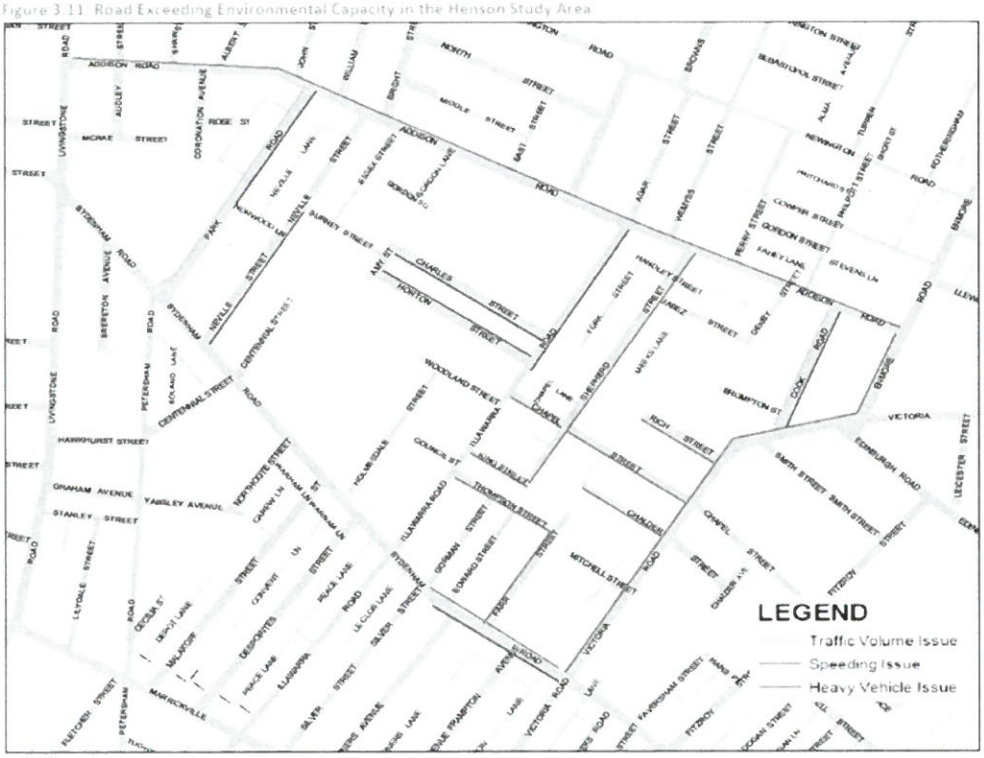
Figure 3.11: Road Exceeding Environmental Capacity in the Henson Study Area



3.9.2 Traffic Survey Results

Inner West (Marrickville) Council staff analysed the traffic survey data to determine the existing volume, heavy vehicle percentages and speed conditions in Henson LATM area. A total of 41 tube counts were undertaken on 33 roads (more than one tube counter on some streets) within the study area to obtain mid-block volume and speed data. The locations of the counts are identified in Figure 3.12 below.

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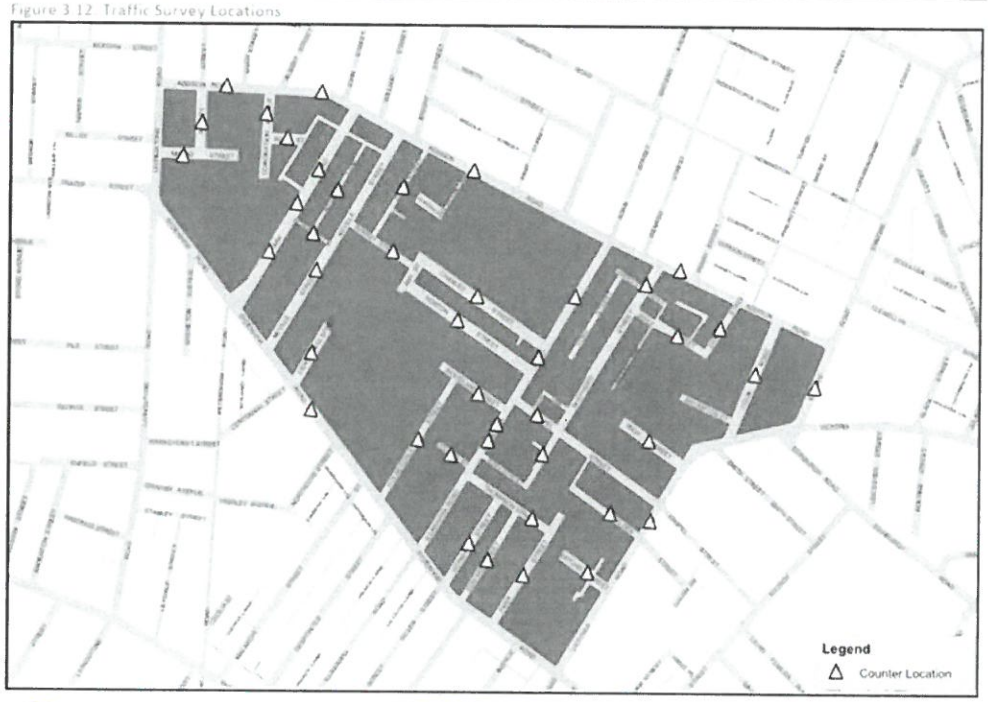
Henson (Area 9) LATM Draft Report 2016

Figure 3.12: Traffic Survey Locations



The result of the data analysis indicated that overall existing traffic speeds and volumes on the local roads within the Henson study area were within an acceptable range. It is noted that the heavy vehicle percentage in Henson is generally high due to industrial area to the east of Henson (as shown in Figure 3.1). Generally, a large percentage of the local roads were functioning satisfactorily. A summary of the street exceeding the environmental capacity of speed, volume and heavy vehicle is given in Table 3.2.

The figures highlighted in red in Table 3.2 indicate where the environmental performance standards for traffic volumes, heavy vehicle percentage or vehicle speeds are being exceeded in relation to Table 3.1.

Attachment 1

Henson (Area 9) LATM Draft Report 2016

Table 3.2: Evaluation of Environmental Capacity & Speed performance

Street Name	Between	Survey			Functional Classification	Compliance		
		Volume (ADT)	Speed (85th % km/hr)	Heavy Vehicle (%)		Volume (ADT)	Speed (85th % km/hr)	Heavy Vehicle (%)
Addison Road	Perry St & Shepherd St	11072	48.2	5.2	Regional	Yes	Yes	No
Addison Road	East St & Bright St	11339	57.6	12.8	Regional	Yes	No	No
Addison Road	Albert St & John St	12845	50	8.8	Regional	Yes	Yes	No
Addison Road	Shaw St & Audley St	10510	39.6	3.1	Regional	Yes	Yes	No
Audley Street	Adison Rd & Mc Rae St	183	36.7	2.1	Local	Yes	Yes	Yes
Centennial Street	Sydenham Rd & End	367	42.5	2.2	Local	Yes	Yes	Yes
Chalder Street	Victoria Rd & Chalder Lane	150	35.6	9.9	Local	Yes	Yes	No
Chapel Street	Illawarra Rd & Shepherd St	1852	40.7	4.5	Local	Yes	Yes	No
Charles Street	Illawarra Rd & Amy St	333	52.2	3.7	Local	Yes	No	No
Cook Road	Addison Rd & Brompton St	3324	53.6	5.9	Local - industrial	Yes	No	No
Coronation Ave	Addison Rd & Rose St	487	38.2	1.6	Local	Yes	Yes	Yes
Denby Street	Addison Rd & Jabez St	455	36.7	14.8	Local	Yes	Yes	No
Edward Street	Sydenham Rd & Thompson St	246	39.2	2.2	Local	Yes	Yes	Yes
Enmore Road	Addison Rd & Victoria Rd	14941	50	5.6	Regional	Yes	Yes	No
Essex Street	Surrey St & Addison Rd	152	40.3	2.3	Local	Yes	Yes	Yes
Farr Street	Sydenham Rd & Thompson St	611	39.6	8.6	Local	Yes	Yes	No
Gorman Street	Sydenham Rd & Thompson St	170	43.6	1.4	Local	Yes	Yes	Yes
Homesdale Street	Sydenham Rd & Woodland St	256	33.5	1.2	Local	Yes	Yes	Yes
Horton Street	Illawarra Rd & Amy St	341	51.8	2.7	Local	Yes	No	Yes
Illawarra Road	Sydenham Rd & Chapel St	5545	45.4	2.9	Collector	No	Yes	Yes
Illawarra Road	Chapel St & King St	5602	44.3	2.9	Collector	No	Yes	Yes
Illawarra Road	Addison Rd & Charles St	4803	51.5	2.3	Collector	Yes	No	Yes
Illawarra Road	Charles St & Horton St	4358	50.8	2.8	Collector	Yes	No	Yes
Jabez Street	Shepherd St & Denby St	416	35.3	8.3	Local	Yes	Yes	No
McCrae Street	Livingstone Rd & Audley St	570	40.3	1.5	Local	Yes	Yes	Yes
Mitchell Street	Victoria Rd & End	402	29.2	5	Local	Yes	Yes	No
Neville Lane	Northwood Ln & Unnamed Ln	22	28.4	11.1	Local	Yes	Yes	No
Neville Street	Addison Rd & Surrey St	1838	44.3	1.6	Local	Yes	Yes	Yes
Neville Street	Surrey St & Sydenham Rd	1800	51.5	2.1	Local	Yes	No	Yes
Norwood Lane	Park Rd & Neville St	158	28.4	3.6	Local	Yes	Yes	No
Park Road	Addison Rd & Norwood Lane	2305	55.8	2.4	Local	No	No	Yes
Park Road	Norwood Ln & Sydenham Rd	2448	42.8	2.4	Local	No	Yes	Yes
Rich Street	Victoria Rd to end	670	24.5	11	Local	Yes	Yes	No
Rose Street	Coronation Pde and Lane	156	31	1.6	Local	Yes	Yes	Yes
Shepherd Street	Addison Rd & Jabez St	965	49.7	9.7	Local	Yes	Yes	No
Shepherd Street	Chapel St & King St	196	38.5	6.6	Local	Yes	Yes	No
Surrey Street	Essex St & Amy St	235	36.4	1.8	Local	Yes	Yes	Yes
Thompson Street	Edward St & Farr St	442	36.7	7.3	Local	Yes	Yes	No
Victoria Road	Chapel St & Chalder St	16584	58.3	4.9	Regional	Yes	Yes	No

ETHOS URBAN

18 August 2017
13530

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Dear Lauren,

Victoria Road Precinct Planning Proposal – Further Traffic Information

Further to recent discussions we write on behalf of Danias Holdings Pty Ltd, the proponents for the Victoria Road Precinct planning proposal that is currently with the Department of Planning and Environment (DPE) for final review.

This letter has been drafted following further discussions regarding the Victoria Road / Sydenham Road intersection, and should be read with the accompanying Traffic Advice statement prepared by Arcadis. Together these documents provide the following:

- Further SIDRA modelling analysis and sensitivity testing on the performance of the existing Victoria Road / Sydenham Road intersection and its ability to accommodate additional traffic volumes generated by the Planning Proposal;
- Updated design options for the future upgrade of the Victoria Road / Sydenham Road intersection; and
- Further SIDRA traffic modelling analysis and sensitivity testing for the Victoria Road / Sydenham Road intersection under the upgraded scenarios to determine the ability to accommodate additional traffic volumes generated by the Planning Proposal.

This additional research has been commissioned by Danias Holdings Pty Ltd to provide DPE with the necessary information it requires to finalise its assessment of the Planning Proposal.

This letter and the accompanying Traffic Advice prepared by Arcadis should also be read in conjunction with previous traffic reports prepared for the Planning Proposal, these being:

- *Preliminary Traffic and Transport Assessment Study Report* prepared for rezoning of the Victoria Road Precinct by Arcadis Australia Pty Ltd (formerly Hyder Consulting) in July 2015 (July 2015 Report); and
- *Victoria Road Precinct Rezoning Planning Proposal, Marrickville – Addendum to Traffic and Transport Assessment (March 2017).*

We address each of the key points below.

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Performance of the existing Victoria Road / Sydenham Road intersection

Table 1 below documents the performance of the Victoria Road – Sydenham Road intersection without any upgrade works. The traffic modelling analysis below was prepared by Arcadis (using SIDRA) to determine the development thresholds of the existing intersection without any upgrades.

Table 1 - Predicted Level of Service at Victoria Road / Sydenham Road intersection – No Upgrade

	AM Peak		PM Peak	
Scenario	**Delay (s)**	**LoS**	**Delay (s)**	**LoS**
Existing	53	D	49	D
Planning Proposal - 20% Development Scenario	63	E	54	D
Planning Proposal - 50% Development Scenario	120	F	68	E
Planning Proposal - 75% Development Scenario	159	F	98	F

Source: Arcadis Traffic Advice Statement – August 2017

As demonstrated in Table 1:

- the Victoria Road – Sydenham Road intersection currently performs at a level of service D in the AM and PM peak period.
- Under a 20% development scenario, the intersection performance reduces to a level of service E in the AM peak period and maintains a level of service D in the PM peak period. While the performance of the intersection reduces during the AM peak, this represents a moderate 10 second increase in the delay of the intersection from 53 seconds to 63 seconds. The PM delay would increase only 5 seconds from existing conditions.
- At a 50% development scenario, the intersection performance would reduce to a level of service F in the AM peak period and a level of service E in the PM peak period. The delays at this point are significant in the AM peak and some level of upgrades would be required.
- At a 75% development scenario, the intersection is performing at a level of service F for both the AM and PM peaks.

Based on the further SIDRA modelling analysis undertaken by Arcadis, it is estimated that the existing intersection would require some form of upgrade when the Victoria Road Precinct reaches approximately 20%-30% of the its full development scenario. Such a level of development is significant considering the scale of the overall Planning Proposal, which will result in the rezoning of 18ha of land.

To understand what 20% of the total traffic generation represents it is worth noting that the proposal's non-residential component (i.e. commercial/industrial) causes approximately 93% of the overall traffic generation associated with the proposed LEP amendment (assuming 100% development scenario). The entire residential component of the Planning Proposal therefore represents just 7% of the overall traffic generation associated with the revitalised precinct. *(source: Table 3-13 of July 2015 Report by Hyder)*

Taking the above into account, it can be concluded that the current intersection has capacity to accommodate the redevelopment of the entire residential component of the Planning Proposal, in addition to the take up of approximately 14% of the overall non-residential floorspace. Once this point is reached upgrades to the existing intersection would be required to improve the level of service. These possible upgrades are discussed below.

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Intersection Upgrade – Concept Designs

Arcadis has prepared two concept designs for the Victoria Road / Sydenham Road intersection, these being:

Scenario 1 – involves a full upgrade to the intersection consistent with the previous concept design submitted to RMS in March 2017, in this regard the upgraded intersection includes:

1. One additional right turn lane on Victoria Road northern approach (about 90m long).
2. One additional right turn lane on Sydenham Road eastern approach (about 65m long).
3. One signalised left turn slip lane on Sydenham Road western approach.

Whilst Scenario 1 includes the same upgrades as previously proposed, substantial changes have been made to the concept design to respond to concerns raised by Council with regards to the need to avoid acquisition of land in Wicks Park and other sites not in the Planning Proposal boundary. To respond to these concerns the following amendments to the design from the previous concept issued to RMS in March 2017:

- the proposed lane widths in the concept design along Victoria Road and Sydenham Road have been reduced from 3.5m to 3.0m. The new 3.0m lane widths provide a solution that is consistent with the existing intersection. See Figure 1.
- Footpath widths along Sydenham Road east and Victoria Road south have been slightly reduced to accommodate the new road works and to avoid any encroachment into Wicks Park.
- Footpaths on the western side of Victoria Road north have been utilised in the revised design. A new footpath is to be provided as part of the future redevelopment of the residential precinct within the Planning Proposal.
- The existing kerb line on the eastern side of Victoria Road north has been retained to ensure no impact on the footpath on the Wicks Park frontage nor on the park itself.
- Kerb returns at the intersection have been maintained as per existing geometry to minimise encroachments at corner lots.

Scenario 2 – involves partial upgrades (a variation to scenario 1), but removes the additional right turn lane on Sydenham Road eastern approach. Instead, a shared right turn is proposed with the through lane on the Sydenham Road like the current lane arrangement. The remainder of the proposed upgrades under Scenario 2 are consistent with Scenario 1.

The design configuration under Scenario 2 enables the retention of the existing footpath and kerb line along the entire frontage of Wicks Park to both Victoria Road and Sydenham Road.

Concept designs for both scenarios are provided in the accompanying Traffic Advice statement prepared by Arcadis.

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Discussion on Concept Design

The updated concept design for the Victoria Road / Sydenham Road intersection has been prepared to respond to the significant land constraints associated with the intersection, and which have been raised as a matter of concern by the Inner West Council. The design solution proposed under Scenario 1 illustrates that the upgrade requirements requested by the RMS can be achieved without the need for land acquisition in Wicks Park or the residential properties on the south-western side of Victoria Road.

Acquisition of land will however still be required in the north-west corner of the intersection to facilitate the creation of a left turn slip lane on the Sydenham Road western approach. This is considered acceptable given this the land forms part of the Planning Proposal and will receive an uplift in its floorspace potential as a result of the proposed LEP amendment. It is therefore likely to be redeveloped in the future, at which time the land will be used to facilitate the intersection upgrade. It is also anticipated that these sites would likely form part of a larger consolidated redevelopment site, enabling such a land dedication to occur with minimal impact on the redevelopment potential of these sites.

The concept design proposed under Scenario 1 is made possible due to the narrowing of lane widths to 3.0m, which represents a reduction from the 3.5m widths requested by the RMS and included in the original concept design submitted in March 2017. **It is acknowledged that the revised lane widths are below the preferred Austroads standard requirements, whilst this is the case such standards need to be applied flexibility where there are significant constraints to achieving 'standardised' lanes, as is the case with the Victoria Road/Sydenham Road intersection. It is important to note that the proposed 3.0m median road width does meet Ausroads minimum standards.**

On-site field measurements have confirmed that existing lanes at the Victoria Road/Sydenham Road intersection range between 2.70m and 3.44m wide (see **Figure 1**). The proposed concept will therefore deliver the upgrades requested by the RMS whilst increasing lane widths in many instances, particularly along Victoria Road. The wider lanes that do exist along Sydneham Road are kerb side lanes that also allow parking throughout the day and are therefore mostly not used for through traffic.

In the instances where middle through lanes are reducing in width, the reduction is minor (i.e. Victoria Road 3.01m and Sydneham Road 3.07m), accordingly the revised intersection design will still provide new lanes that are consistent with the existing situation and which will support the ongoing function of the intersection.

In light of the above it is considered that both concept designs, whilst meeting the minimum Ausroads median width requirements, but not being fully compliant with the technical Austroads standards, represent an appropriate design solution that responds to existing land constraints, delivers the vehicle movement upgrades requested by the RMS, and provides lane widths that will support the ongoing functionality of the intersection. During the detailed design phase of any intersection upgrade there may be further scope to improve the situation.

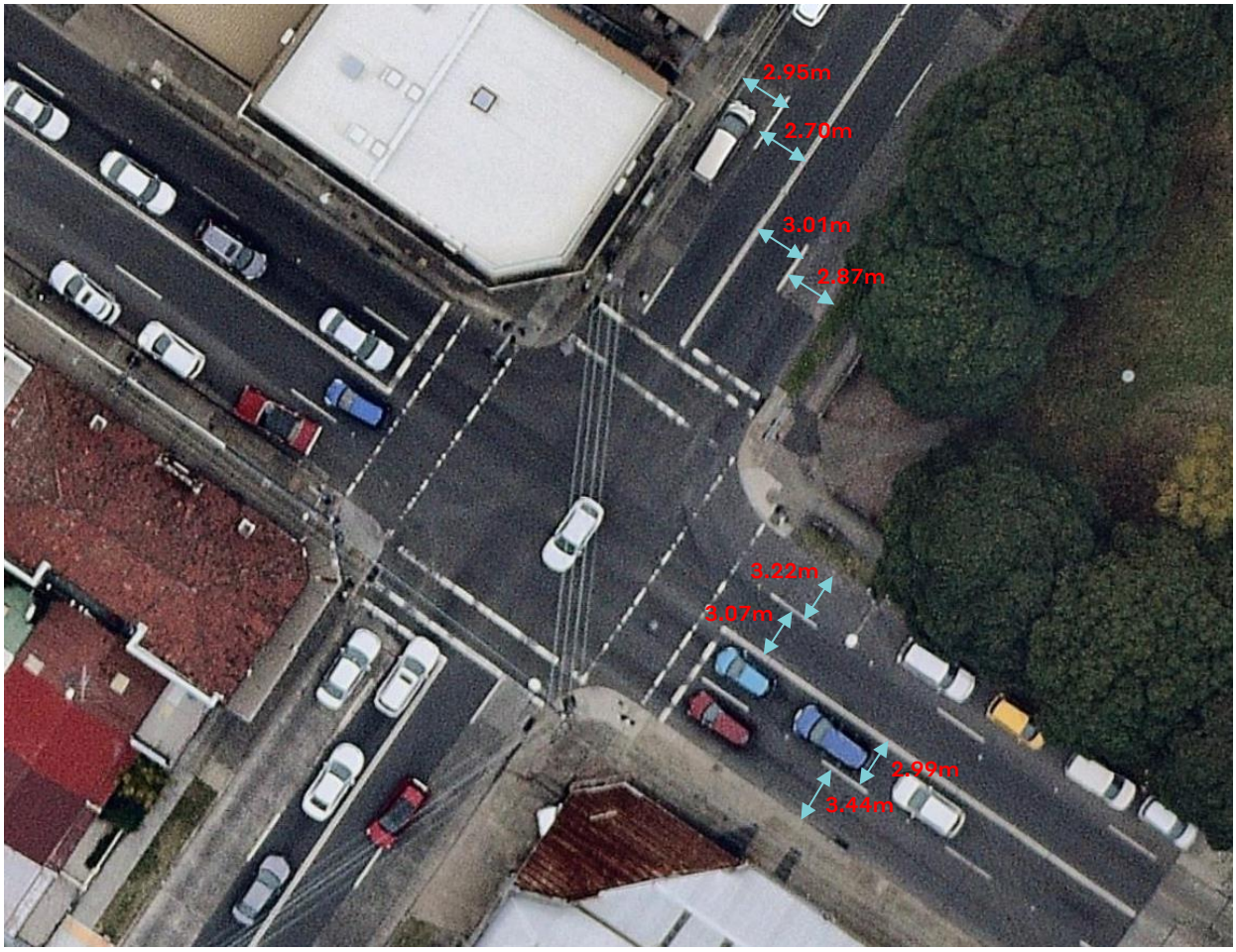

Figure 1- Existing Lane Widths

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Intersection Performance – Full Upgrade

Table 2 below documents the performance of the Victoria Road – Sydenham Road intersection under the full upgrade scenario. The modelling analysis has been undertaken under two different traffic conditions. Option 1 involves the retention of the current parking restrictions in the area while Option 2 assumes the introduction of clearway along Sydenham Road frontage to Wicks Park during the AM peak. These conditions are visually shown in Attachment A of the Traffic Advice statement prepared by Arcadis.

Table 1 - Predicted Level of Service at Victoria Road / Sydenham Road intersection – Full Upgrade

Scenario	AM Peak		PM Peak	
	Delay (s)	LOS	Delay (s)	LOS
Existing	53	D	49	D
Option 1 – Retain Current Parking Restrictions				
50% development scenario	36	C	27	B
75% development scenario	51	D	30	C
100% development scenario	70	E	32	C
Option 2 – Clearway Conditions				
50% development scenario	30	C	27[1]	B[1]
75% development scenario	38	C	30[1]	C[1]
100% development scenario	52	D	32[1]	C[1]

Source: Arcadis Traffic Advice Statement – August 2017

Note[1]: In Option 2, no clearways are proposed in the PM peak.

As is demonstrated by the modelling results in Table 2.

- The proposed upgrades, under both current parking restrictions and clearway conditions, will significantly improve the performance of the Victoria Road / Sydenham Road intersection.
- Under the 50% and 75% development scenarios the upgraded intersection would deliver an improved performance compared to the current level of service.
- Under the worst-case development scenario, which assumes 100% development and retention of exiting traffic management conditions, the intersection performance would reduce to a LOS of E in AM peak, however would retain a LOS of C in the PM peak. Whilst the intersection would reduce in its AM performance, this represents a 17 second increase in the delay of the intersection from 53 seconds to 70 seconds. This is considered to be acceptable in the context of the large scale of the Planning Proposal. The performance of the intersection would remain consistent with current conditions in the PM peak period.

- Under clearway conditions, the proposed intersection upgrades would improve the performance of the intersection even at a 100% development scenario. The intersection performance would deliver even greater improvements under the 50% and 75% development scenarios.
- Clearway conditions would not be required under any development scenario for the PM period as the SIDRA modelling indicates that the intersection will perform acceptably under current parking conditions.
- Assuming the 75% development scenario was achieved in the long term, the upgraded intersection would still improve existing waiting times under current parking restrictions by 2 seconds in the AM peak and 17 seconds in the PM peak, and by 15 seconds in the AM peak and 19 seconds in the PM peak under clearway conditions.

The southern part of the precinct identified for residential and mixed uses is anticipated to be delivered earlier in the regeneration process, and it is these redevelopment sites that will assist in providing the necessary land to enable the more significant upgrades of the intersection (i.e. north-west corner).

It is also noted that Residential Development is likely to generate the least amount of additional traffic compared to development within the B5 Business Development zone, which based on the assumptions used in the SIDRA traffic modelling, generate far greater levels of localised traffic. Accordingly, it is anticipated the key intersection upgrades (i.e. left turn slip lane along Sydenham Road (western approach) into Victoria Road, and the right turn lane from Victoria Road (southbound) into Sydenham Road) will be delivered early in the regeneration period and provide sufficient capacity to accommodate the gradual evolution of the precinct until the remainder of the upgrades can be delivered in the future.

In reality, it is highly unlikely that the Victoria Road Precinct will ever be redeveloped to accommodate 100% of its full development potential, particularly land proposed to be included within the B5 Business Development Zone. There are many reasons for this, including but not limited to:

- Many of the sites within the precinct are small in area and in disparate ownership making land amalgamation difficult to achieve. Accordingly, there will inevitably be pockets of land that do not get redeveloped in the future.
- Numerous sites are expected to be repurposed for new businesses through adaptive reuse of the existing building. Accordingly, many sites will only utilise a small amount of additional floor space potential, if any.
- New development sites may be redeveloped in the future but may only use part of the floor space potential available to them under the proposed LEP controls, this is common place in Business Zones where the amount of floor space delivered by a project is tailored to respond to market demand at the time.
- Several sites may have physical and environmental constraints that make them unable to realise 100% of the floor space available to them under the proposed LEP controls.

In addition to the findings of the traffic modelling analysis, it is also important to note that the Victoria Road Precinct is expected to be regenerated over a 15-20 year timeframe, demand placed on the intersection will therefore be a gradual uplift as opposed to an immediate full impact, and indeed some of the proposed works may never be required.

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Summary

This additional information has been prepared in response to further discussions regarding the Victoria Road / Sydenham Road intersection, and should be read with the accompanying Traffic Advice statement prepared by Arcadis. The purpose of this information is to assist the DPE with the further consideration and final review of the Victoria Road Precinct planning proposal.

As set out within this letter and the Traffic Advice prepared by Arcadis, the further analysis undertaken of the intersection demonstrates that:

a. The current intersection has sufficient capacity to accommodate in the order of 20% to 30% of the full development scenario under the Planning Proposal;
b. From a traffic generation perspective, 20% of the full development scenario represents the entire residential component of the Planning Proposal and approximately 14% of the overall non-residential floorspace.
c. Upgrades to the Victoria Road / Sydenham Road intersection are only necessary at the point when the Victoria Road Precinct reaches approximately 20% of its full development scenario.
d. A number of upgrades would likely be delivered in advance of them being necessary, as these would be provided as part of the redevelopment of the residential sites that form the southern end of the precinct. In particular the left-hand slip lane and the widening of the Victoria Road north approach are likely to be delivered in advance of them being required.
e. An updated concept design has been prepared which demonstrates that an appropriate design solution for the intersection upgrade can be achieved that responds to existing land constraints, delivers the vehicle movement upgrades requested by the RMS, and which preserves the functionality of the intersection.
f. Under the upgraded scenario, SIDRA modelling confirms that the intersection will perform at a higher level of service than currently experienced, even under a 100% development scenario (subject to clearway conditions).

For the reasons outlined above, the proposed LEP Amendments will enable regeneration of the Victoria Road Precinct in a timely and effective manner that responds to local needs and which will be supported by the timely upgrade of road network infrastructure required to service the Precinct and the wider organic growth that is naturally occurring on Sydney's road network. The proposed LEP Amendments are therefore considered to be acceptable in this regard.

We trust this letter adequately responds to the matters discussed and we would like to thank the DPE for ongoing work on the project. As always should you have any queries about this matter, please do not hesitate to contact me on 9956 6962 or bcraig@ethosurban.com.au.

Yours sincerely,

Benjamin Craig
Associate Director

ETHOS URBAN

31 August 2017
13530

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Smart people, people smart.

Dear Lauren,

Sydenham Road / Farr Street intersection – Further Traffic Information

Further to recent discussions please find below a response to the matter raised by the RMS, namely the absence of modelling of the Sydenham Rd and Farr St intersection. As mentioned this has been discussed previously. Farr St is a short local street on the SW edge of the Precinct. It currently has very low traffic movements. There are only 611 vehicle movements a day through this intersection at present. Attached is a table from the Council's Local Area Traffic Management plan from April 2017 showing the traffic count for the Sydenham Rd/Farr St signalized intersection.

Our traffic engineers deemed that it was not necessary to model the intersection as there will be minimal impacts on the local traffic model particularly as Farr Street can NOT be accessed by the bulk of the proposed new residences on the timberyards site (on Victoria Rd). Notwithstanding that advice below is an analysis of the potential traffic impacts on the Sydenham Road – Farr Street intersection. Further detailed modelling of the intersection is, we believe, unnecessary as it will not yield any significant impacts on the assessment of the Planning Proposal.

Traffic impacts on the Sydenham Road – Farr Street intersection

As mentioned our traffic consultants (Arcadis) have not previously modelled this intersection and don't believe it is necesary. Whilst this is the case, to assist the DP&E with its ongoing assessment I have examined Farr Street in closer detail to estimate the impact, if any, that the proposed rezoning will have on the intersection. To do this I have applied the following methodology:

Part 1 - Analysis of Existing Scenario

1. I have carried out a review of Farr Street as it operates today and have identified the types of use that is currently being undertaken on each property within the street. I have then catergorised these properties into either industrial/commercial uses or residential uses.

2. I have calculated the number of dwellings that currently reside in Farr Street using aerial and street view imagery, this has also been confirmed in discussions with the proponent, who works on the adjacent Danias Timber yards site.
3. I have estimated the floorspace of the non-residential sites. To do this I have assumed that the non-residential sites have a FSR of 1:1. This assumption is based on the fact that nearly all sites are 100% occupied by buildings at present, with some buildings having a second and/or mezzanine storey. An average 1:1 FSR is therefore considered reasonable in this instance. I also note that under the incumbent Marrickville LEP 2011 controls these site's do not have a maximum FSR and could therefore theoretically be redeveloped for FSRs greater than 1:1.
4. I have combined the steps 2 and 3 to calculate the overall dwelling yield and floorspace of Farr Street as it exists today. I have then applied RMS trip generation rates to calculate the current Peak Vehicle Trips for Farr Street under the existing situation.

Part 2 - Analysis of Proposed Scenario

To calculate the likely trip generation of the proposed rezoning I have applied the following methodology:

1. Using the proposed FSR Map under the Planning Proposal, I have calculated the theoretical maximum Gross Floor Area for the redevelopment of lots fronting Farr Street on both the eastern and western sides. Under the Planning Proposal the western side of Farr Street is proposed to have an FSR of 1.2:1, while the eastern side is proposed to have an FSR of 3:1.
2. I have then applied an 85% efficiency rating to the maximum GFA to calculate a Net Saleable Area (NSA). This efficiency rating is at the high end of building efficiency but has been adopted to ensure a 'worst case' scenario (i.e. maximise the number of achievable apartments and thereby maxmise likely trip generation).
3. I have then divided the NSA by an average apartment size (i.e. 75m2) to provide an estimate of the total number of apartments that are likely to be delivered along Farr Street.
4. I have then applied RMS trip generation rates to calculate the probable Peak Vehicle Trips for Farr Street under the proposed rezoning.

I note that the methodology is consistent with that used within the traffic reports for the Planning Proposal, and enables a direct comparison of the existing situation against the proposed scenario under the Planning Proposal. The analysis is shown in **Tables 1** to **4** below.

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Part 1 - Analysis of Existing Scenario

Table 1 – Farr Street – Existing Uses

FARR STREET – EXISTING USES			
		Farr Street (East)	Farr Street (West)
Industrial / commercial	**Properties**	• 135 Sydenham Road (1,078m^2) • 1-7 Farr Street (529m^2) • 33-35 Farr Street (1,184m^2) • 37 Farr Street (487m^2) • 41 Farr Street (481m^2) • 43 Farr Street (513m^2) • 45 Farr Street (515m^2) • 47 Farr Street (480m^2)	• 2 Farr Street (730m^2) • 8 Farr Street (298m^2) • 10-14 Farr Street (728m^2) • 16 Farr Street (253m^2) • 18 Farr Street (231m^2) • 20 Farr Street (309m^2) • 26 Farr Street (345m^2) • 28-30 Farr Street (521m^2) • 32 Farr Street (518m^2) • 36 Farr Street (1,394m^2)
	Area*	5,267m^2	5,327m^2 -
	Total Area	**10,594m2**	
Residential	**Properties**	• 11, 15, 17, 19, 21, 23, 25, 27, 29 & 31 Farr Street	• 22 and 24 Farr Street
	No. dwellings	10	2
	Total Dwellings	**12**	

*Almost all industrial/commercial properties in Farr Street are occupied by buildings that cover 100% of site area

Table 2 – Farr Street –Trip Generation - Existing

FARR STREET – EXISTING TRIP GENERATION				
Land Use	**GFA (m^2)**	**Number of Units**	**Trip Generation Rate (vehicle trips/hr)**	**Peak Vehicle trips**
Industrial / Commercial	10,594m^2 (assumes FSR of 1:1)		2.0/100m^2 GFA	106
Residential		12	0.19 per unit	2
Total				**108**

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Part 2 - Analysis of Proposed Scenario

Table 3 – Farr Street – Proposed Uses

FARR STREET – PROPOSED RESIDENTIAL USES					
	Site Area	**Floor Space Ratio**	**Maximum GFA**	**Net Saleable Area (85%)**	**Number of dwellings (75m2 average)**
Far Street East	7,900m^2	3:1	23,700m^2	20,145m^2	267
Far Street West	5,751m^2	1.2:1	6,901m^2	5,686m^2	76
Total			**30,601m^2**	**25,831m^2**	**343**

Table 4 – Farr Street –Trip Generation – Planning Proposal

FARR STREET – TRIP GENERATION – PLANNING PROPOSAL				
Land Use	**GFA (sqm)**	**Number of Units**	**Trip Generation Rate (vehicle trips/hr)**	**Peak Vehicle trips**
Residential	30,601 (uses FSR from Planning Proposal)	343	0.19 per unit	**65**

Based on the above analysis it can be concluded that the proposed rezoning under the Planning Proposal will in fact result in a reduction in the number of Peak Vehicle Trips generated by uses fronting Farr Street. Specifically, a reduction from 108 to 65 peak vehicle trips will occur as a result of the Planning Proposal, representing a 40% decrease in traffic generation. This is considered to be an entirely acceptable outcome as it will improve capacity of the Sydenham Road – Farr Street intersection. The RMS' concerns are therefore considered to be unwarranted.

In addition to the above it is also worth highlighting that:

a) As per our email dated 23rd August 2017, the EIS for Westconnex concludes that the Westconnnex project will result in a reduction in the traffic volume along Sydenham Road. Specifically, it states ***"There are forecast reductions…on Sydenham Road where two-way average weekday traffic volumes decrease by 10% (about 3000 vehicles a day)".***

ETHOS URBAN

b) The Westconnex EIS also states ***that "Daily Heavy Vehicle volumes on roads in the Inner West, such as Stanmore Road, Sydenham Road, Marrickville Road and King Street, are forecast to drop by 20-50%".***

c) Inner West Council has undertaken a Local Area Traffic Management assessment of the local road network, which concluded that traffic speeds and volumes were within acceptable ranges. The Sydenham Road - Farr Street intersection was assessed as part of this investigation and the LATM report was endorsed by the Council's Local Traffic Committee at its meeting of 6th April 2017.

d) The Westconnex EIS acknowledges at the bottom of page 8-16 that intersections operating at a Level of Service (LoS) of E or F are common in the Inner West. They acknowledge that there are constraints in built up urban areas and delays are regularly experienced by motorists on the Sydney road network during traffic peak periods.

In summary, it is clear from the analysis undertaken above, together with the findings of both the Westconnex EIS and the Council's LATM report, that the Planning Proposal will not have an unacceptable impact on the Sydenham Road – Farr Street intersection.

We trust this letter adequately responds to the matters discussed and we would like to thank the DPE for ongoing work on the project. As always should you have any queries about this matter, please do not hesitate to contact me on 9956 6962 or bcraig@ethosurban.com.au.

Yours sincerely,

Benjamin Craig
Associate Director

Traffic Advice

Date	16/08/2017
To	Danias Holdings
From	Arcadis Australia Pacific Pty Ltd
Project Name	Victoria Road Precinct Rezoning Planning Proposal, Marrickville
Subject	Updated Concept Design at the Victoria Road / Sydenham Road Intersection and Traffic Modelling

1 Report Purpose

This traffic advice has been prepared by Arcadis Australia Pacific Pty Ltd (Arcadis) for Danias Holdings Pty Ltd (Danias) in relation to the Victoria Road Precinct Rezoning Planning Proposal at Marrickville.

This traffic advice documents Arcadis' investigation on the updated concept design and associated traffic modelling undertaken at Victoria Road / Sydenham Road intersection.

In March 2017, Arcadis prepared a strategic concept design and traffic modelling for the Victoria Road / Sydenham Road intersection. The outcome was documented in a previous traffic report titled "*Victoria Road Precinct Rezoning Planning Proposal, Marrickville – Addendum to Traffic and Transport Assessment (March, 2017)".*

The strategic concept design at the Victoria Road / Sydenham Road intersection has been updated as a result of concerns raised by Council in the assessment process and due to further design development. The first strategic concept design was in response to the specific request from the Roads and Maritime Services (Roads and Maritime) outlined in its letter dated 9 December 2016. In response to concerns about the impacts of that design on land acquisitions fronting Sydenham Road and land on the south-western side of Victoria Rd, further design and modelling work has been undertaken. In considering the constraints, but still ensuring the intersection meets traffic performance scenarios, two conceptual design scenarios are developed and modelled.

Arcadis' traffic outcome has been reported in the following two parts:

- *Part A: Updated Concept Design.* Part A documents updated concept design at Victoria Road / Sydenham Road intersection for two scenarios.
- *Part B: Updated Traffic Modelling.* Part B documents associated traffic modelling undertaken for Victoria Road / Sydenham Road intersection to support the updated concept design. In Part B, sensitivity analysis has been undertaken to determine thresholds yields that can be supported without upgrade at Victoria Road / Sydenham Road intersection.

This traffic advice is to be read in conjunction with "*Victoria Road Precinct Rezoning Planning Proposal, Marrickville – Addendum to Traffic and Transport Assessment (March, 2017)"* for previous concept design and relevant traffic modelling assumptions.

Figure 1 below shows the location of the Victoria Road / Sydenham Road intersection within the study area.

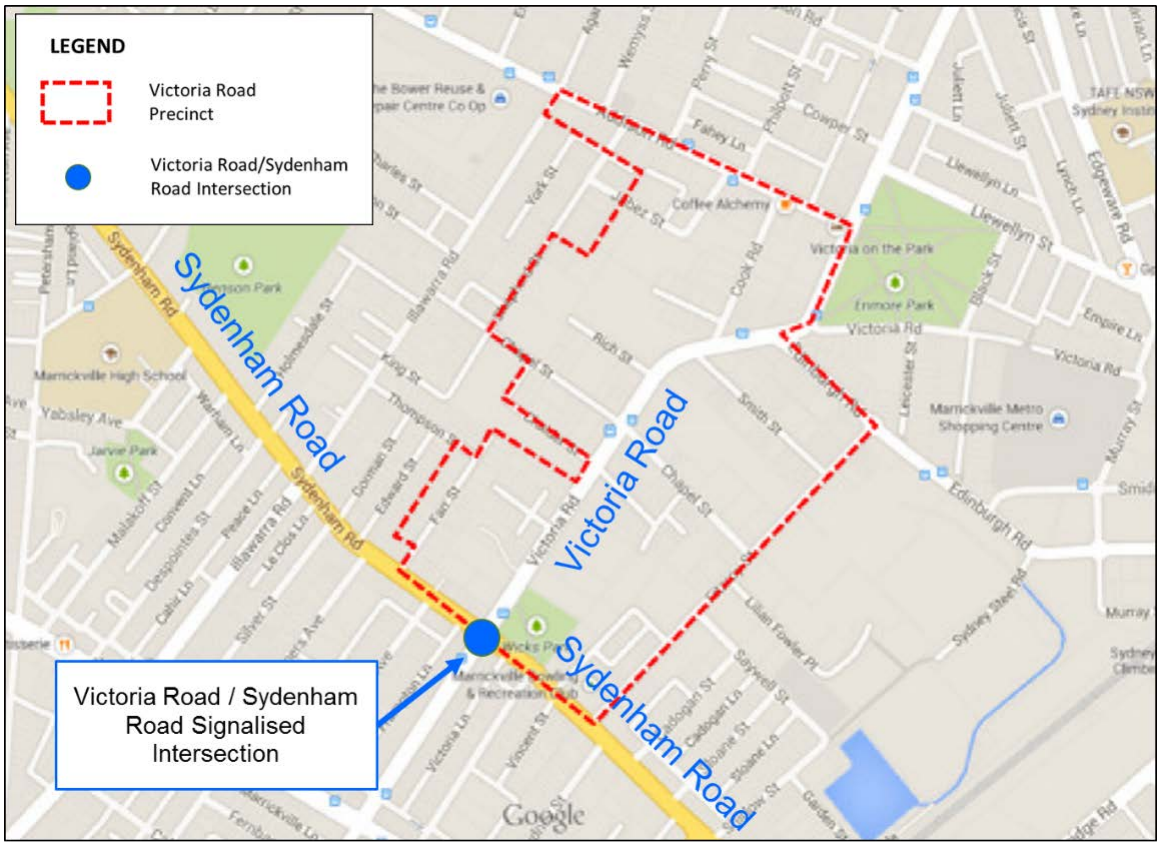


Figure 1 Location of Victoria Road / Sydenham Road Intersection

2 Part A: Updated Concept Design

Part A documents updated strategic concept designs for the following two scenarios:

- ***Scenario 1*** proposes full upgrades similar to the previous concept design (March 2017), however, to address the concerns raised in relation to the impact to adjoining properties, the design now incorporates 3 metre lane widths. This design avoids future land acquisition along the frontage to Wicks Park and the south-western side of Victoria Rd. Scenario 1 upgrades at Victoria Road / Sydenham Road intersection include:
  1. One additional right turn lane on Victoria Road northern approach (about 90m long)
  2. One additional right turn lane on Sydenham Road eastern approach (about 65m long)
  3. One signalised left turn slip lane on Sydenham Road western approach.
- ***Scenario 2*** proposes partial upgrades (a variation to scenario 1), but removes one additional right turn lane on Sydenham Road eastern approach. Instead, a shared right turn is proposed with the through lane on the Sydenham Road similar to the current lane arrangement.

Table 1 below summarises upgrades tested for both scenarios.

Table 1 Proposed Upgrades at Victoria Road / Sydenham Road intersection

Item No	Upgrade Descriptions	Scenarios	
		Full Upgrade	Partial Upgrade
1	One additional right turn lane on Victoria Road northern approach (about 90 m long)	yes✓	yes ✓
2	One additional right turn lane on Sydenham Road eastern approach (about 65 m long)	yes ✓	no✘
3	One signalised left turn slip lane on Sydenham Road western approach.	yes ✓	yes ✓

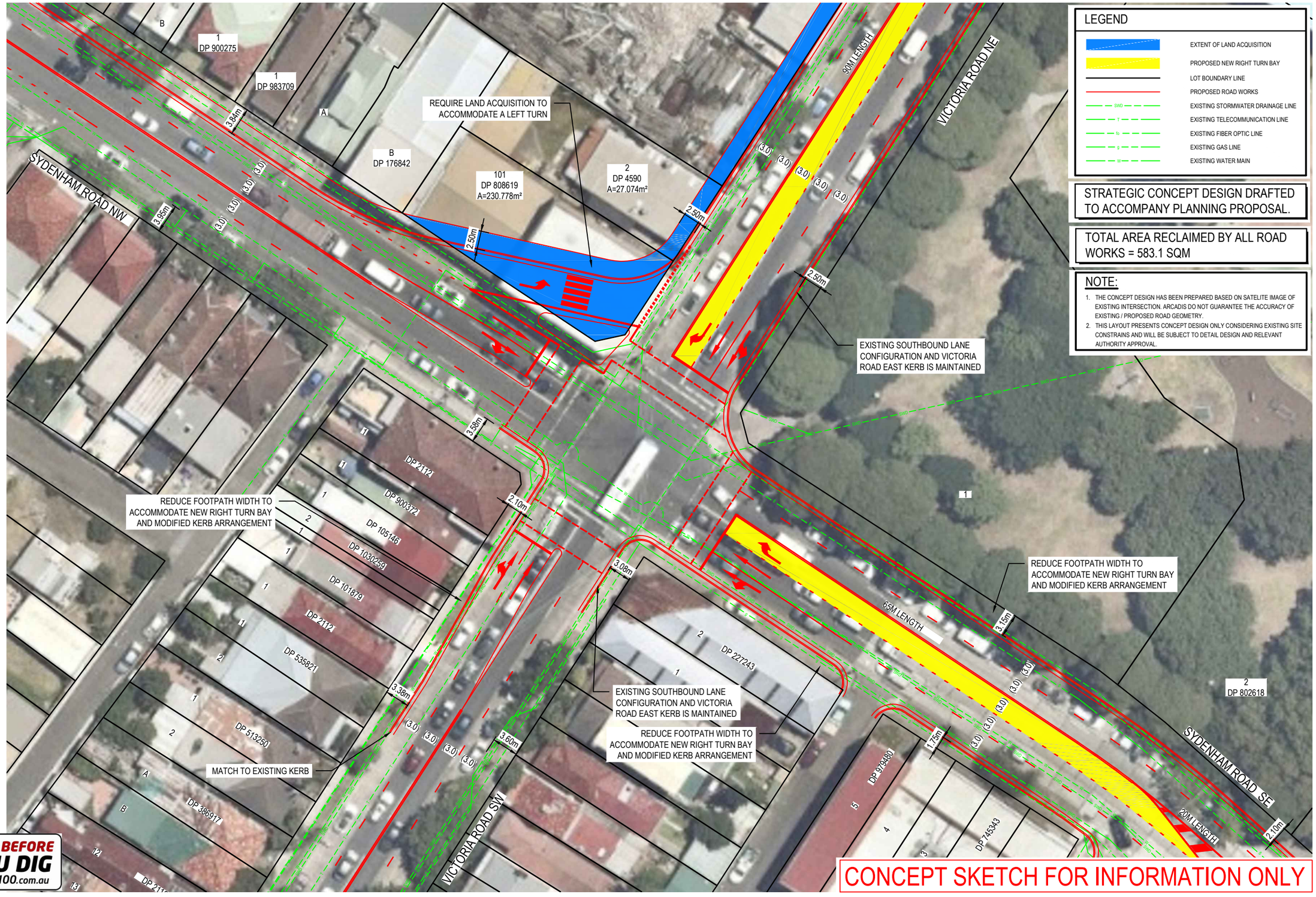
2.1 Scenario 1: Updated Concept Design

The following design changes are proposed for Scenario 1 (full upgrades) including:

- Sydenham Road: use 3 meters lane width where required, use portion of footpath widths on both sides to fit new right turn bay (approximately 65 m in length) within Sydenham Road east so that the new road works do not encroach into Wicks Park. Adjust horizontal profile of Sydenham road accordingly.
- Victoria Road North: existing kerb line on the eastern side is retained so there is no impact on the footpath on the Wicks Park frontage nor on the park itself.
- Victoria Road south: use 3 meters lane width where required, reduce median width to Austroads minimum requirement and to suit horizontal geometry, use portion of footpath at western side to suit horizontal geometry of the road accommodating right turn bay at Victoria Road North.
- Kerb returns at the intersection to be maintained as per existing geometry (to minimise encroachments at corner lots).

The updated concept design for Scenario 1 is shown in Figure 2.

The modelling results for Scenario 1 are included in the following section Part B.



Issue	Description	By	Ckd	RPEQ	Date
02	ISSUE FOR INFORMATION	O.P.	A.K.	J.B.	15.08.17
01	ISSUE FOR INFORMATION	S.P.	A.K.	J.B.	08.08.17

Scale: 0 10 20m — 1 : 500

Surveyor

Architect

Filename: Skc-00-003-aa006872-Victoria_Road_SketchC.dwg

Client: Danias Holdings Pty. Ltd.

Status: FOR PLANNING PROPOSAL APPROVAL

Approved

R.P.E.Q No :

Scales: 1 : 500

Original Issue Signatures

Original Size: A3

Drawn: S. PANOD

Designed: A.KALAJZICH

Height Datum: AHD

Project Manager: J.BATES

Grid: LOCAL

Project: Victoria Road / Sydenham Road Intersection Upgrade Strategic Concept Design

Title: Figure 2 Scenario 1: 3.0m LANE WIDTHS

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Drawing No. SKC-00-003 | Project No. AA006872 | Issue 02

100mm on Original

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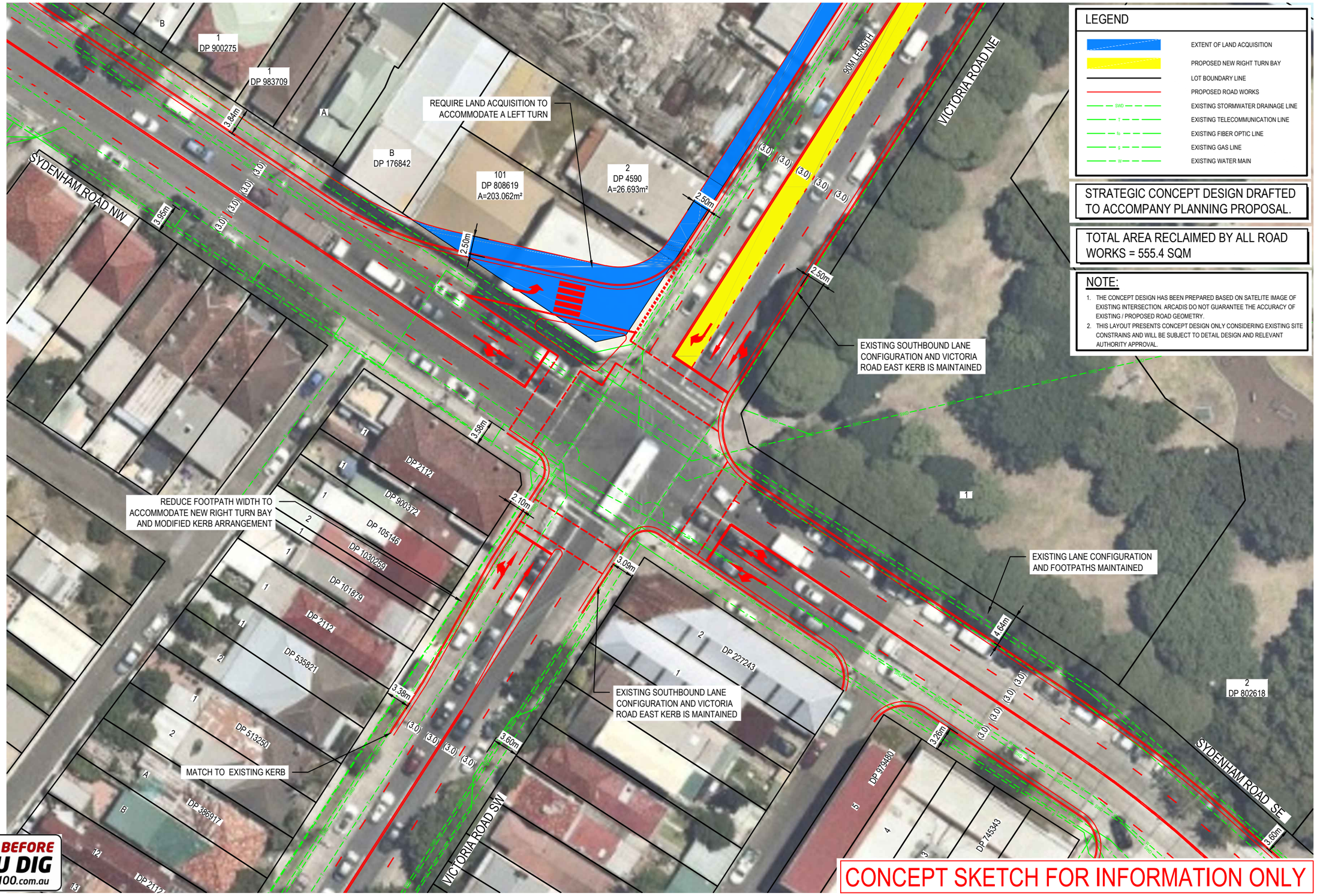
2.2 Scenario 2: Updated Concept Design

The following design changes are proposed for Scenario 2 (partial upgrades) including:

- Sydenham Road: Removes dedicated right turn bay from Sydenham Road. Instead, a shared right turn arrangement is proposed with the through lane on the Sydenham Road similar to the current condition i.e. existing road geometry on the Sydenham Road east will be maintained.
- Victoria Road: Amendments as per Scenario 1 above.

The updated concept design for Scenario 2 is shown in Figure 3.

The modelling results for Scenario 2 are included in the following section Part B.



LEGEND

- EXTENT OF LAND ACQUISITION
- PROPOSED NEW RIGHT TURN BAY
- LOT BOUNDARY LINE
- PROPOSED ROAD WORKS
- SWD — EXISTING STORMWATER DRAINAGE LINE
- T — EXISTING TELECOMMUNICATION LINE
- fo — EXISTING FIBER OPTIC LINE
- g — EXISTING GAS LINE
- W — EXISTING WATER MAIN

STRATEGIC CONCEPT DESIGN DRAFTED TO ACCOMPANY PLANNING PROPOSAL.

TOTAL AREA RECLAIMED BY ALL ROAD WORKS = 555.4 SQM

NOTE:

1. THE CONCEPT DESIGN HAS BEEN PREPARED BASED ON SATELITE IMAGE OF EXISTING INTERSECTION. ARCADIS DO NOT GUARANTEE THE ACCURACY OF EXISTING / PROPOSED ROAD GEOMETRY.
2. THIS LAYOUT PRESENTS CONCEPT DESIGN ONLY CONSIDERING EXISTING SITE CONSTRAINS AND WILL BE SUBJECT TO DETAIL DESIGN AND RELEVANT AUTHORITY APPROVAL.

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CONCEPT SKETCH FOR INFORMATION ONLY

Issue	Description	By	Ckd	RPEQ	Date
02	ISSUE FOR INFORMATION	O.P.	A.K.	J.B.	15.08.17
01	ISSUE FOR INFORMATION	S.P.	A.K.	J.B.	08.08.17

Scale: 0 10 20m — 1 : 500

Surveyor

Architect

Filename: Skc-00-010-aa006872-Victoria_Road_SketchD.dwg

Client: Danias Holdings Pty. Ltd.

Status: FOR PLANNING PROPOSAL APPROVAL

Approved

R.P.E.Q No :

Scales: 1 : 500

Original Issue Signatures

Original Size: A3

Drawn: S. PANOD

Designed: A.KALAJZICH

Height Datum: AHD

Project Manager: J.BATES

Grid: LOCAL

Project: Victoria Road / Sydenham Road Intersection Upgrade Concept Design

Title: Figure 3 Scenario 2: 3.0m LANE WIDTH SYDENHAM ROAD EAST SHARED THROUGH/RIGHT TURN LANE

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Drawing No. SKC-00-010 | Project No. AA006872 | Issue 02

100mm on Original

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3 Part B: Updated Traffic Modelling

In line with March 2017 traffic modelling, SIDRA network version 7 was used to assess traffic performance at the Victoria Road / Sydenham Road intersection. Table 2 below shows the Roads and Maritime standard level of service (LoS) criteria for intersection assessment.

Table 2 Level of Service Criteria for Intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Unsatisfactory with excessive queuing	Unsatisfactory with excessive queuing

Source: Roads and Maritime Guide to Traffic Modelling.

3.1 Development Thresholds Without Upgrades at Victoria Road / Sydenham Road intersection

The traffic modelling (using SIDRA) indicates that under existing condition, Victoria Road / Sydenham Road signalised intersection operates with level of service D (average delays 53 seconds) in the morning peak and level of service D (average delays 49 seconds) in the afternoon peak (refer to Table 3 below).

Table 3 Existing Level of Service Victoria Road/Sydenham Road Intersection

Intersection	Control Type	AM Peak		PM Peak	
		Delay (s)	LoS	Delay (s)	LoS
Victoria Road / Sydenham Road	Traffic Signals No upgrade	53	D	49	D

Note: existing signal phasing and timing data for Victoria Road/Sydenham Road intersection (SCATS history file) has been sourced from RMS

Sensitivity analysis has been undertaken to identify development thresholds at which point Victoria Road / Sydenham Road signalised intersection operates at level of service E either in morning (AM) peak or afternoon (PM) peak. The level of service E has been used as the criteria for development yield thresholds estimation.

The modelling results for 20% development, 50% development and 75% development yield are shown in Table 4.

Table 4 Level of Service at Victoria Road/Sydenham Road Intersection –Sensitivity Analysis (No Upgrade Condition)

Development Scenarios	AM Peak		PM Peak	
	Delay (s)	LoS	Delay (s)	LoS
20% Development Scenario	63	E	54	D
50% Development Scenario	120	F	68	E
75% Development Scenario	159	F	98	F

For a 20% development scenario, traffic modelling suggests level of service E in AM peak without upgrade at Victoria Road / Sydenham Road intersection. While the PM peak delay is at 54 seconds, which is level of service D but just below the threshold for level of service E. Based on level of service criteria, the modelling analysis suggests that about 20% development can be accommodated without the upgrade to the Victoria Road / Sydenham Road intersection. For 50% and 75% development yields scenarios, level of service F is predicted in both the AM and PM peaks.

3.2 Scenario 1 (full upgrades)

In line with March 2017 traffic modelling, sensitivity analysis for Scenario 1 (full upgrades) has been undertaken for two conditions, these being:

- Option 1 – Retaining current parking restrictions on Victoria Road and Sydenham Road approaches (refer to Figure 4 in Attachment A at the back of this submission for indicative sketch)
- Option 2 – Peak period clearway conditions on Sydenham Road east approach for morning peak only (refer to Figure 5 in Attachment A at the back of this submission for indicative sketch).

The 50%, 75% and 100% development scenarios are re-assessed for scenario 1 (full upgrades).

Modelling results are shown in Table 5 and Table 6 for Option 1 and Option 2 under the full upgrade scenario 1.

Table 5 Predicted Level of Service at Victoria Road / Sydenham Road intersection – Full Upgrade

Development Scenario	AM Peak		PM Peak	
	Delay (s)	LoS	Delay (s)	LoS
50% Development Scenario	36	C	27	B
75% Development Scenario	51	D	30	C
100% Development Scenario	70	E	32	C

Table 6 Predicted Level of Service at Victoria Road / Sydenham Road intersection – Full Upgrade with Proposed Clearway

Development Scenario	AM Peak		PM Peak	
	Delay (s)	LoS	Delay (s)	LoS
50% Development Scenario	30	C	27[1]	B[1]
75% Development Scenario	38	C	30[1]	C[1]
100% Development Scenario	52	D	32[1]	C[1]

Note[1]: In Option 2, no clearways are proposed in the PM peak.

The modelling analysis suggested that upgraded intersection under scenario 1 (full upgrade) whilst retaining the current parking conditions, would provide level of service C to E in AM peak periods depending on development yields, and a level of service B to C in PM peaks periods.

Under the proposed clearway conditions the upgraded intersection under scenario 1 (full upgrade) would improve the intersection's level of service to C/D during AM peak periods and also improve the level of service to B/C during PM peak periods.

3.3 Scenario 2 (partial upgrades)

In line with March 2017 traffic modelling sensitivity analysis for Scenario 2 (partial upgrades) has been undertaken for two conditions.

- Option 1 – Retaining current parking restrictions on Victoria Road and Sydenham Road approaches
- Option 2 – Peak period clearway conditions on Sydenham Road east approach for morning peak only

The 50%, 75% and 100% development scenarios are re-assessed for scenario 2 (partial upgrades).

Modelling results are shown in Table 7 and Table 8 for Option 1 and Option 2 under partial upgrade scenario 2.

Table 7 Predicted Level of Service at Victoria Road / Sydenham Road intersection – Partial Upgrade

Development Scenario	AM Peak		PM Peak	
	Delay (s)	LoS	Delay (s)	LoS
50% Development Scenario	70	E	54	D
75% Development Scenario	78	F	70	E
100% Development Scenario	88	F	84	F

Table 8 Predicted Level of Service at Victoria Road / Sydenham Road intersection – Partial Upgrade with Proposed Clearway

Development Scenario	AM Peak		PM Peak	
	Delay (s)	LoS	Delay (s)	LoS
50% Development Scenario	59	E	54[1]	D[1]
75% Development Scenario	65	E	70[1]	E[1]
100% Development Scenario	72	F	84[1]	F[1]

Note[1]: In Option 2, no clearways are proposed in the PM peak.

The modelling analysis suggested that upgraded intersection under scenario 2 (partial upgrade) would accommodate up to 75% development yields. For 100% development scenario, a level of service F is predicted.

4 Conclusions

This traffic advice documents Arcadis' investigation on the updated concept design and associated traffic modelling undertaken at Victoria Road / Sydenham Road intersection. The strategic concept design at Victoria Road / Sydenham Road intersection has been updated due to significant constraints identified on future land acquisition along the frontage to Wicks Park and the south-western side of Victoria Road.

In considering these constraints, two conceptual design scenarios are developed and modelled.

- Scenario 1 proposes full upgrades similar to the previous concept design (March 2017), however lane width reduces to 3 meters to avoid future land acquisition along the frontage to Wicks Park and the south-western side of Victoria Road. Scenario 1 upgrades at Victoria Road / Sydenham Road intersection include:
  - One additional right turn lane on Victoria Road northern approach (about 90m long)
  - One additional right turn lane on Sydenham Road eastern approach (about 65m long)
  - One signalised left turn slip lane on Sydenham Road western approach.
- Scenario 2 proposes partial upgrades (a variation to scenario 1), but removes one additional right turn lane on Sydenham Road eastern approach. Instead, a shared right turn is proposed with the through lane on the Sydenham Road similar to the current lane arrangement.

A range of development yields scenarios (50%, 75% and 100%) are modelled for scenario 1 (full upgrades) and scenario 2 (partial upgrades) for Victoria Road / Sydenham Road intersection.

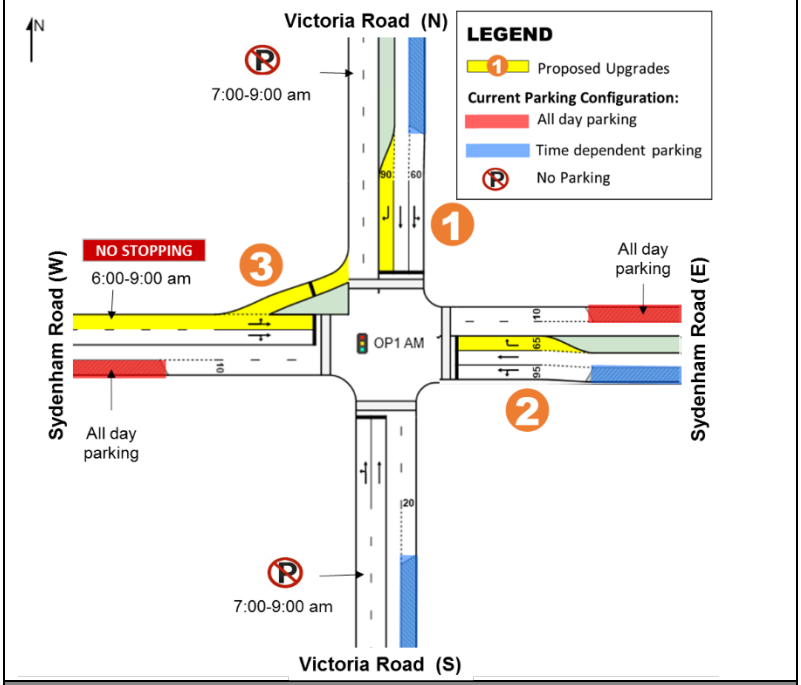
The traffic analysis has found that:

- **Without upgrade at Victoria Road / Sydenham Road intersection about 20% development yields could be supported**
- **The upgraded intersection under scenario 2 (partial upgrade) would accommodate about 75% development yields**
- **The full upgrade would be required to support 100% development yields; and**
- **The proposed clearway condition during morning peak period would improve upgraded intersection level of service and recommended.**

ATTACHMENT A – UPGRADED SCHEMATIC DIAGRAMS

Option 1

AM Peak



PM Peak

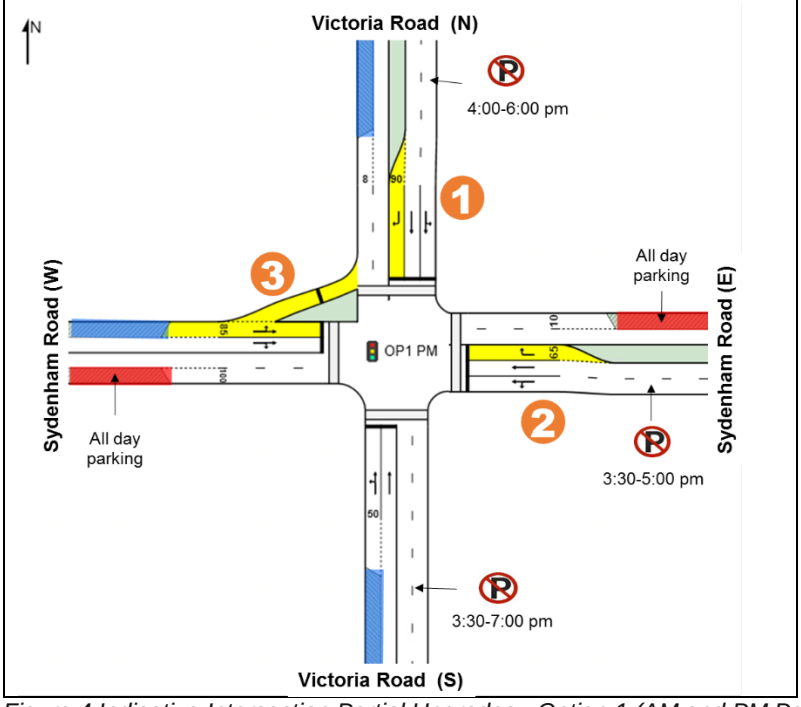
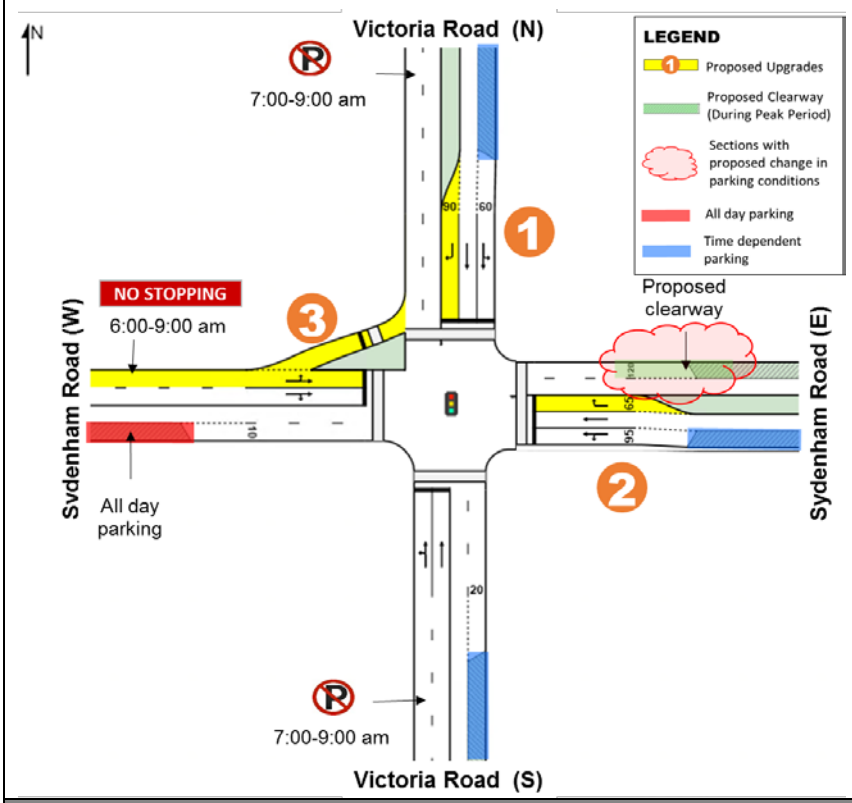


Figure 4 Indicative Intersection Partial Upgrades - Option 1 (AM and PM Peak Conditions)

Option 2

AM Peak



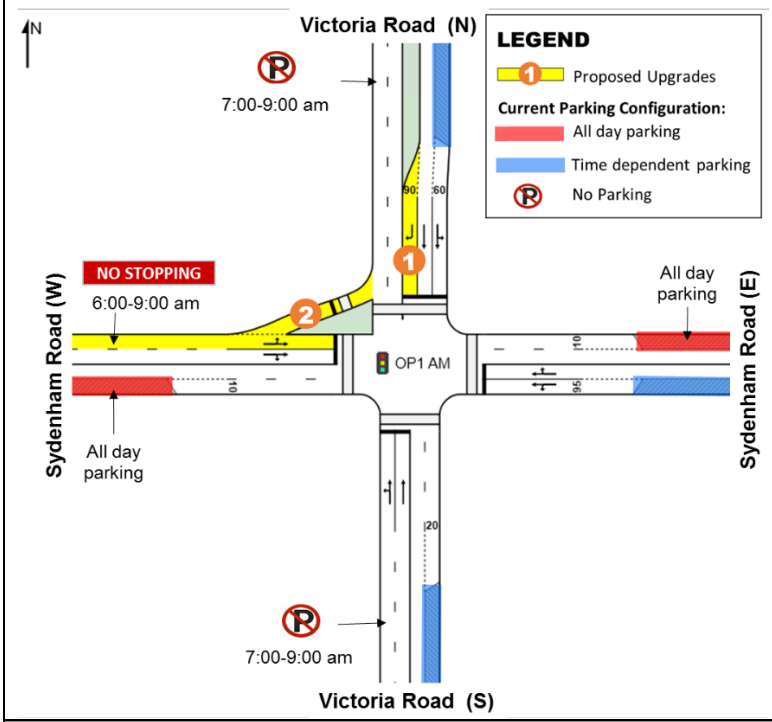
PM Peak

IN OPTION 2, NO CLEARWAYS ARE PROPOSED FOR PM PEAK

Figure 5 Indicative Intersection Partial Upgrades - Option 2 (AM and PM Peak Conditions)

Option 1

AM Peak



PM Peak

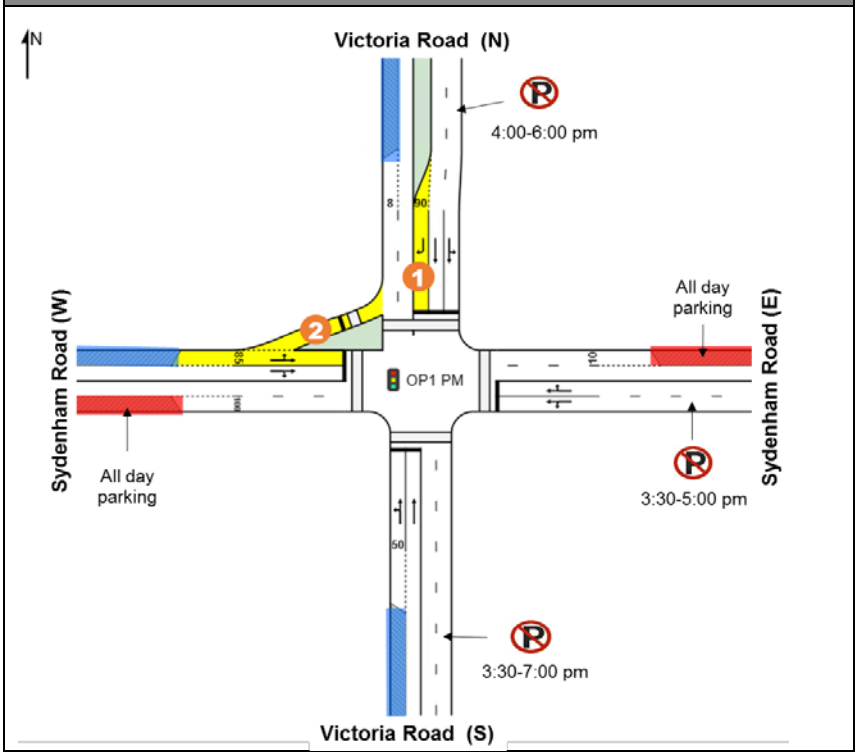
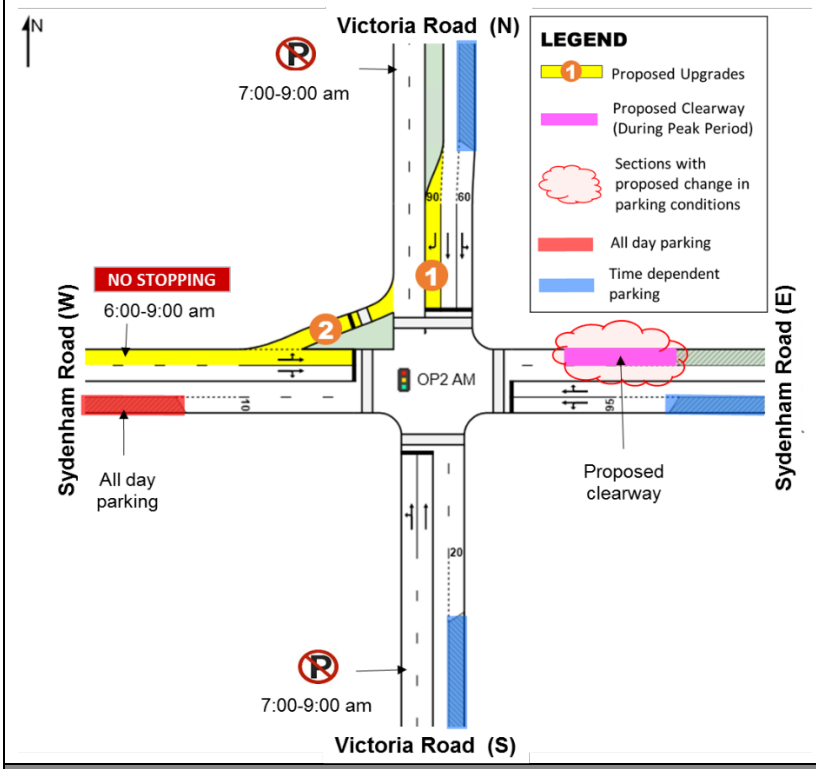


Figure 6 Indicative Intersection Partial Upgrades - Option 1 (AM and PM Peak Conditions)

Option 2

AM Peak



PM Peak

IN OPTION 2, NO CLEARWAYS ARE PROPOSED FOR PM PEAK

Figure 7 Indicative Intersection Partial Upgrades - Option 2 (AM and PM Peak Conditions)