6
Approach		1753	5.0	0.899	58.1	LOS E	33.0	241.2	0.96	0.93	28.1
East: GWH (east)											
4	L2	647	5.0	0.722	15.3	LOS B	18.2	133.1	0.45	0.71	43.9
5	T1	1437	5.0	0.896	34.0	LOS C	37.6	274.4	0.84	0.80	34.1
6	R2	326	5.0	0.579	58.1	LOS E	9.9	72.0	0.92	0.80	21.3
Approach		2411	5.0	0.896	32.2	LOS C	37.6	274.4	0.74	0.77	34.1
North: Rooty Hill Road South											
7	L2	84	5.0	0.113	32.2	LOS C	3.5	25.3	0.65	0.72	26.0
8	T1	711	5.0	0.918	75.1	LOS F	28.4	207.4	1.00	1.08	24.0
9	R2	121	5.0	0.859	84.5	LOS F	9.1	66.7	1.00	0.95	22.1
Approach		916	5.0	0.918	72.4	LOS F	28.4	207.4	0.97	1.03	23.8
West: GWH (west)											
10	L2	63	5.0	0.076	27.5	LOS B	2.3	17.1	0.58	0.69	38.0
11	T1	658	5.0	0.339	36.4	LOS C	11.0	80.4	0.79	0.67	31.0
12	R2	495	5.0	0.878	79.2	LOS F	18.7	136.3	1.00	0.96	26.1
Approach		1216	5.0	0.878	53.4	LOS D	18.7	136.3	0.86	0.79	28.5
All Vehicles		6295	5.0	0.918	49.4	LOS D	37.6	274.4	0.86	0.86	29.2

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	42.5	LOS E	0.2	0.2	0.78	0.78	
P2	East Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95	
P3	North Full Crossing	53	42.5	LOS E	0.2	0.2	0.78	0.78	
P4	West Full Crossing	53	63.3	LOS F	0.2	0.2	0.95	0.95	
All Pedestrians		211	52.9	LOS E			0.87	0.87	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Rooty Hill Road - GWH (mod layout) + Stage 1]

New Site

Signals - Fixed Time Coordinated Cycle Time = 130 seconds (Optimum Cycle Time - Minimum Delay)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wallgrove Road											
1	L2	595	5.0	0.707	34.8	LOS C	29.6	216.4	0.86	0.85	37.9
2	T1	853	5.0	0.815	51.3	LOS D	26.7	195.2	1.00	0.94	29.6
3	R2	368	5.0	0.954	93.3	LOS F	14.6	106.4	1.00	1.09	17.6
Approach		1816	5.0	0.954	54.4	LOS D	29.6	216.4	0.95	0.94	29.0
East: GWH (east)											
4	L2	647	5.0	0.733	15.5	LOS B	18.3	133.4	0.49	0.72	43.8
5	T1	1437	5.0	0.908	33.8	LOS C	36.4	265.6	0.85	0.82	34.2
6	R2	374	5.0	0.713	58.0	LOS E	11.2	82.0	0.97	0.83	21.3
Approach		2458	5.0	0.908	32.7	LOS C	36.4	265.6	0.77	0.80	33.8
North: Rooty Hill Road South											
7	L2	132	5.0	0.177	31.0	LOS C	5.2	37.8	0.67	0.74	26.6
8	T1	774	5.0	0.936	75.1	LOS F	30.3	221.4	1.00	1.12	24.0
9	R2	168	5.0	0.872	82.9	LOS F	6.0	44.1	1.00	0.94	22.4
Approach		1074	5.0	0.936	70.9	LOS F	30.3	221.4	0.96	1.05	23.9
West: GWH (west)											
10	L2	111	5.0	0.141	28.7	LOS C	4.1	30.1	0.63	0.72	37.4
11	T1	658	5.0	0.343	34.3	LOS C	10.3	75.4	0.80	0.67	31.8
12	R2	495	5.0	0.944	88.6	LOS F	19.4	141.3	1.00	1.06	24.5
Approach		1263	5.0	0.944	55.1	LOS D	19.4	141.3	0.86	0.83	28.0
All Vehicles		6611	5.0	0.954	49.1	LOS D	36.4	265.6	0.87	0.88	29.2

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Pedestrian	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	40.9	LOS E	0.2	0.2	0.79	0.79	
P2	East Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96	
P3	North Full Crossing	53	43.3	LOS E	0.2	0.2	0.82	0.82	
P4	West Full Crossing	53	59.3	LOS E	0.2	0.2	0.96	0.96	
All Pedestrians		211	50.7	LOS E			0.88	0.88	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Site Access - Rooty Hills Road PM + Stage 1]

Rooty Hill Road (north)

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Rooty Hill Road (south)											
1	L2	5	2.0	0.548	18.8	LOS B	15.1	107.8	0.50	0.45	45.9
2	T1	1137	2.0	0.548	13.3	LOS A	15.1	107.8	0.50	0.45	45.8
3	R2	174	2.0	0.542	55.1	LOS D	9.1	64.8	0.93	0.80	19.0
Approach		1316	2.0	0.548	18.8	LOS B	15.1	107.8	0.55	0.49	40.9
East: Spine Road											
4	L2	174	0.0	0.196	8.7	LOS A	2.5	17.4	0.31	0.65	44.1
5	T1	5	0.0	0.020	48.6	LOS D	0.3	1.9	0.89	0.59	26.6
6	R2	89	0.0	0.430	58.8	LOS E	5.0	34.9	0.96	0.78	21.0
Approach		268	0.0	0.430	26.2	LOS B	5.0	34.9	0.54	0.69	30.8
North: Rooty Hill Road (north)											
7	L2	89	0.0	0.063	6.9	LOS A	0.7	4.9	0.20	0.60	48.4
8	T1	895	0.0	0.424	17.3	LOS B	15.3	107.4	0.64	0.57	42.8
9	R2	5	0.0	0.016	49.3	LOS D	0.3	1.8	0.85	0.65	31.1
Approach		989	0.0	0.424	16.5	LOS B	15.3	107.4	0.60	0.57	43.0
West: Cable Place											
10	L2	5	0.0	0.037	52.5	LOS D	0.5	3.7	0.88	0.64	31.0
11	T1	5	0.0	0.037	47.0	LOS D	0.5	3.7	0.88	0.64	26.1
12	R2	5	0.0	0.025	54.6	LOS D	0.3	1.9	0.89	0.65	27.9
Approach		16	0.0	0.037	51.4	LOS D	0.5	3.7	0.89	0.65	28.5
All Vehicles		2589	1.0	0.548	18.9	LOS B	15.3	107.8	0.57	0.54	40.6

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95	
P2	East Full Crossing	53	17.1	LOS B	0.1	0.1	0.53	0.53	
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95	
P4	West Full Crossing	53	16.1	LOS B	0.1	0.1	0.52	0.52	
All Pedestrians		211	35.4	LOS D			0.74	0.74	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.