12 August 2019

Roads and Maritime Reference: SYD18/00093/08
Council Ref: 1/2018/PLP

The General Manager
The Hills Shire Council
PO Box 7064
Norwest NSW 2153

Attention: Kayla Atkins

Dear Sir/Madam,

PLANNING PROPOSAL – DRAFT DEVELOPMENT CONTROL PLAN 2012 AND DRAFT VOLUNTARY PLANNING AGREEMENT AT 55 COONARA AVE, WEST PENNANT HILLS

Reference is made to Council's letter dated 26 April 2019 regarding the above Planning Proposal that was referred to Roads and Maritime Services (Roads and Maritime) for comment.

We apologise for the delay in responding, and advise that we have reviewed the submitted documentation.

It is noted that the planning proposal seeks to allow a maximum of 600 dwellings on the site through the following amendments to The Hills Local Environment Plan 2012:

- Rezoning of the land from B7 Business Park to part;
  - R4 High Density Residential;
  - R3 Medium Density Residential;
  - E2 Environmental Conservation; and
  - RE1 Public Recreation;
- Change the Height of Buildings Map to facilitate building heights of up to 9m, 12m and 22m;
- Change the Minimum Lot Size Map to include minimum lot sizes ranging from 700m^2 to 10ha;
- Change the Floor Space Ratio Map to remove the floor space ratio applying to the site; and
- Introduce a site specific local provision to facilitate;
  - A dwelling cap of 600 dwellings; and
  - `Micro-lot housing' subject to submission of an application for both subdivision and dwelling design.

While Roads and Maritime does not have any general objections to the planning proposal, Council as the relevant planning authority may wish to give consideration to following:

1. It is understood that the site is located within the Cherrybrook Precinct of the North West Rail Link (NWRL) Corridor Strategy. The Cherrybrook Precinct Structure Plan identifies the need for detailed cumulative studies and infrastructure contributions plans in support of the proposed Precinct uplift. It is understood that a precinct-wide traffic and transport study has not yet been completed. Council should be satisfied that a suitable funding mechanism is in place to obtain developer contributions on an equitable basis towards regional transport infrastructure upgrades to support future growth associated with the multiple planning proposals across the Cherrybrook precinct.

2. It is noted that the Cherrybrook Precinct Structure Plan indicated that pedestrian/cycle access across Castle Hill Road is a key connectivity issue within the Cherrybrook area. To encourage connecting people to public transport as indicated in the planning proposal's supporting material *Attachment H Traffic Assessment Report*, consideration should be given to improving whole journey accessibility. The emphasis being on pedestrian and cycling amenity in line with the movement and place framework. This may include (but is not be limited to) provisions for safe and accessible footpaths, pedestrian crossing points (taking into account pedestrian desire lines) and cyclepaths. These considerations will better meet the needs of the community in a way that supports a safe, efficient and reliable journey for pedestrians and cyclist in addition to reducing the congestion on the road network.

3. Roads and Maritime provides comments at **Tab A** on the *Traffic Assessment Report* submitted for Council's consideration and to be addressed before further studies are undertaken.

4. In consultation with Transport for NSW (TfNSW) and Roads and Maritime, Council should give consideration to identifying potential bus service planning options and routes, including the need for bus priority measures for the cumulative development uplift associated with the Cherrybrook Structure Plan.

5. Vehicular access to Coonara Avenue from the development should occur to ensure safe and efficient access with minimal impacts on the queuing traffic. Consideration should be given to one access to the development with appropriate intersection traffic controls. The access should be located as far as practical away from the intersection of Coonara Avenue and Castle Hill Road to minimise impacts to the traffic signals.

6. Given the proximity of the site to the new NWRL Cherrybrook station, consideration should be given to appropriate maximum parking controls for the future residential development, which could be included in the LEP or DCP for the site. This will help to reduce reliance on private vehicles and encourage the use of public transport.

Thank you for the opportunity to provide advice on the subject planning proposal. Should you have any questions or further enquiries in relation to this matter, Laura van Putten would be pleased to take your call on [redacted] or e: development.sydney@rms.nsw.gov.au.

Yours sincerely,

Cheramie Marsden
Senior Manager Strategic Land Use
Sydney Planning, Sydney Division

Tab A: Detailed Comments Traffic Study Assumptions (including SIDRA modelling inputs)

Traffic Study

- Roads and Maritime is of the view that any future traffic and transport study provided should be expanded to consider ultimate development plus 10 years background traffic (e.g. model key intersection(s) at 2031) and identify an equitable contribution for the provision regional infrastructure to support Precinct growth.
- Any future traffic studies should identify the impacts of an increase in pedestrian activity as a result of development in the area. The study should identify the pedestrian desire lines to the Cherrybrook Station - North West Rail Link in particular the impacts at the Castle Hill Road and Coonara Avenue intersection. The study should determine if there is a need to provide a direct pedestrian link across Castle Hill Road.

SIDRA Modelling Report Ason group report dated 1 August 2018 – TCS 2575
Review comments:

- The report quotes "Obtained intersection signal phase timing data (SCATS history files) from RMS", however the signal setting in SIDRA is not compatible with the SCATS.
- The exact date of the traffic survey has not been supplied in this report and therefore cannot be verified. However, analysis was undertaken of the SIDRA volumes against the SCATS output files 2018 for the intersection of Coonara Avenue and Castle Hill Road. Based on this data it is noted that the traffic volumes used to model the existing scenario are lower than the traffic counts from SCATS. It is further noted that Google typical PM peak queues show a high level of queuing in Coonara Avenue and Google Live traffic queuing in PM peak period in all directions. This queuing is different to what the base model supplied by the proponent. The justification is located in **Tab B**.
- As Roads and Maritime does not have details of the proposed zoning and FSR controls it cannot be confirmed whether the trip generation assumptions are appropriate. However, based on the analysis of the SIDRA output files it is noted that there is an additional 189 veh/hr (392-202) in the AM peak period in the modelling scenario. These additional volumes are lower than what Council's Planning Proposal report received by Roads and Maritime in December 2017 indicated. See justification located in **Tab C**.
- The signal phasing under AM proposed scenario shows conflicting vehicle movements with pedestrian movements. It is necessary to revise the proposed scenario phasing system. The revision should separate vehicles from pedestrian movements when filtering is not possible.
- Higher pedestrian numbers should be utilised in the AM and PM peak period together with allowance for adequate red arrow pedestrian protection during peak periods for the model to accurately reflect the site conditions and how the TCS would operate.
- Peak Hour Factors are used inconsistently in SIDRA model. Vehicles and most of pedestrian movements have a factor of 100%. The south approach pedestrian volume has a factor of 95%.
- It is not clear whether pedestrian volume / percentage of heavy vehicles are surveyed.

Tab B

MOVEMENT SUMMARY

Site: 1 [CHR & CA & EBD AM Existing]

Castle Hill Road / Coonara Avenue / Edward Bennet Drive
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonara Avenue											
1	L2	33	2.0	0.226	42.3	LOS C	4.8	34.3	0.83	0.72	33.5
2	T1	44	2.0	0.226	37.7	LOS C	4.8	34.3	0.83	0.72	32.2
3	R2	125	2.0	0.226	42.9	LOS D	4.8	34.3	0.83	0.74	33.0
Approach		202	2.0	0.226	41.7	LOS C	4.8	34.3	0.83	0.73	32.9
East: Castle Hill Road											
4	L2	266	2.0	0.872	50.7	LOS D	36.4	263.2	1.00	1.01	31.7
5	T1	805	5.0	0.872	45.9	LOS D	36.4	263.2	0.95	0.97	33.9
6	R2	88	2.0	0.304	28.5	LOS C	3.0	21.4	0.82	0.75	38.0
Approach		1159	4.1	0.872	45.7	LOS D	36.4	263.2	0.95	0.97	33.6
North: Edward Bennet Drive											
7	L2	92	2.0	0.285	28.8	LOS C	2.7	19.5	0.90	0.75	37.4
8	T1	45	2.0	0.393	54.5	LOS D	4.6	32.7	0.97	0.76	28.2
9	R2	37	2.0	0.393	59.1	LOS E	4.6	32.7	0.97	0.76	29.2
Approach		174	2.0	0.393	41.9	LOS C	4.6	32.7	0.93	0.76	32.7
West: Castle Hill Road											
10	L2	13	2.0	0.579	37.7	LOS C	18.8	137.4	0.85	0.75	36.6
11	T1	651	5.0	0.579	31.2	LOS C	18.8	137.4	0.83	0.71	39.6
12	R2	110	2.0	0.554	34.6	LOS C	3.8	27.1	0.98	0.78	35.8
Approach		774	4.5	0.579	31.8	LOS C	18.8	137.4	0.85	0.73	39.0
All Vehicles		2309	3.9	0.872	40.4	LOS C	36.4	263.2	0.90	0.85	35.1

Site: 1 [CHR & CA & EBD PM Existing]

Castle Hill Road / Coonara Avenue / Edward Bennet Drive
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Coonara Avenue											
1	L2	103	2.0	0.966	90.3	LOS F	19.3	137.5	1.00	1.17	23.2
2	T1	78	2.0	0.966	85.7	LOS F	19.3	137.5	1.00	1.17	22.6
3	R2	292	2.0	0.966	90.6	LOS F	19.3	137.5	1.00	1.14	23.1
Approach		473	2.0	0.966	89.7	LOS F	19.3	137.5	1.00	1.15	23.0
East: Castle Hill Road											
4	L2	185	2.0	0.972	75.5	LOS F	68.9	500.6	1.00	1.19	26.3
5	T1	1261	5.0	0.972	70.5	LOS E	68.9	500.6	0.92	1.15	27.7
6	R2	151	2.0	0.388	20.2	LOS B	4.1	29.5	0.69	0.74	41.6
Approach		1597	4.4	0.972	66.3	LOS E	68.9	500.6	0.91	1.12	28.4
North: Edward Bennet Drive											
7	L2	63	2.0	0.187	31.2	LOS C	2.3	16.1	0.87	0.73	36.5
8	T1	27	2.0	0.181	52.7	LOS D	2.1	14.6	0.94	0.71	28.8
9	R2	11	2.0	0.181	57.3	LOS E	2.1	14.6	0.94	0.71	29.8
Approach		101	2.0	0.187	39.8	LOS C	2.3	16.1	0.90	0.72	33.3
West: Castle Hill Road											
10	L2	38	2.0	0.424	27.0	LOS B	14.4	105.0	0.70	0.63	40.8
11	T1	674	5.0	0.424	21.4	LOS B	14.4	105.0	0.69	0.61	44.3
12	R2	58	2.0	0.295	34.7	LOS C	1.9	13.5	0.96	0.74	35.8
Approach		770	4.6	0.424	22.6	LOS B	14.4	105.0	0.71	0.62	43.3
All Vehicles		2941	4.0	0.972	57.7	LOS E	68.9	500.6	0.87	0.98	30.1

SCATS VOLUMES

Coonara Ave

AM peak 234 ***07:45 - 08:45***

PM peak 442 ***17:10 - 18:10***

Edward Bennet Dr:

AM peak 212 ***08:05 - 09:05***

PM peak 139 ***16:25 - 17:25***

Right Turn from Castle Hill Rd into Coonara Ave

AM peak 118 **08:00 - 09:00**

PM peak 67 ***15:05 - 16:05***

Right Turn from Castle Hill Rd into Edward Bennet Dr

AM peak 80 08:20 - 09:20

PM peak 177 17:35 - 18:35

EXISTING(LEFT) VS PROPOSED (RIGHT) MODELLING VOLUMES

MOVEMENT SUMMARY

Site: 1 [CHR & CA & EBD AM Existing]

Castle Hill Road / Coonara Avenue / Edward Bennet Drive
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	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: Coonara Avenue											
1	L2	33	2.0	0.226	42.3	LOS C	4.8	34.3	0.83	0.72	33.5
2	T1	44	2.0	0.226	37.7	LOS C	4.8	34.3	0.83	0.72	32.2
3	R2	125	2.0	0.226	42.9	LOS D	4.8	34.3	0.83	0.74	33.0
Approach		202	2.0	0.226	41.7	LOS C	4.8	34.3	0.83	0.73	32.9
East: Castle Hill Road											
4	L2	266	2.0	0.872	50.7	LOS D	36.4	263.2	1.00	1.01	31.7
5	T1	805	5.0	0.872	45.9	LOS D	36.4	263.2	0.95	0.97	33.9
6	R2	88	2.0	0.304	28.5	LOS C	3.0	21.4	0.82	0.75	38.0
Approach		1159	4.1	0.872	45.7	LOS D	36.4	263.2	0.95	0.97	33.6
North: Edward Bennet Drive											
7	L2	92	2.0	0.285	28.8	LOS C	2.7	19.5	0.90	0.75	37.4
8	T1	45	2.0	0.393	54.5	LOS D	4.6	32.7	0.97	0.76	28.2
9	R2	37	2.0	0.393	59.1	LOS E	4.6	32.7	0.97	0.76	29.2
Approach		174	2.0	0.393	41.9	LOS C	4.6	32.7	0.93	0.76	32.7
West: Castle Hill Road											
10	L2	13	2.0	0.579	37.7	LOS C	18.8	137.4	0.85	0.75	36.6
11	T1	651	5.0	0.579	31.2	LOS C	18.8	137.4	0.83	0.71	39.6
12	R2	110	2.0	0.554	34.6	LOS C	3.8	27.1	0.98	0.78	35.8
Approach		774	4.5	0.579	31.8	LOS C	18.8	137.4	0.85	0.73	39.0
All Vehicles		2309	3.9	0.872	40.4	LOS C	36.4	263.2	0.90	0.85	35.1

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	30.2	LOS D	0.1	0.1	0.71	0.71
P2	East Full Crossing	50	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	50	29.5	LOS C	0.1	0.1	0.70	0.70
All Pedestrians		153	37.8	LOS D			0.79	0.79

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.

SIDRA INTERSECTION 7.0 | Copyright © 2000-2017 Akcelik and Associates Pty Ltd | sidrasolutions.com
Organisation: ASON GROUP PTY LTD | Processed: Tuesday, 24 July 2018 2:24:40 PM
Project: C:\Users\Shihui Hu\Desktop\0442_Coonara Ave\IBM July 2017 Final_Revised_only existing.sip7

MOVEMENT SUMMARY

Site: 1 [CHR & CA & EBD AM Proposal]

Castle Hill Road / Coonara Avenue / Edward Bennet Drive
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	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: Coonara Avenue											
1	L2	64	2.0	0.286	31.2	LOS C	8.0	56.9	0.73	0.70	37.3
2	T1	85	2.0	0.286	26.7	LOS B	8.0	56.9	0.73	0.70	35.7
3	R2	242	2.0	0.286	31.8	LOS C	8.0	56.9	0.73	0.74	36.6
Approach		391	2.0	0.286	30.6	LOS C	8.0	56.9	0.73	0.72	36.5
East: Castle Hill Road											
4	L2	129	2.0	0.885	57.8	LOS E	33.7	244.3	1.00	1.03	30.1
5	T1	805	5.0	0.885	52.6	LOS D	33.7	244.3	0.97	1.01	32.0
6	R2	88	2.0	0.375	34.1	LOS C	3.5	24.6	0.88	0.76	35.9
Approach		1022	4.4	0.885	51.7	LOS D	33.7	244.3	0.97	0.99	32.1
North: Edward Bennet Drive											
7	L2	92	2.0	0.523	34.8	LOS C	3.0	21.3	0.99	0.77	35.3
8	T1	22	2.0	0.666	66.1	LOS E	3.7	26.5	1.00	0.81	25.8
9	R2	37	2.0	0.666	70.7	LOS F	3.7	26.5	1.00	0.81	26.6
Approach		151	2.0	0.666	48.2	LOS D	3.7	26.5	0.99	0.78	31.1
West: Castle Hill Road											
10	L2	13	2.0	0.603	42.2	LOS C	17.9	130.7	0.90	0.78	35.0
11	T1	651	5.0	0.603	36.3	LOS C	17.9	130.7	0.88	0.76	37.6
12	R2	53	2.0	0.322	37.2	LOS C	2.0	14.4	0.96	0.74	35.0
Approach		717	4.7	0.603	38.4	LOS C	17.9	130.7	0.89	0.76	37.3
All Vehicles		2281	3.9	0.885	43.0	LOS D	33.7	244.3	0.90	0.86	34.2

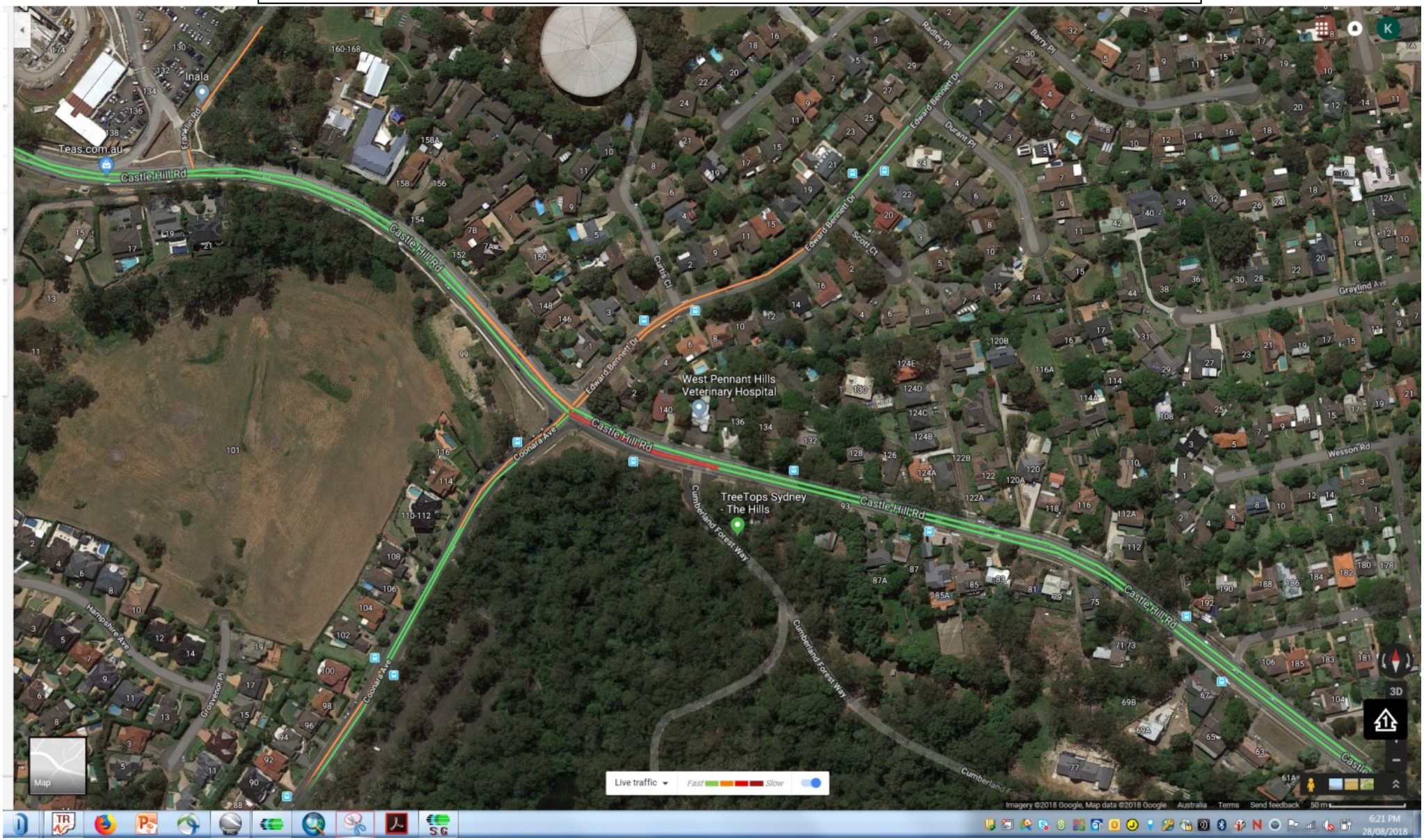
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard 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

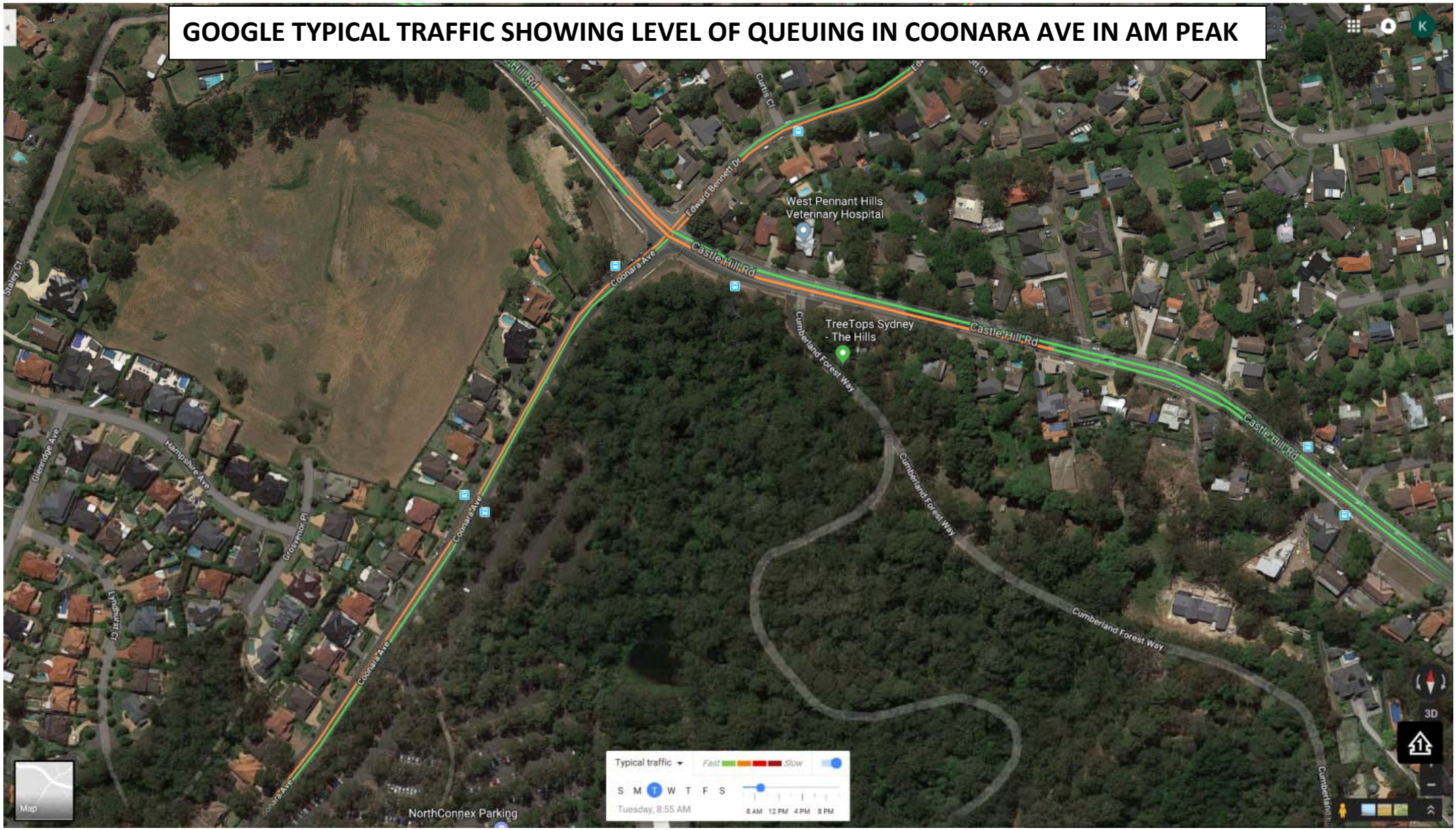
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	34.6	LOS D	0.1	0.1	0.76	0.76
P2	East Full Crossing	50	28.8	LOS C	0.1	0.1	0.69	0.69
P3	North Full Crossing	50	33.8	LOS D	0.1	0.1	0.75	0.75
All Pedestrians		153	32.4	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.

GOOGLE LIVE TRAFFIC SHOWING LEVEL OF CONGESTION IN PM PEAK



GOOGLE TYPICAL TRAFFIC SHOWING LEVEL OF QUEUING IN COONARA AVE IN AM PEAK



Tab C – Peak trip volumes

- Council's report states that:
    i. Based on traffic surveys completed, the current use of the site generates 371 AM peak hour vehicles trips and 345 PM peak hour vehicle trips, with the following characteristics:
        1. Directional Distribution
            a. - 80% of peak hour trips via Coonara Avenue to/from the north (towards Castle Hill Rd)
            b. - 20% of peak hour trips via Coonara Avenue to/from the south
    ii. Arrival and Departure Distribution
        1. - 93% of AM peak hour trips inbound to the site and 7% of AM peak hour trips outbound from the site;
        2. - 4% of PM peak hour trips inbound to the site and 96% of PM peak hour trips outbound from the site;

    If the above numbers were to be accepted it means the current development traffic turning out of Coonara Avenue in the AM peak is 21veh/hr (80%of 371 and 7% of that are outbound) and 265 veh/hr for PM peak (80% of 345 and 96% of that)

- Council's report also states that:
    i. Based on RMS Traffic Generating Guidelines, the proposal to facilitate 600 residential dwellings on the site (assuming the proposal includes 200 low density dwellings and 400 apartments), would be likely to result in average traffic generation of 379 peak hour vehicle trips. While the volume and directional distribution of traffic generated by the proposal would be similar to the current use of the site (and significantly less than if the commercial capacity of the site was fully utilised), a transition to a residential land use would result in a significant shift in the arrival and departure distribution, with:
        1. - 20% of AM peak hour trips inbound to the site and 80% of AM peak hour trips outbound from the site;
        2. - 80% of PM peak hour trips inbound to the site and 20% of PM peak hour trips outbound from the site;

    If the above numbers were to be accepted it means the proposed development traffic turning out of Coonara Avenue in the AM peak will be 243veh/hr (80%of outbound traffic of 379 and 80% of that using Coonara Ave). This will be an additional 220veh/hr turning out of Coonara Avenue based on Council's report.

Based on the analysis of the SIDRA output files it is noted that there is an additional 189 veh/hr (392-202) in the am peak period in the modelling scenario. These additional volumes are lower than what Council's report is indicating.