street level strategies

Mr. Peter Brogan
Bloompark Consulting
C/- Trinity Grammar School

Our ref: 202104_024

2 June 2021

Dear Peter

Re: SSD-10371 Trinity Grammar School - RFI issued on 15 April 2021

This RFI response has been prepared by Street Level Strategies following a Request for Information (RFI) from the Department of Planning, Industry and Environment (DPIE) on 15 April 2021.

This request follows a number of other requests for information and submissions as outlined in Table A.

Item	Date	Transport Elements	Consultant
Environmental Impact Statement (EIS): Transport & Accessibility Assessment	April 2020	• Transport Assessment • SIDRA Modelling • Green Travel Plan • Construction Traffic Management Plan Framework	TTM Consulting
Response to Submissions	November 2020	• Clarifications on EIS • Additional traffic assessment	Street Level Strategies

Request for Information 1	11 December 2020	• Pick up/ drop off capacity • Traffic distribution	Street Level Strategies
Request for Information 2	22 January 2021	• Nil	Street Level Strategies
Request for Information 3	15 April 2021	• Additional traffic assessment • Further analysis on proposed mitigations • Revised Green Travel Plan	Street Level Strategies

Table A History of submissions for Trinity Grammar School SSDA 10371

Three items were requested in this RFI regarding transport and traffic as shown in Table B below.

RFI #3 - 15 April 2021	**Sections**
1. Traffic Analysis	
(a) Provide detailed traffic analysis prepared by a suitably qualified professional traffic consultant (including SIDRA analysis or other appropriate methods required by the relevant roads authorities for current and proposed student population) for the following intersections: (i) Victoria Street and Liverpool Road (ii) Harland Street and Queen Street (iii) Service Avenue and Harland Street	Sections 2.1, 2.2 & 4.1
(b) If the traffic analysis for the above identified intersections indicate that the intersections would operate at a minimum of Level of Service C or below, mitigation measures are to be proposed to improve the operations.	
(c) If mitigation measures are required as per point 1(b) above, the proposed mitigation works and any accompany analysis is to be prepared in consultation with relevant road authorities and include written evidence of in principle agreements.	Not required
(d) If mitigation works are proposed, the approval pathway for those works and the likely timing shall be detailed as part of the application and their relationship to increased student numbers.	Not required
2. Mitigation	
(a) For intersections of Old Canterbury Road with Prospect Road and Hurlstone Avenue, provide:	
(i) further analysis and evidence of consultation with and endorsement from relevant road authorities to demonstrate that the proposed mitigation measures (such as clearways, parking restrictions) would be sufficient to offset impacts of increased student numbers and / or	Sections 2.1, 2.3, 4.2 & 4.3

(ii) alternate mitigation / management measures are proposed in consultation with the road authorities at these intersections;	Section 5 and Appendix C
(iii) all proposed mitigation works and any accompany analysis is to be prepared in consultation with relevant road authorities and include written evidence of in principle agreements; and	
(iv) if mitigation works are proposed, the approval pathway for those works and the likely timing shall be detailed as part of the application and their relationship to increased student numbers.	
3. Green Travel Plan - see Appendix D	
The GTP is to be revised and further details to include:	
(i) Specific tools and actions to help achieve the objectives and mode share targets	Section 3 and Table 7
(ii) Details to demonstrate how bus services would be increased and accommodated to satisfy the additional demand likely to be generated by additional students	Section 3.5
(iii) Measures to promote and support the implementation of the plan, including financial and human resource requirements, roles and responsibilities for relevant employees involved in the implementation of the GTP	Section 4 and Table 9
(iv) The methodology and monitoring/review program to measure the effectiveness of the objectives and mode share targets of the GTP, including the frequency of monitoring and the requirement for travel surveys to identify travel behaviours of users of the development	Section 4.1 and Table 9

Table B RFI3 Additional Traffic Assessment items in document

The remainder of this letter provides a full response to each of the three items raised in the RFI.

Yours Sincerely,

Mel Fyfe

Managing Director, **Street Level Strategies**

street level strategies

TRINITY GRAMMAR SCHOOL - SSD-10371

RESPONSE TO REQUEST FOR INFORMATION #3 (15 APRIL 2021)

Additional Traffic Analysis & Green Travel Plan revision

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Executive Summary

The Request for Information from the Department of Planning, Industry and Environment is seeking three key outcomes:

- Further traffic assessment on three intersections (RFI Item 1 - Traffic Analysis)
    - Liverpool Road/ Victoria Street
    - Harland Street/ Queen Street
    - Harland Street/ Service Ave;
- Further analysis and consideration of previously proposed mitigations, and consultation with road authorities (RFI Item 2 - Mitigations); and
- A revision to the Green Travel Plan that was submitted in the Environmental Impact Statement (RFI Item 3 - Green Travel Plan).

RFI Traffic Assessment Items

In order to respond to this RFI in a cohesive manner, we have combined the assessment and response to RFI Item 1 - Traffic Analysis and RFI Item 2 - Mitigations in Part 1.

RFI Item 1 is seeking assessment of three additional intersections to understand the potential impact of the proposed development with an aim of keeping the intersection performance at a Level of Service C or better.

Following assessment, we confirm that for the Base Case and Future scenarios each of these intersections is operating at a LoS C or better. The results can be found in Sections 1 (Existing conditions) and 2 (Future/ Post-development).

For RFI Item 2 regarding the previously proposed mitigations for Old Canterbury Road which included proposed peak Clearways on Old Canterbury Road plus a banned right turn into Prospect Road in the PM peak and intersection works at Prospect Road.

The RFI was seeking further analysis on the proposed mitigations, and to ensure consultation with, and in-principle agreement by, the relevant road authorities was achieved.

Following further analysis, the proposed mitigation measures of Clearways and the banned turn have been deemed unnecessary and removed from the proposal. We have also

determined that the proposed intersection works at Prospect Road have no impact on the LoS in the Future scenario, and a minor impact on queuing, so technically it is not required. However, given the intersection works will provide a broader community benefit with improved pedestrian crossing facilities, the school would like to proceed with these works.

Details on the proposed mitigation can be found in Section 4.2, and evidence of consultation with road authorities in Section 5 and at Appendix C.

RFI Green Travel Plan

Part 2 responds to RFI Item three which is seeking a revision to the Green Travel Plan, particularly to provide more clarity and certainty on the actions and resources required to achieve the 10% mode share shift.

Trinity Grammar School has been undertaking travel surveys since 2013. Over these seven years, the school has demonstrated an 8% shift from car-based travel to sustainable modes of transport. Given this strong base, the Green Travel Plan is aiming to achieve a further 10% shift towards sustainable travel.

The Green Travel Plan revision includes firm actions, resources (including continued investment in the Trinity bus services and 'last mile' services) and governance to track progress, monitor, and report -including to the wider school community.

The full Green Travel Plan can be found at Appendix D. A brief summary is provided at Part 2: Revised Green Travel Plan.

Part 1: RFI items 1 & 2 - Additional Traffic Assessment

This section responds to the RFI items 1 - Traffic Analysis and 2 - Mitigation. The intent of RFI Item 1 is to assess the performance of the intersections, and the intent of RFI Item 2 is to determine the suitability of mitigation measures that had been proposed in earlier submissions.

It is noted that some of the background details, such as development trip generation and distribution, has been carried forward from previous assessments. However, in regard to the traffic modelling, this assessment supersedes all the previous submissions of the relevant intersections at Old Canterbury Road made under SSD-10371.

1 Existing Operations

1.1 Traffic Volumes

Street Level Strategies (SLS) commissioned traffic counts at the following five key intersections on Wednesday 21 April 2021 during the weekday between 6:00am – 7:00pm:

RFI Item 1 - Traffic Analysis

- Liverpool Road / Victoria Street;
- Harland Street / Service Avenue; and
- Queen Street / Harland Street.

RFI Item 2 - Mitigation

- Old Canterbury Road / Prospect Road; and
- Old Canterbury Road / Hurlstone Avenue.

Based on the survey, the AM and PM peak hours at the intersections were observed between 7:30am – 8:30am (AM peak) and 2:45pm – 3:45pm (PM peak).

We note that the AM school peak coincides with the morning commuter peak, whereas the PM school peak is outside of the evening commuter peak.

The weekday AM and PM peak hour traffic volumes are summarised in Figure 1, with data summaries contained in **Appendix A**.

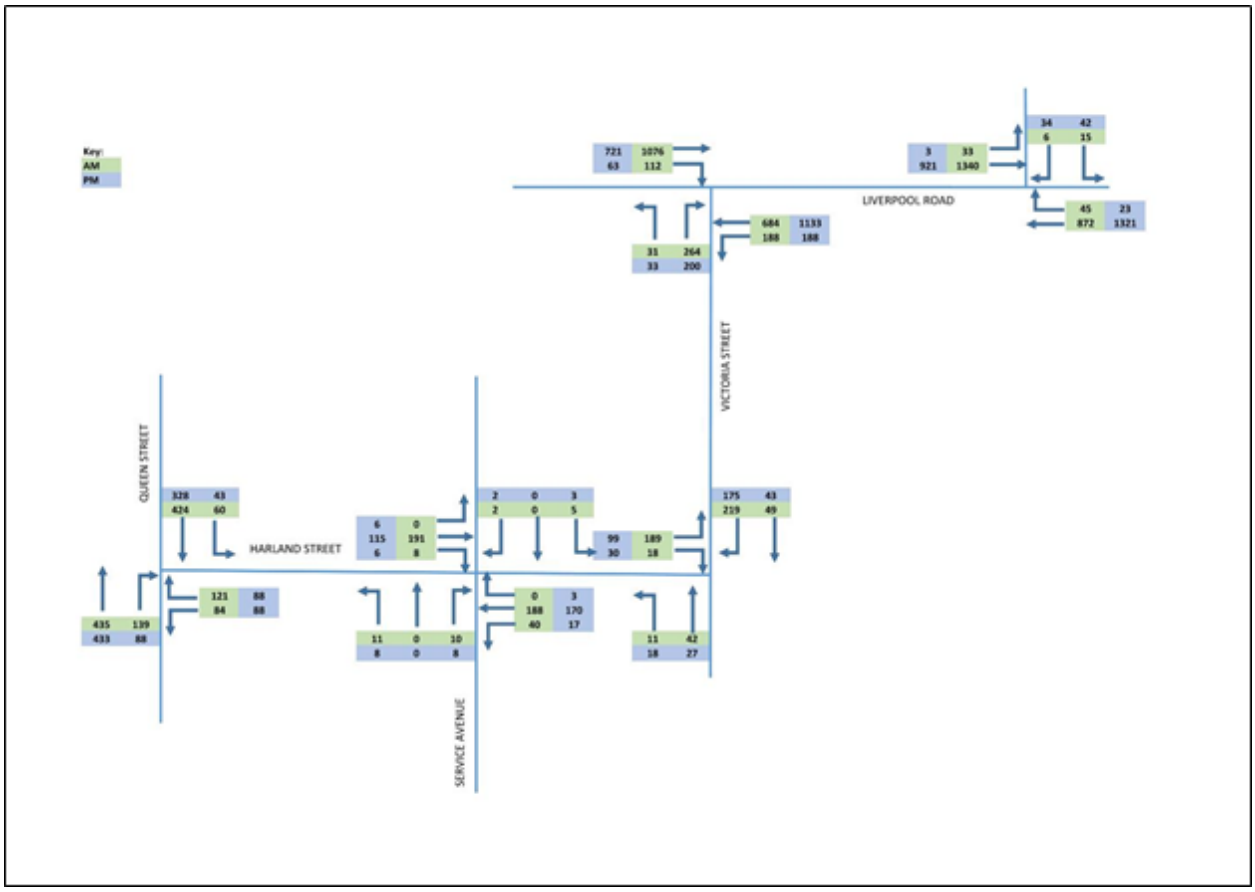


Figure 1: Existing weekday AM / PM peak hour traffic volumes (dated: 21 April 2021)

2 Model Development & Calibration/ Validation

The intersection model built to assess the operation of the key intersections within the study area is SIDRA Intersection 8.0 software (SIDRA), a computer-based modelling package that calculates intersection performance.

The 'Existing Condition' model was calibrated and validated using a combination of classified intersection turning movement counts (collected on 21 April 2021- Wednesday), collated SCATS data (21 April 2021 – Wednesday) which was obtained from Transport for NSW (TfNSW) and site observations including vehicle queuing.

The following methodology and assumptions were used for the base model calibration:

- The SCATS data has been used to determine cycle length and the phase time for the signalised intersection of Liverpool Road / Victoria Street;

- Based on the site observations and observed traffic flow, Liverpool Road (Hume Highway) / Victoria Road signal was found to support platooning with a highly favourable arrival pattern on east and west approaches of the intersection;
- The signalised intersection of Liverpool Road / Victoria Street and Liverpool Road / Grimmond Avenue is being operated by a single controller and modelled as a network in SIDRA under a common control group (CCG);
- Model calibration was undertaken and included checking lane movements to ensure that the number of unnecessary lane changes within the network is minimised; and
- All unsignalised study intersections are also modelled as a network with a bunching factor applied where relevant.

2.1 Intersection Operation

The commonly used measure of intersection performance, as defined by TfNSW, is vehicle delay. SIDRA determines the average delay that vehicles encounter and provides a measure of the level of service (LoS).

Table 1 shows the criteria that SIDRA adopts in assessing the level of service.

Level of Service (LoS)	Average Delay per vehicle (secs/ veh)	Traffic Signals, Roundabout	Give Way & Stop Sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode

F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 1: Level of service criteria

In this RFI from the Department of Planning, Industry and Environment under RFI Item 1 - Traffic Analysis, the RFI states:

> "*(a) Provide detailed traffic analysis prepared by a suitably qualified professional traffic consultant (including SIDRA analysis or other appropriate methods required by the relevant roads authorities for current and proposed student population) for the [three required] intersections*"

and

> "*(b) If the traffic analysis for the above identified intersections indicate that the intersections would operate at a minimum of Level of Service C or below, mitigation measures are to be proposed to improve the operations.*"

The traffic assessment has been carried out by a qualified traffic engineer with a Master of Engineering Science (Transport Engineering) from the University of NSW and 10 years experience.

The intersection analysis was carried out for the year 2021 (Base Case) to represent the current attendance, and 2028 (Future Scenario) to represent the post-development scenario with the proposed additional students and staff.

We note there appears to be an error in part (b) of the RFI which states, "the intersections would operate at a minimum Level of Service C or below" which should instead be read as "Level of Service C or better" as a service level below C would indicate worsened performance, which we understand is not the intent of the request.

The assessment below demonstrates that the level of service at each of these intersections is operating at a Level of Service C or better in all scenarios. As a result, parts (c) and (d) of the RFI do not require action as the Level of Service at all intersections is within the parameters requested in part (b).

2.2 Intersection operations for RFI Item 1 - Traffic Analysis (Existing)

The results of the existing intersection operation modelling are summarised in Table 2, with full movement summaries presented in **Appendix B**.

Intersection	Peak	Leg	Degree of Saturation (DoS)	Average Delay (sec)	Average Queue (m)	Level of Service (LoS)
Liverpool Road / Victoria Street	**AM**	South	0.706	47	65	D
		East	0.408	8	34	A
		West	0.732	10	91	A
		Overall	**0.732**	**14**	**91**	**A**
	PM	South	0.279	28	35	B
		East	0.845	31	55	C
		West	0.831	34	151	C
		Overall	**0.845**	**32**	**151**	**C**
Queen Street / Harland Street	**AM**	South	0.374	6	6	A
		East	0.664	17	7	B
		North	0.265	3	0	A
		Overall	**0.664**	**17**	**7**	**B**
	PM	South	0.310	4	3	A
		East	0.508	12	5	A
		North	0.203	4	0	A
		Overall	**0.508**	**12**	**5**	**A**
Harland Street / Service Avenue	**AM**	South	0.024	8	0	A
		East	0.127	6	0	A
		North	0.008	7	0	A
		West	0.111	6	0	A

		Overall	**0.127**	**8**	**0**	**A**
	PM	South	0.018	7	0	A
		East	0.105	6	0	A
		North	0.006	6	0	A
		West	0.071	6	0	A
		Overall	**0.105**	**7**	**0**	**A**

Table 2: Existing Operation Conditions

Based on the results outlined in Table 2, the intersection of Liverpool Road/ Victoria Street currently operates at a satisfactory level of service with some spare capacity in peak conditions.

Liverpool Road (Hume Highway) is an arterial road where traffic signals support platooning with a highly favourable arrival pattern on east and west approaches of the intersection, such that approximately 80% of the traffic volume on these approaches arrive at the start of the green period. This results in slightly higher delays on Victoria Street (south approach), and right turns from the west approach of Liverpool Road. This is a common occurrence for intersections where minor roads intersect with major roads.

The priority-controlled intersections of Queen Street/ Harland Street and Harland Street/ Service Avenue also operate well with no significant average queues. It is noted that these priority-controlled intersections are modelled as a network, therefore, average vehicle queues are being reported as default SIDRA condition.

2.3 Intersection Operations for RFI Item 2 - Mitigations at Old Canterbury Road (Existing)

Under RFI Item 2 - Mitigations the request states:

> *"(a) For intersections of Old Canterbury Road with Prospect Road and Hurlstone*
>
> *Avenue, provide:*
>
> > *(i) further analysis and evidence of consultation with and endorsement from relevant road authorities to demonstrate that the proposed mitigation measures (such as clearways, parking restrictions) would be sufficient to offset impacts of increased student numbers* [and/ or]*"*

We note that the request, in this case, is seeking further clarification and analysis on the mitigations proposed in earlier submissions rather than seeking the intersections to perform within defined Level of Service parameters.

It is noted that these intersections were also modelled in earlier submissions for the project. However, due to some minor calibration issues, the models were unable to reflect existing operational conditions. As a result, the post-development scenarios developed over those models did not reflect a rational impact of development trips.

In the earlier model, the modelling showed the intersections with Old Canterbury Road operating at a LoS F. As a result of this poor Level of Service, a two-fold mitigation was proposed:

1. Implement peak Clearways on Old Canterbury Road (to provide additional capacity); and
2. Adjust the intersection of OCR/ Prospect Rd to enable a separate left and right turn movements from Prospect Road, implement a splitter island with pedestrian refuge, and ban the right turn from OCR into Prospect in the PM peak.

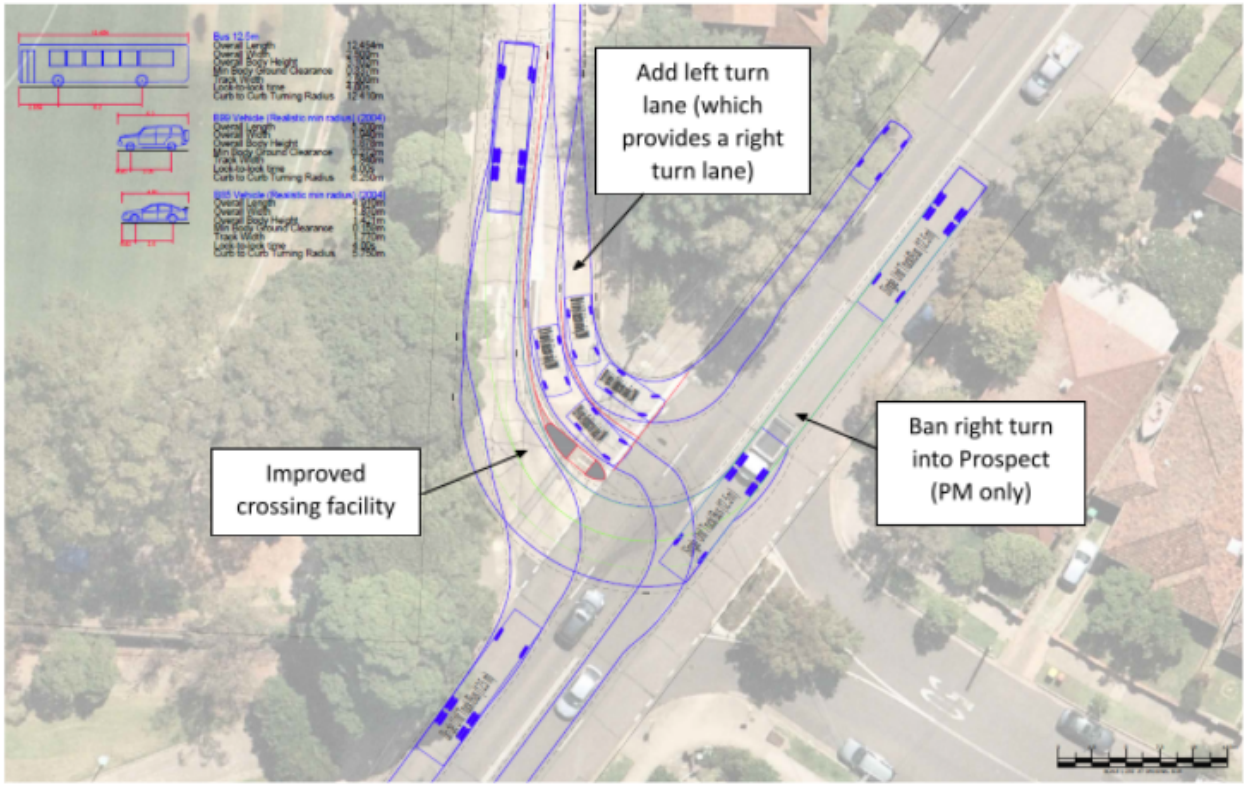


Figure 2 - Earlier proposed mitigation with intersection works and banned turning movement

Table 3 below outlines the SIDRA modelling results for priority-controlled intersections at Old Canterbury Road (OCR) from a calibrated and validated SIDRA model, and have been used for the post-development assessment.

Intersection	Peak	Leg	Degree of Saturation (DoS)	Average Delay (sec)	Average Queue (m)	Level of Service (LoS)
OCR/ Prospect Road/ Arlington Street	AM	Southeast	0.028	6	0	A
		Northeast	0.284	19	4	B
		North	0.545	50	7	D
		Southwest	0.457	5	0	A
		Overall	**0.545**	**50**	**7**	**D**
	PM	Southeast	0.034	5	0	A
		Northeast	0.613	10	2	A
		North	0.487	51	6	D
		Southwest	0.050	4	0	A
		Overall	**0.613**	**51**	**6**	**D**
OCR / Hurlstone Avenue	AM	Northeast	0.772	34	38	C
		West	0.764	53	13	D
		Southwest	0.435	5	0	A
		Overall	**0.772**	**53**	**38**	**D**
	PM	Northeast	0.549	11	8	A
		West	0.158	35	2	C
		Southwest	0.217	4	0	A
		Overall	**0.549**	**35**	**8**	**C**

Table 3: Existing Operation Conditions of the intersections along OCR

Based on the results shown in Table 3, the priority-controlled intersection of OCR/Prospect Road operates at LoS D. By looking into the intersection from each approach, it was found that

the critical movement is the right turn out of Prospect Road to OCR which possesses the highest delay and results in an overall delay of LoS D.

In addition, the priority-controlled intersection of OCR/ Hurlstone Avenue was found to be operating at LoS D and C in the morning and afternoon peak, respectively. Similar to the OCR /Prospect intersection, the critical movement at this intersection is associated with the right turning movement from the minor road at the intersection (i.e. Hurlstone Avenue) rather than the dominant movement on the arterial road (i.e. Old Canterbury Road).

It is noted that slightly higher delays faced by the right turning movement is a common scenario which generally occurs when a major road such as Old Canterbury Road intersects with local roads. Based on the above, the intersection of Old Canterbury Road operates at an acceptable LoS.

3 Traffic Impact Assessment

3.1 Proposed Vehicle Access

The proposed development includes the expansion of the existing underground carpark at Trinity Grammar School with access from the Victoria Street frontage. The existing underground carpark beneath Oval 2 will be expanded and connected to a new carpark beneath Oval 3. As part of these works, the existing car park entry next to Yeo Park will be improved, and with the connected underground carparking areas, will enable alternative entry and exit patterns than currently exist.

In addition, the car parking layout within the carpark is proposed to be realigned, which will allow additional drop-off/pick-up bays and queuing space for the vehicles in circulation. This pick-up/ drop-off and queuing capacity has been addressed in detail in previous submissions.

Figure 3 shows the proposed vehicle access to the site. At the completion of the proposed carpark, the vehicles exiting the site to the north on Victoria Street would use the northern access, whereas the vehicles exiting to the south would use southern access.

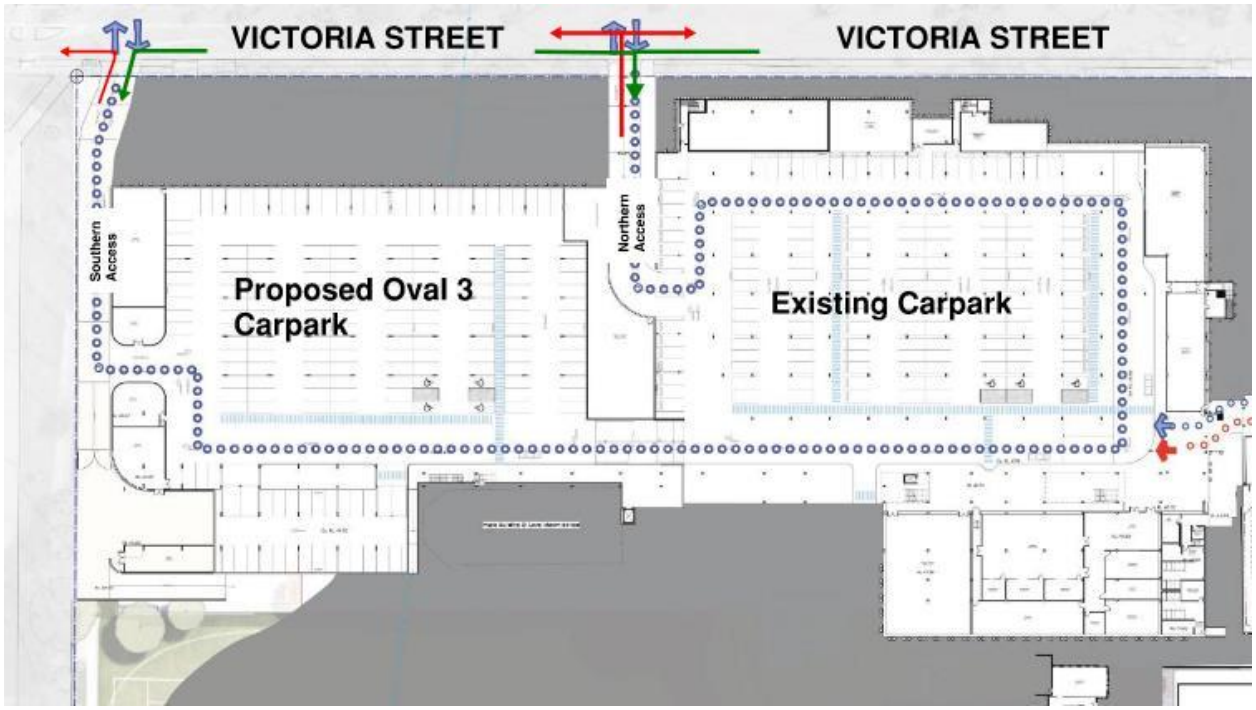


Figure 3: Proposed vehicle access to the site

Inbound movements from north and south off Victoria Street can only occur via the main car park entry (i.e. northern access), while the Yeo Park entry (i.e. southern access) would support a left in/ left out function except for heavy vehicles that will be allowed to turn right out of the car park.

The proposed strategy would split the exiting traffic, subsequently reducing the load on any one access, and effectively distributing it to the surrounding network.

This distribution pattern for the car park traffic will be further developed and captured within an Operational Traffic and Management Plan, and the heavy vehicle movements captured within a Service Vehicle Management Plan. Both of these plans will be developed at a later stage as part of the proposed development.

3.2 Traffic Generation

As noted above, the traffic generation associated with the proposed development has been adopted from the original Transport & Access Assessment submitted as a part of the Environmental Impact Statement for the SSDA.

Based on the earlier assessment, we maintain that the proposed development is likely to generate 196 student and 36 staff trips resulting in a total of 232 additional trips. Table 4 outlines the peak hour traffic generation resulting from the proposal.

Peak	Type	In	Out
AM	Student	196	82
	Staff	36	0
PM	Student	45	196
	Staff	0	18

Table 4: Traffic generation estimates

It is noted that these trips also include 82 AM and 45 PM pick-up and drop-off trips as outlined in an earlier submission by Street Level Strategies.

3.3 Distribution and Assignment

The distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the:

- configuration of the arterial road network in the immediate vicinity of the site;
- existing operation of intersections providing access between the local and arterial road network;
- origin and destination of students and staff; and
- configuration of access points to the site.

Based on the above, Figure 4 and Figure 5 below show the anticipated trip distribution of the additional traffic following the completion of the proposed development.

The proposed trip distribution assumes that approximately 30% of the development traffic travelling north on Victoria Street would distribute before the intersection of Liverpool Road / Victoria Street.

This assumption is based on the travel mode survey carried out in 2020, which identified a significant portion of the students travel to and from Strathfield and surrounding suburbs.

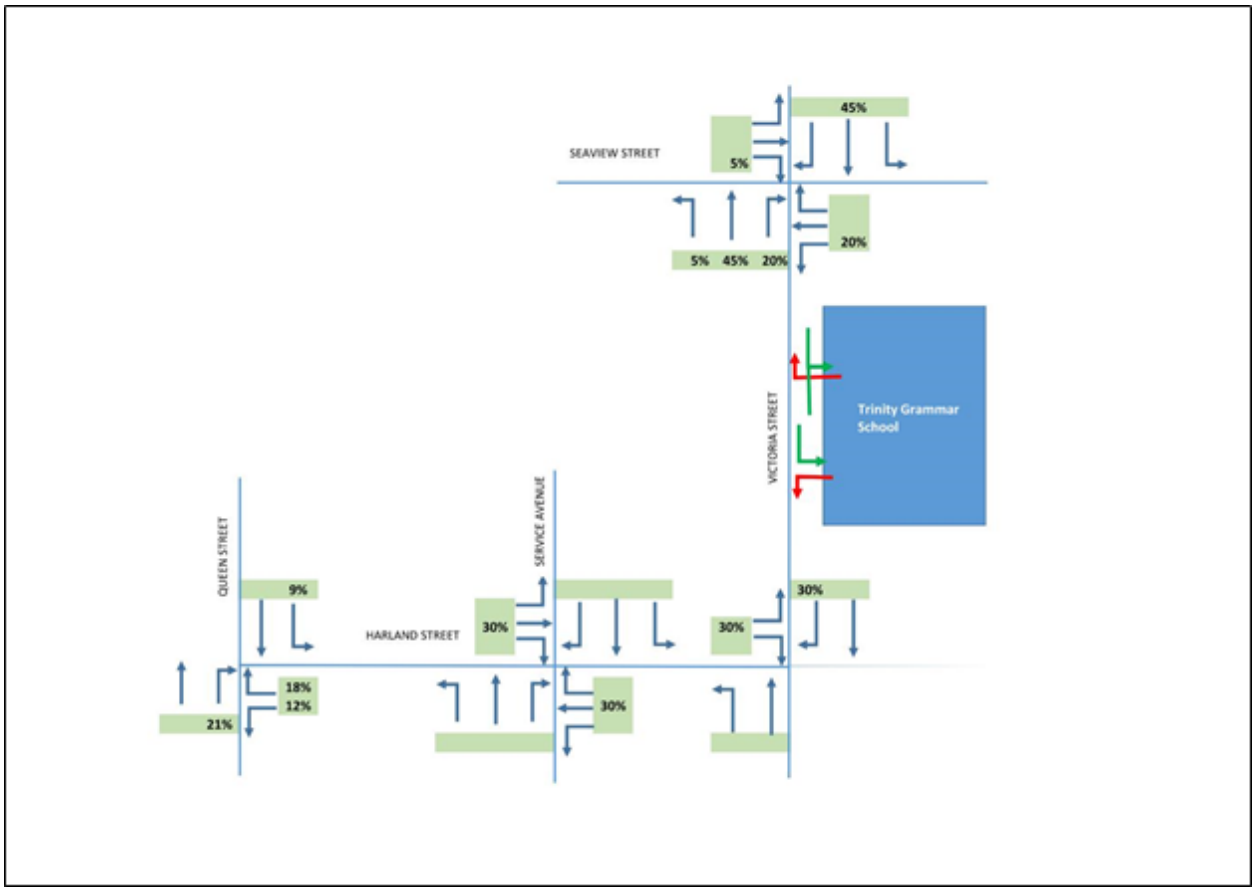


Figure 4: Trip distribution AM peak

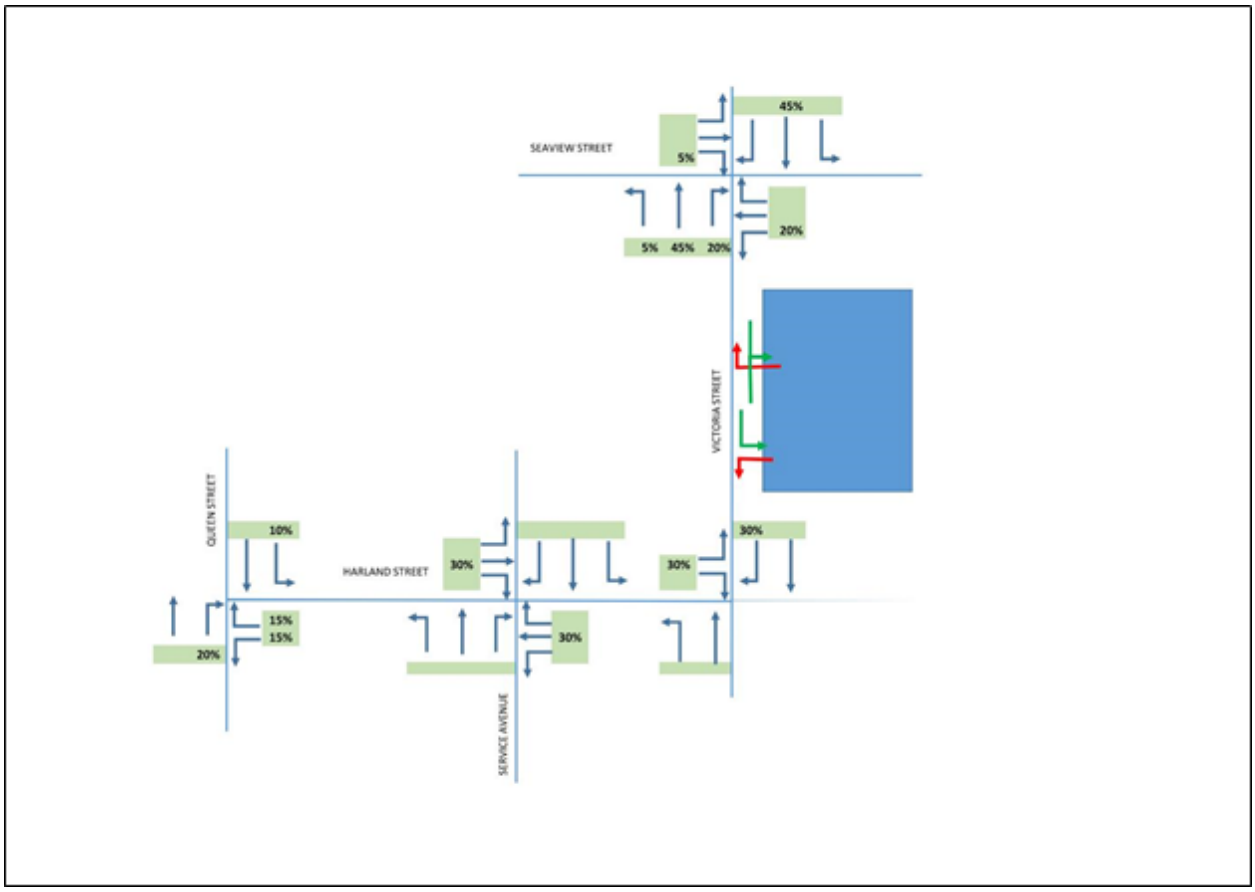


Figure 5: Trip distribution PM peak

4 Post-Development Traffic Impact

4.1 Post-Development intersection operations for RFI Item 1- Traffic Analysis

The impact of the expected traffic generated by the proposed development was assessed using SIDRA Intersection on the nominated study intersections. The results of the post-development intersection operation modelling are summarised in Table 5, with full movement summaries presented in Appendix B.

Intersection	Peak	Leg	Degree of Saturation (DoS)	Average Delay (sec)	Average Queue (m)	Level of Service (LoS)
Liverpool Road / Victoria Street	**AM**	South	0.824	53	78	D
		East	0.434	8	35	A
		West	0.837	15	120	B
		Overall	**0.837**	**17**	**120**	**B**
	PM	South	0.359	29	47	C
		East	0.855	32	55	C
		West	0.865	37	170	C
		Overall	**0.865**	**33**	**170**	**C**
Queen Street / Harland Street	**AM**	South	0.429	6	9	A
		East	0.812	25	12	B
		North	0.276	3	0	A
		Overall	**0.812**	**25**	**12**	**B**
	PM	South	0.319	4	3	A
		East	0.701	15	10	B
		North	0.206	4	0	A
		Overall	**0.701**	**15**	**17**	**B**
Harland Street / Service Avenue	**AM**	South	0.024	9	0	A
		East	0.141	7	0	A
		North	0.009	8	0	A
		West	0.150	7	0	A
		Overall	**0.150**	**9**	**0**	**A**

		South	0.019	8	0	A
		East	0.140	6	0	A
	PM	North	0.006	7	0	A
		West	0.079	6	0	A
		Overall	**0.140**	**8**	**0**	**A**

Table 5: Post development intersection operation conditions

The above assessment shows that at the completion of the proposed development with additional students and staff attending will have a minor impact on the ongoing operations of the surrounding intersections. However, the proposed development would not deteriorate the intersection performance below an overall LoS C.

A comparison of the post-development analysis against existing intersection performance found that the degree of saturation, average delay, average queue and level of service along Liverpool Road in an east-west direction remain relatively consistent with the existing conditions.

The additional traffic generated by the proposed development and subsequent impact on queuing and delays is contained within the site and along local roads. This is evident in the fact that the post-development traffic impact does not significantly impact the overall operation of the intersections within this assessment.

4.2 Post-Development intersection operations for RFI Item 2 - Mitigations at Old Canterbury Road

The post-development traffic impact was also assessed on the nominated study intersections along with Old Canterbury Road (OCR). The results of the post-development intersection operation modelling are summarised in Table 6, with full movement summaries presented in Appendix C.

Intersection	Peak	Leg	Degree of Saturation (DoS)	Average Delay (sec)	Average Queue (m)	Level of Service (LoS)
OCR / Prospect Road/ Arlington Street	AM	Southeast	0.027	6	0	A
		Northeast	0.299	19	10	B

		North	0.554	52	20	D
		Southwest	0.462	6	0	A
		Overall	**0.554**	**52**	**20**	**D**
	PM	Southeast	0.025	6	0	A
		Northeast	0.652	13	4	A
		North	0.576	54	18	D
		Southwest	0.257	5	0	A
		Overall	**0.652**	**54**	**18**	**D**
OCR / Hurlstone Avenue	AM	Northeast	0.834	38	44	C
		West	0.792	53	15	D
		Southwest	0.435	7	0	A
		Overall	**0.834**	**53**	**44**	**D**
	PM	Northeast	0.568	12	9	A
		West	0.178	38	2	C
		Southwest	0.217	7	0	A
		Overall	**0.568**	**38**	**9**	**C**

Table 6: Post development intersection operation conditions along OCR

The analysis results indicate that with the development traffic, the intersection along OCR is anticipated to operate at the same LoS when compared with existing conditions. The development traffic would result in a minor increase in queuing on Prospect Road approach.

4.2 Proposed works at Prospect Road

The previous mitigation measures such as the introduction of clearways along OCR, combined with additional storage lanes on Prospect Road to allow left and right turns out, were proposed as a part of earlier traffic assessment.

However, based on the above assessment, the proposed development is unlikely to create any significant queuing. The existing geometry of the Prospect Road approach allows only one vehicle waiting to turn right or left into OCR, resulting in higher delays faced by vehicles on the approach.

In order to improve the delays and reduce queuing on Prospect Road, it is proposed to provide a left turn lane at the approach of Prospect Road (see Figure 6).

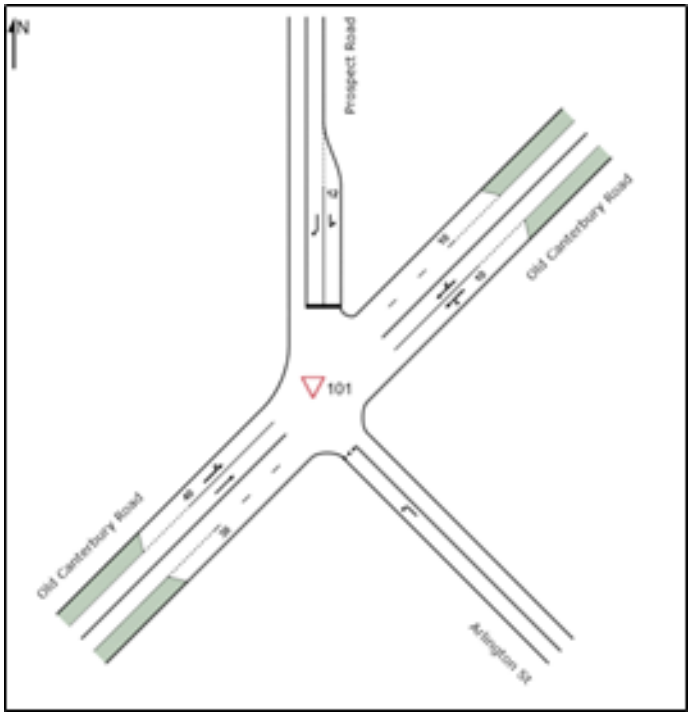


Figure 6: Revised proposed mitigation on Prospect Road

Note that it is expected this work can be carried out within the existing kerb alignment.

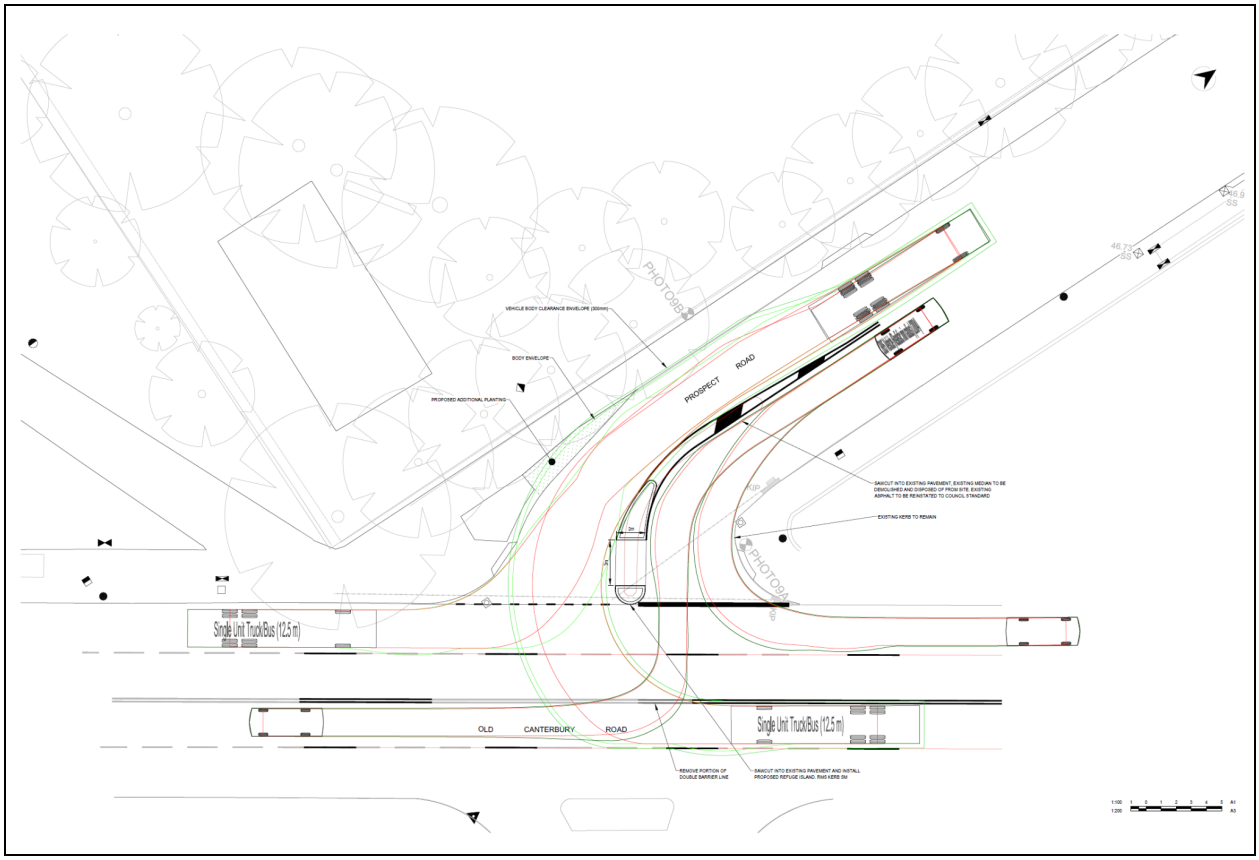


Figure 7: Proposed works with pedestrian refuge (to TfNSW Technical Direction requirements)

The proposed mitigation measure has been modelled to assess the improvement in post-development traffic operations. The proposed works at Prospect Road also provide for a splitter pedestrian refuge (designed to Transport for NSW Technical Direction) to improve the crossing facilities available at this intersection.

Table 7 outlines the post-development intersection modelling results.

Intersection	Peak	Approach	Degree of Saturation (DoS)	Average Delay (sec)	Average Queue (m)	Level of Service (LoS)
OCR / Prospect Road/ Arlington Street	AM	Southeast	0.028	6	0	A
		Northeast	0.293	19	10	B
		North	0.505	49	14	D
		Southwest	0.462	5	0	A
		Overall	**0.505**	**49**	**14**	**D**
	PM	Southeast	0.026	6	0	A
		Northeast	0.621	13	4	A
		North	0.573	55	15	D
		Southwest	0.257	5	0	A
		Overall	**0.621**	**55**	**15**	**D**

Table 7: Post development intersection operation with proposed mitigation on Prospect Road approach

The assessment outlined in the table above shows a significant reduction in vehicle queuing along Prospect Road.

Overall, against existing traffic volumes in the vicinity of the site, combined with anticipated intersection upgrades, the additional traffic generated by the proposed development could not be expected to compromise the safety or function of the surrounding road network.

5 Consultation with road authorities

As part of the additional traffic assessment for this RFI, consultation was carried out for RFI Items 1 and 2 with the relevant roads authorities:

- Transport for NSW (road authority for Old Canterbury Road and Liverpool Road)
    - Mr Brett Morrison (Land Use Assessment); and
    - Mr Mark Carruthers (Development Assessment)

- Inner West Council (road authority for all other streets and roads in the scope of the assessment)
    - Mr Conor Wilson (Senior Planner);
    - Mr Boris Muha (Traffic Engineer); and
    - Mr Joe Bertacco (Coordinator Development Engineering)

Consultation occurred on 27 May 2021 with Inner West Council, and on 31 May 2021 with Transport for NSW. Both meetings were held online. Also attending were representatives from Street Level Strategies (transport consultant for Trinity Grammar School) and Bloompark Consulting (project manager for Trinity Grammar School).

A presentation was given by Street Level Strategies and prior to the meeting each road authority was provided with a copy of the presentation and the SIDRA modelling results. A copy of the presentation is at Appendix C.

On 1 June 2021 following the consultation meeting on 31 May 2021, Transport for NSW requested the SIDRA model files be provided for review, and they were sent via email the same day.

The table below outlines the matters raised by each road authority and where they have been addressed within this RFI.

Road Authority	Comment/ Item raised	Response	Location addressed
Inner West Council	Concern that traffic movements from the main car park entry/ exit are forced left and this creates an uneven distribution of traffic towards Harland Street	During the meeting, and following the meeting, it was confirmed that as part of this project the traffic distribution from the car park will allow left and right turn movements out, and that this will be captured in the Operational Traffic and Management Plan.	Section 3.1 & in the future Operational Traffic and Management Plan
	Concern about proposed Clearways on Old Canterbury Road	It was confirmed that as a result of this further analysis, no Clearways or parking changes are being proposed.	Sections 2.3 & 4.2
	Council were supportive of a pedestrian refuge and splitter island being proposed for Prospect Road (to TfNSW	It was confirmed that the proposed intersection works at Prospect Road, including the pedestrian refuge (to	Section 4.2

	Technical Direction) Council were not supportive of the previously proposed banned right turn in the PM peak from OCR into Prospect Road	TfNSW TD) would go ahead, and that no turning movements were proposed to be banned.	
Transport for NSW	Given no amendments are being made to traffic signals, no issues or concerns were raised	Noted	N/A

Table 8: Consultation matrix of comments and responses

Both Inner West Council and Transport for NSW have provided their written in-principle approval and this can be found at Appendix C.

We also note that following the meetings we corrected a minor input error in the SIDRA model for Queen Street/ Harland Street which amended the Level of Service in the Future PM scenario from a LoS C to a LoS B. Both Inner West Council and TfNSW were notified of this change via email.

The following process was outlined by Inner West Council for any proposed traffic works:

1. The proposed works are to be placed on public exhibition via this SSDA process;
2. Following public exhibition, draft detailed plans are to be provided to Council to show the proposed works;
3. Consultation with local residents is to take place showing the detailed plans/ proposal and a provide to the satisfaction of Council with a report/ statement summarising any submissions and how those submissions will be resolved (plus revised plans, as relevant); and
4. The report/ statement with submission/ responses and finalised design plans will be reported to the Local Traffic Committee for consideration and recommendation to Council for approval, prior to the issue of a construction certificate.

For civil works,the following process is required by Inner West Council:

- Public domain works will require Design Approval via a Step1 Application (see link below) which is separate to the traffic committee process.

https://www.innerwest.nsw.gov.au/live/information-for-residents/roads-and-footpaths/footpaths-and-driveways

- Council's standard drawings should be utilised for any relevant aspects of the design and can be found using the link below:

https://www.innerwest.nsw.gov.au/develop/development-support/works-within-roads-or-footpaths/public-domain-works-council-standard-drawings

Part 2: RFI Item 3 - Green Travel Plan

The third item to be addressed as part of the RFI is a revision to the Green Travel Plan (GTP) as per below:

> ***Green Travel Plan (GTP)***
>
> *(a) The GTP is to be revised and further details to include:*
>
> *i) specific tools and actions to help achieve the objectives and mode share targets;*
>
> *ii) details to demonstrate how bus services would be increased and accommodated to satisfy the additional demand likely to be generated by additional students;*
>
> *iii) measures to promote and support the implementation of the plan, including financial and human resource requirements, roles and responsibilities for relevant employees involved in the implementation of the GTP; and*
>
> *iv) the methodology and monitoring/review program to measure the effectiveness of the objectives and mode share targets of the GTP, including the frequency of monitoring and the requirement for travel surveys to identify travel behaviours of users of the development.*

This GTP is a revision of the plan submitted by TTM Consulting in April 2020 for the Environmental Impact Statement. It is not an entirely new GTP.

For context, in July 2020 TTM Consulting closed its NSW consulting division (where Mel Fyfe of Street Level Strategies was employed as a Director) and to maintain continuity, Street Level Strategies has been engaged since the Response to Submissions. A cover letter on this matter has been provided at Appendix E.

As a result, the GTP has been revised and updated to respond to the RFI in April 2021. The revised GTP can be found at Appendix D, however a summary is provided below.

GTP Summary

This revision of the GTP provides a clearer approach than the previous plan on the actions required to achieve the target 10% shift in mode share toward sustainable travel by 2030.

Implementing a Green Travel Plan is an exercise in behavioural change and Trinity Grammar School is starting from a strong base. As evidenced by travel surveys of students and staff between 2013-2020, the school has already achieved an 8% shift to sustainable modes in seven years.

This history of achieving modal shift sends very strong signals that the target 10% mode shift set in this GTP will be achieved, and may potentially be exceeded.

The core of the strategy to achieve the 2030 target is to:

1. Increase travel by active transport through:
    - Improved cycling facilities (creating 96 bicycle parking spaces on campus);
    - Removing barriers to active travel (e.g. building riders skills and confidence through continuing the mandatory Year 9 rider training and a 'bike bus');
    - Advocating for improved infrastructure (e.g. safe pedestrian crossing facilities to access to public transport services);
    - Participating in activities such as National Walk/ Cycle to Work/ School Days; and
    - Creating cycling communities (e.g. Bicycle User Groups).
2. Increase travel by public transport through:
    - Providing shuttle services between Ashfield and Summer Hill train stations in the AM and PM peaks to assist with the 'last mile'; and
    - Incentivising staff to travel by public transport.
3. Increase use of Trinity bus services through:
    - Continued monitoring of patronage and service levels, and increase as necessary
4. Reducing the number of car trips (particularly single-occupancy trips) by:
    - Implement carpool initiatives for staff;
    - Promoting public and active transport to school events above car travel/ car parking;

- Continue to implement flexible learning timetables for Senior years;
- Implement remote working program for support staff; and
- Not significantly increasing the level of car parking within the school.

5. Engagement and governance on the GTP through:
    - Consistent and deliberate consultation and engagement with staff, students, parents and stakeholders about transport choices and behaviours;
    - Designating the Head of Operations - Summer Hill role as the responsible person for the plan (with support from others);
    - Embedding a regular reporting, review and monitoring framework for the plan; and
    - Ensuring the School Executive and School Council has full visibility of the GTP progress against targets and actions.

This revision of the GTP provides greater clarity on the proposed actions, governance and how implementation of the plan will be resourced. A summary of the GTP actions are outlined with the GTP at Appendix D within Table 7 and the Monitoring Framework within Table 9.

Conclusion

This letter and report has been prepared to respond to the RFI from the Department of Planning, Industry and Environment dated 15 April 2021 regarding the proposed development at Trinity Grammar School (SSD-10371).

The RFI was issued to carry out further traffic analysis and revise the Green Travel Plan that was previously submitted with the Environmental Impact Statement.

Street Level Strategies has carried out all the works required within this RFI including SIDRA modelling, consultation with authorities (including written in-principle agreement) and preparing a revised Green Travel Plan.

This document demonstrates that the additional works as issued in the RFI have been completed.

Appendix A – Data Counts

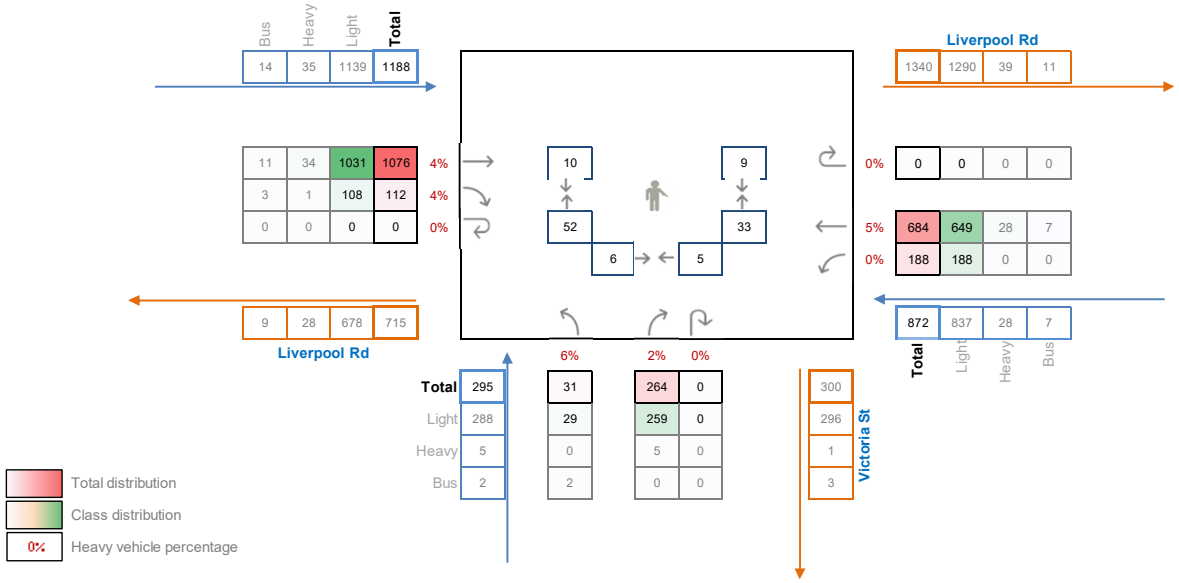
Location: Hume Hwy & Victoria St
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 7:30 to 8:30
Notes: 0

AM Peak: 07:00-08:00
PM Peak: 16:45-17:45

Class 1: Light

Class 2: Heavy

Class 3: Bus



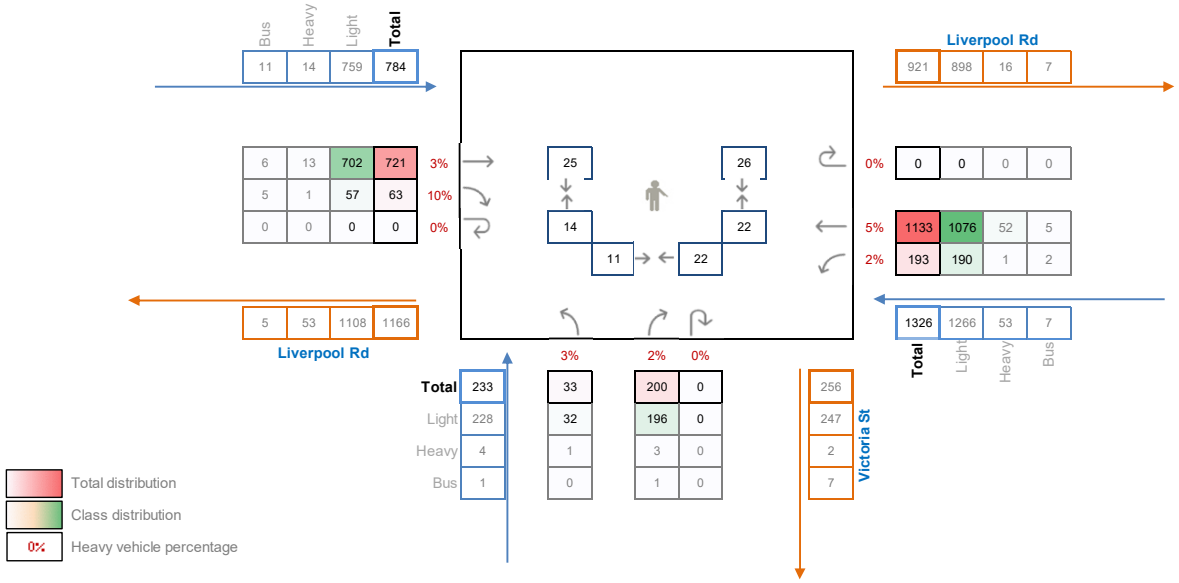
Location: Hume Hwy & Victoria St
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 14:45 to 15:45
Notes: 0

AM Peak: 07:00-08:00
PM Peak: 16:45-17:45

Class 1: Light

Class 2: Heavy

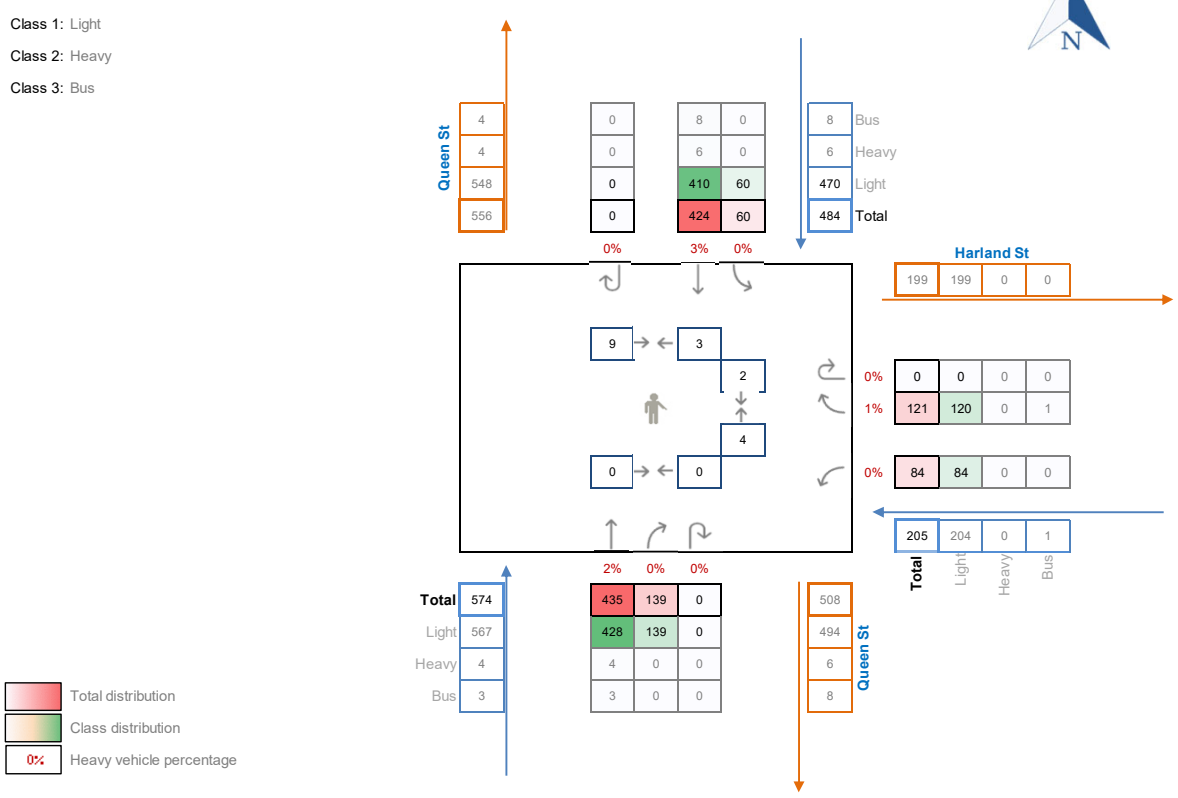
Class 3: Bus



Location: Queen St & Harland St
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 7:30 to 8:30
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 17:00-18:00

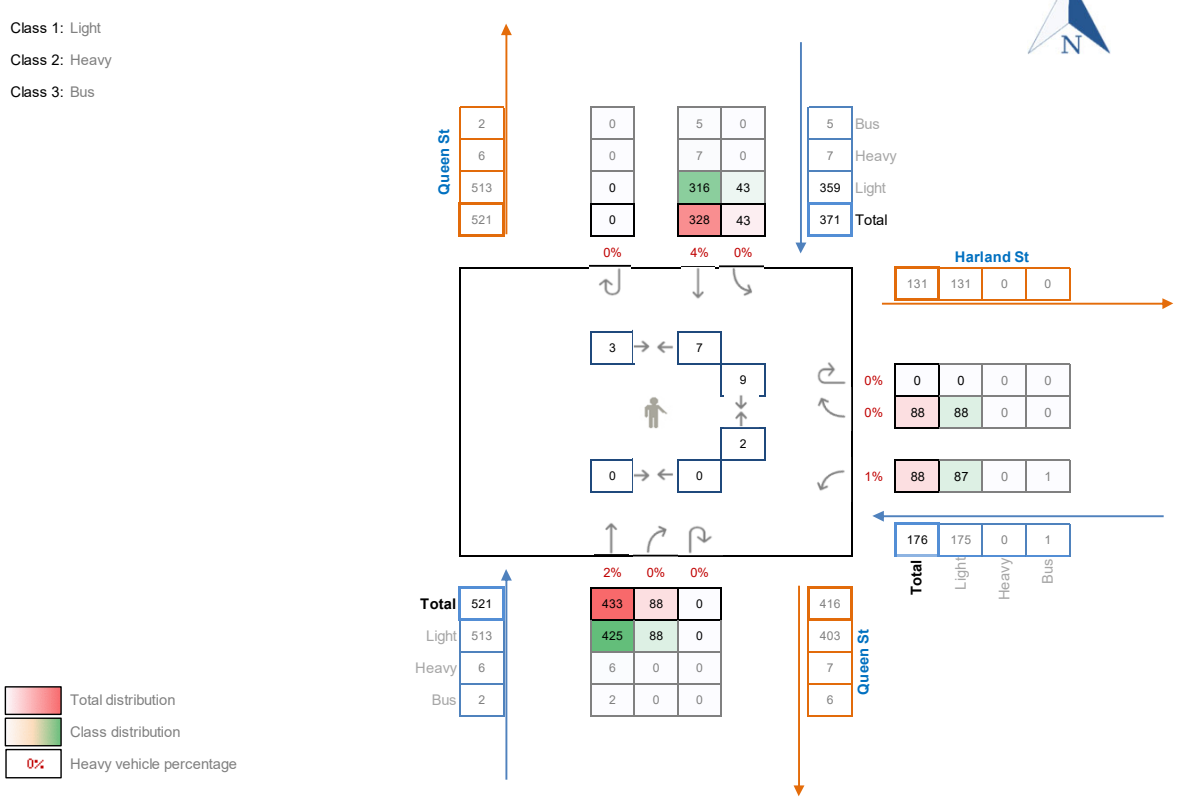
Class 1: Light
Class 2: Heavy
Class 3: Bus



Location: Queen St & Harland St
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 14:45 to 15:45
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 17:00-18:00

Class 1: Light
Class 2: Heavy
Class 3: Bus

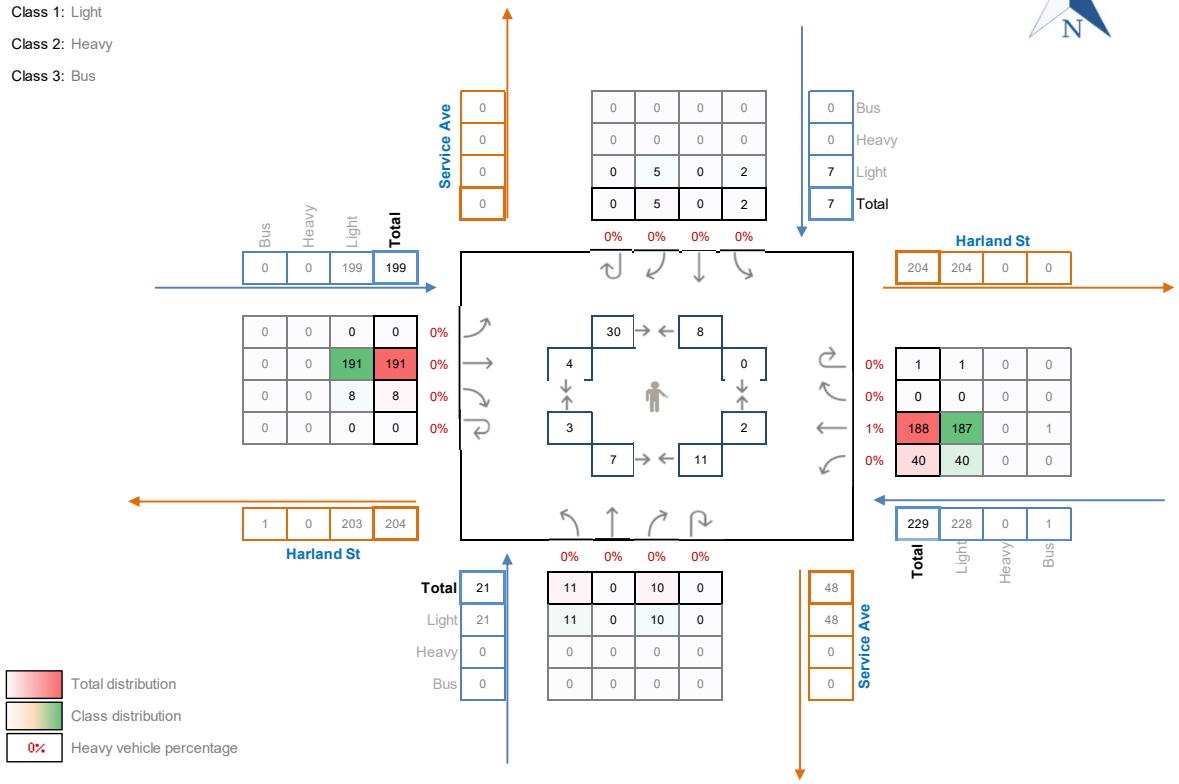


Total distribution
Class distribution
0% Heavy vehicle percentage

Location: Harland St & Service Ave
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 7:30 to 8:30
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 15:15-16:15

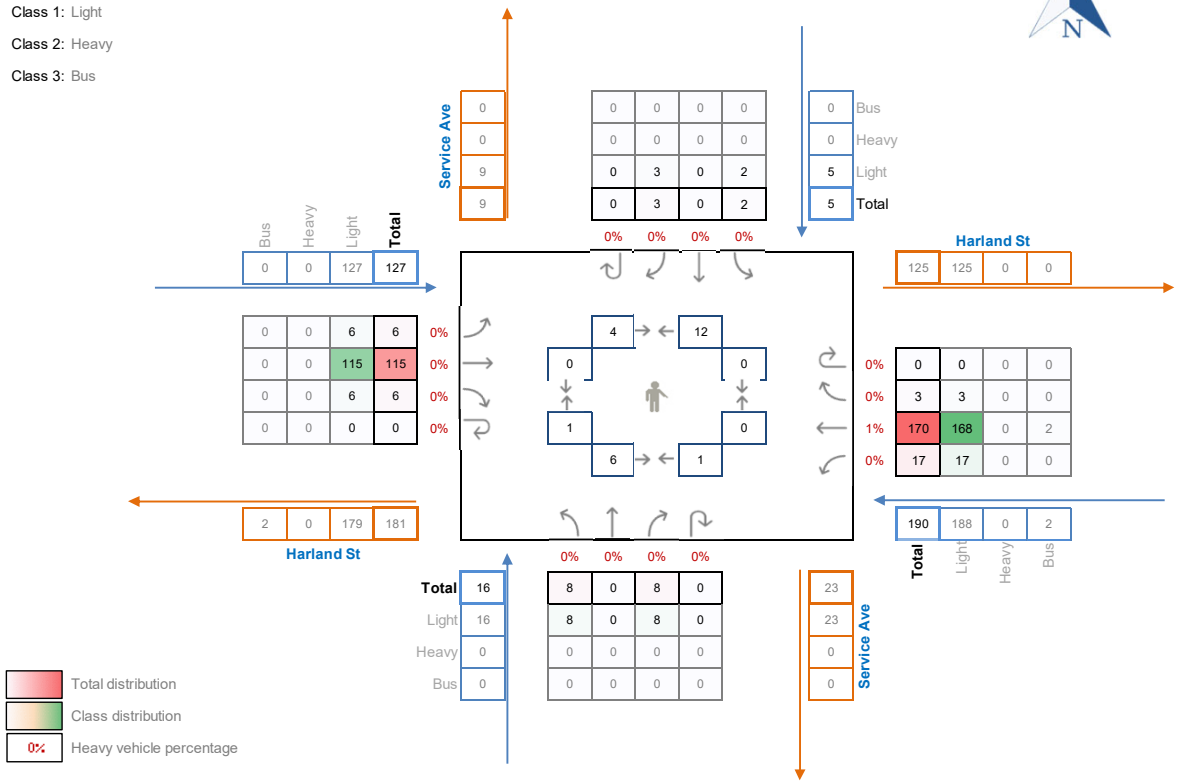
Class 1: Light
Class 2: Heavy
Class 3: Bus



Location: Harland St & Service Ave
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 14:45 to 15:45
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 15:15-16:15

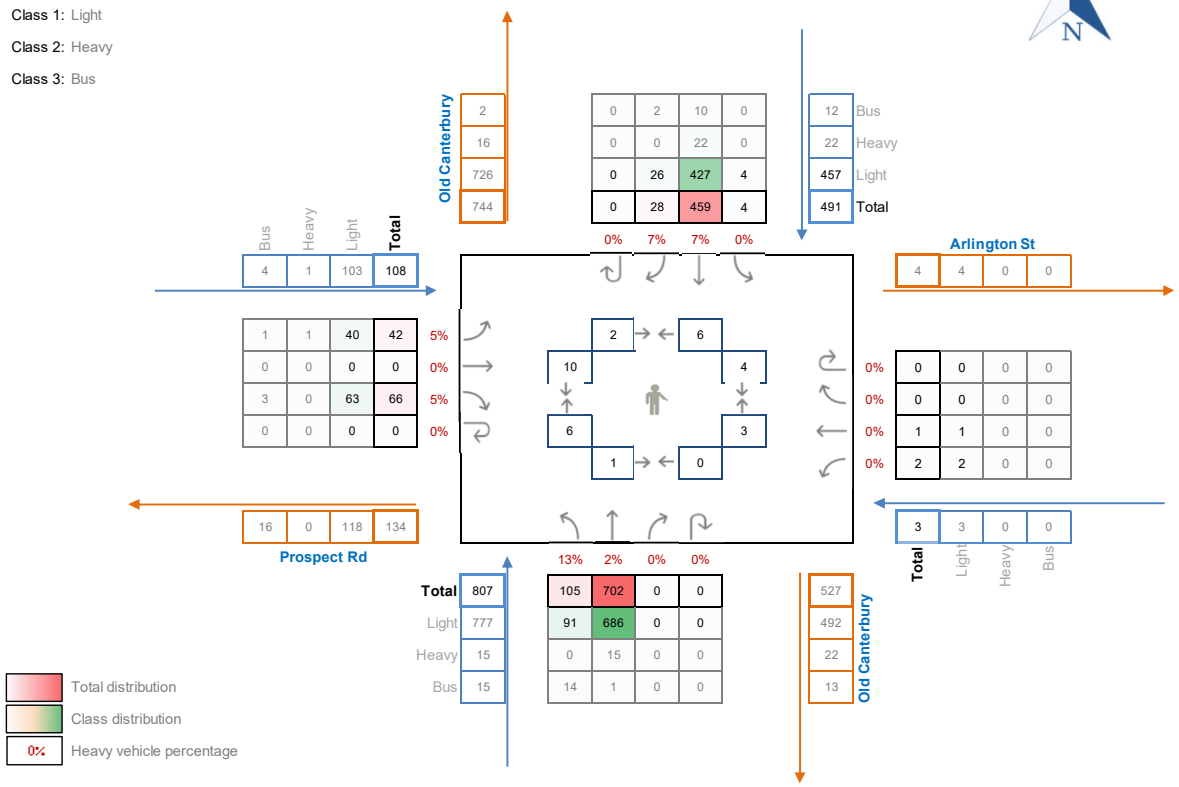
Class 1: Light
Class 2: Heavy
Class 3: Bus



Location: Old Canterbury Rd & Prospect Rd
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 7:30 to 8:30
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 14:45-15:45

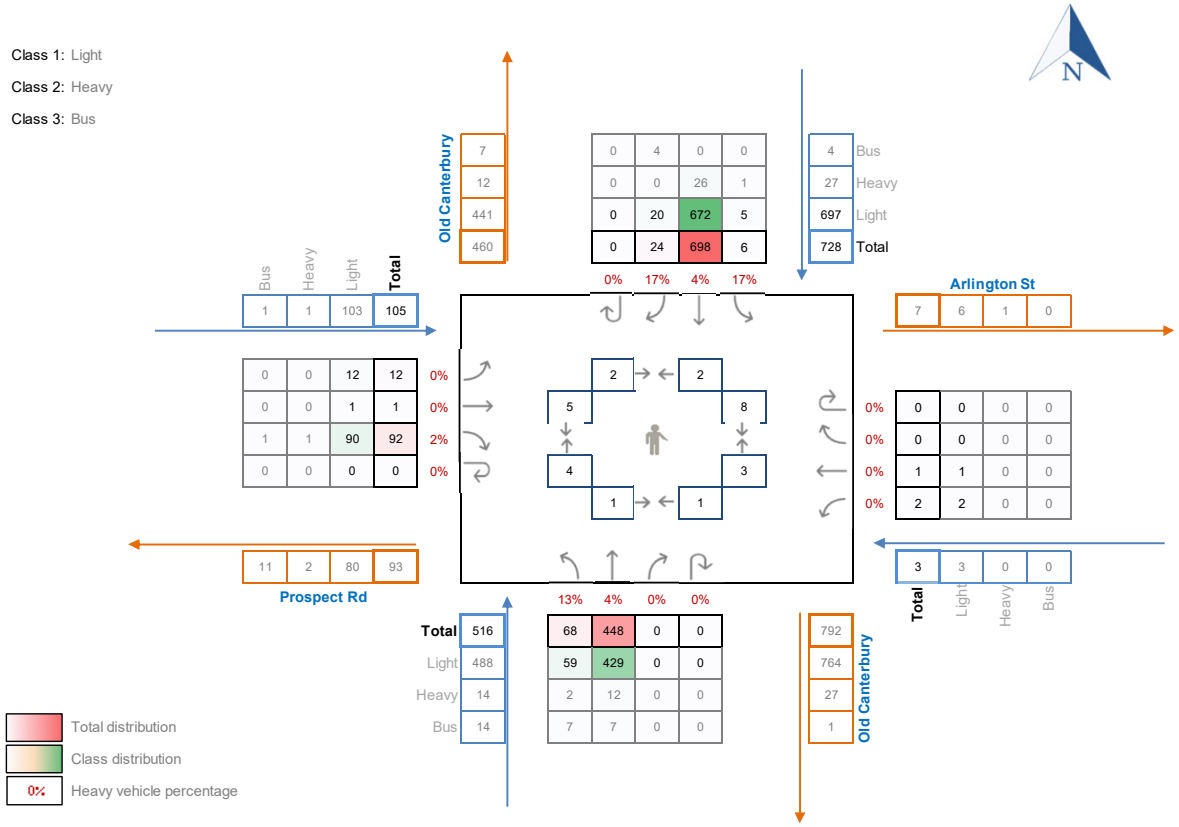
Class 1: Light
Class 2: Heavy
Class 3: Bus



Location: Old Canterbury Rd & Prospect Rd
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 14:45 to 15:45
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 14:45-15:45

Class 1: Light
Class 2: Heavy
Class 3: Bus

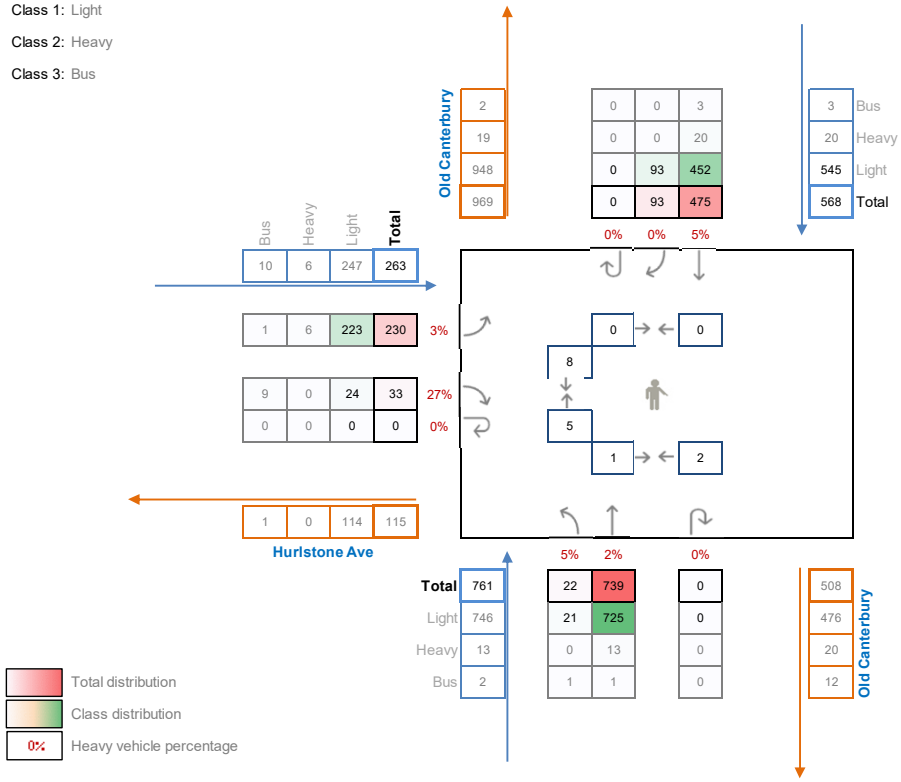


Total distribution
Class distribution
0% Heavy vehicle percentage

Location: Old Canterbury Rd & Hurlstone Ave
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 7:30 to 8:30
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 17:00-18:00

Class 1: Light
Class 2: Heavy
Class 3: Bus

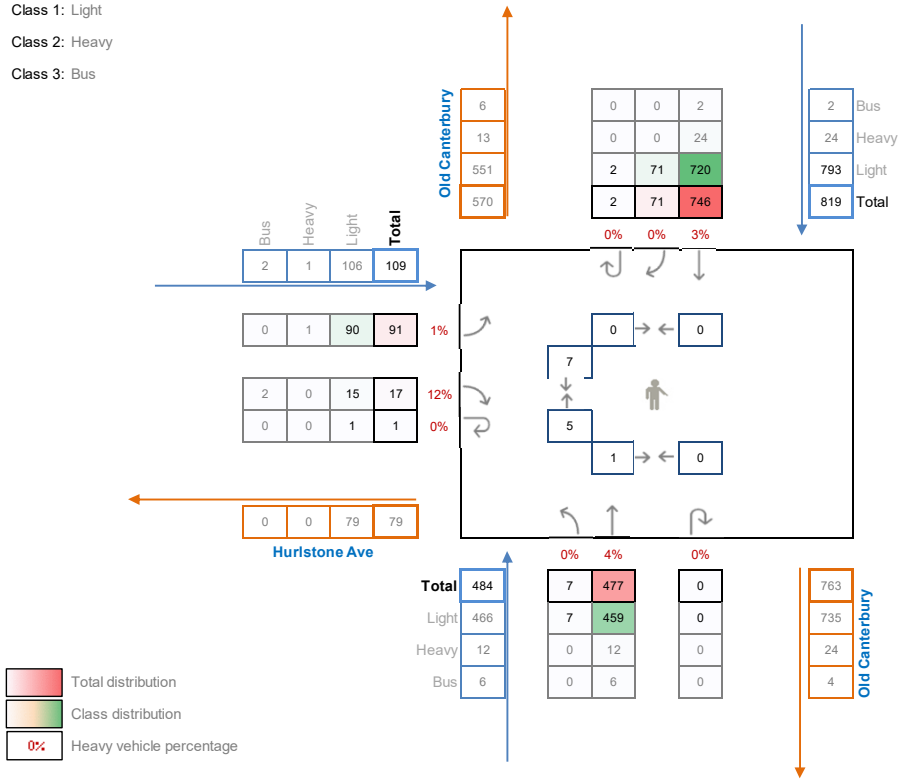


Total distribution
Class distribution
0% Heavy vehicle percentage

Location: Old Canterbury Rd & Hurlstone Ave
Date: 21 April 2021
Survey Duration: 0600-1900
Survey Period: 14:45 to 15:45
Notes: 0

AM Peak: 07:30-08:30
PM Peak: 17:00-18:00

Class 1: Light
Class 2: Heavy
Class 3: Bus



Total distribution
Class distribution
0% Heavy vehicle percentage

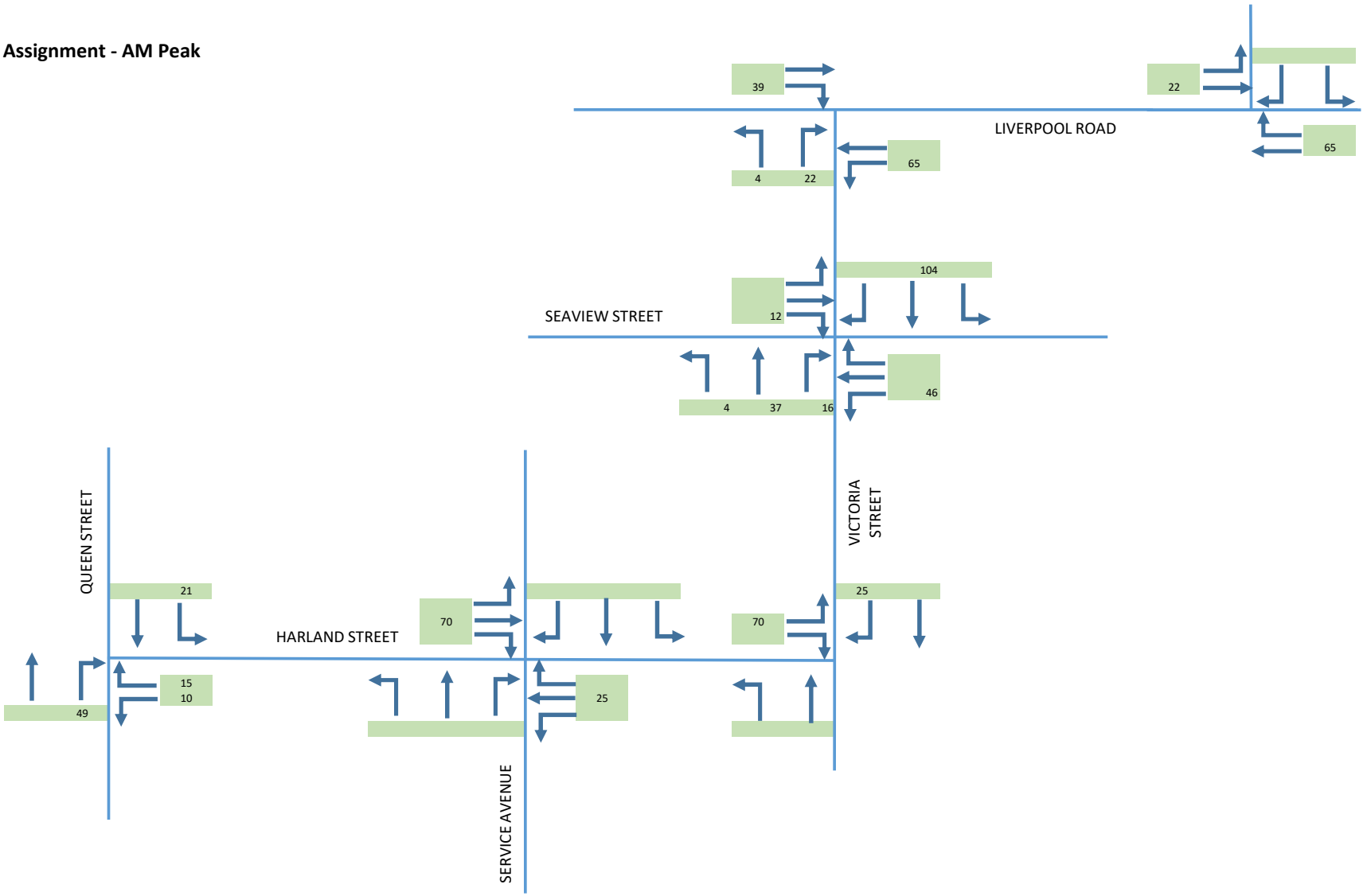
street
level
strategies

Appendix B – Traffic Assignment and SIDRA Movement Summaries

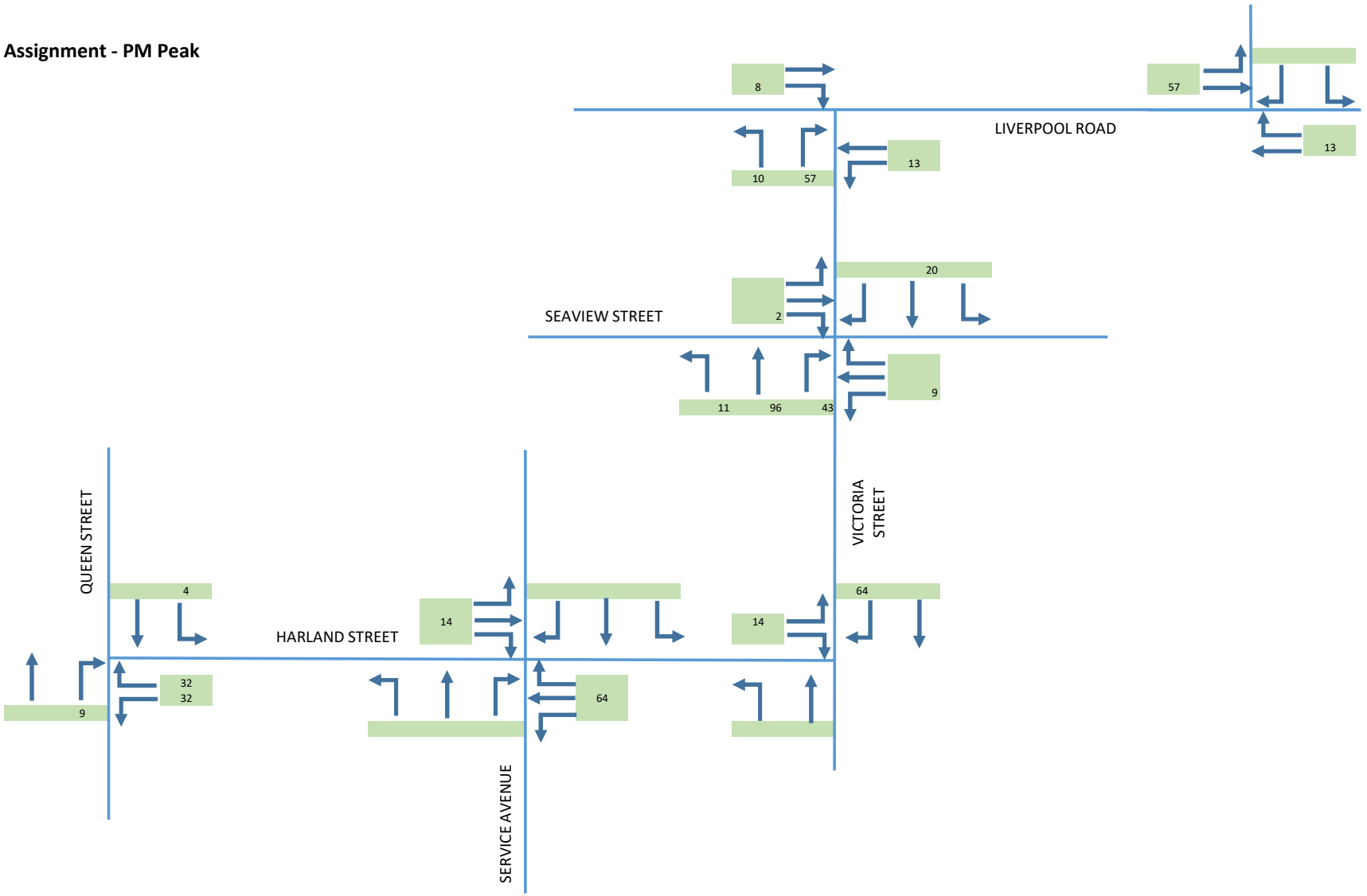
Appendix B

- Traffic Assignment
- SIDRA Movement Summaries

Trip Assignment - AM Peak



Trip Assignment - PM Peak



SIDRA Movement Summary of the following intersections:

- Liverpool Road / Victoria Street
- Queen Street / Harland Street
- Harland Street / Service Avenue

MOVEMENT SUMMARY

Site: 1 [Liverpool Road / Victoria Street-Base-AM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-Basecase-AM Peak]

Existing-AM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Victoria Street														
1	L2	33	1.0	33	1.0	0.071	40.1	LOS C	0.9	6.3	0.79	0.69	0.79	14.8
3	R2	278	3.0	278	3.0	0.706	47.6	LOS D	9.0	64.8	0.94	0.84	0.97	8.0
Approach		311	2.8	311	2.8	0.706	46.8	LOS D	9.0	64.8	0.93	0.82	0.95	8.8
East: Liverpool Road														
4	L2	198	0.0	198	0.0	0.408	11.1	LOS A	4.7	33.8	0.32	0.42	0.32	26.2
5	T1	720	5.0	720	5.0	0.408	7.0	LOS A	4.7	33.8	0.30	0.32	0.30	27.9
Approach		918	3.9	918	3.9	0.408	7.9	LOS A	4.7	33.8	0.30	0.34	0.30	27.5
West: Liverpool Road														
11	T1	1133	4.0	1133	4.0	0.732	9.9	LOS A	12.6	90.9	0.48	0.46	0.48	22.1
12	R2	118	4.0	118	4.0	0.732	15.8	LOS B	7.5	54.2	0.52	0.54	0.53	25.6
Approach		1251	4.0	1251	4.0	0.732	10.4	LOS A	12.6	90.9	0.49	0.47	0.49	22.6
All Vehicles		2479	3.8	2479	3.8	0.732	14.0	LOS A	12.6	90.9	0.47	0.46	0.48	20.6

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.
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
P1	South Full Crossing	12	54.2	LOS E	0.0	0.0	0.95	0.95
P2	East Full Crossing	44	54.2	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	65	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		121	54.3	LOS E			0.95	0.95

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: 2 [Liverpool Road / Grimmond Avenue-Base-AM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-Basecase-AM Peak]

Existing-AM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Liverpool Road														
5	T1	918	5.0	918	5.0	0.344	0.4	LOS A	0.5	3.5	0.03	0.03	0.03	38.2
6	R2	47	0.0	47	0.0	0.142	8.1	LOS A	0.3	2.3	0.27	0.55	0.27	22.7
Approach		965	4.8	965	4.8	0.344	0.8	LOS A	0.5	3.5	0.04	0.05	0.04	36.5
North: Grimmond Avenue														
7	L2	16	0.0	16	0.0	0.051	26.9	LOS B	0.3	1.9	0.87	0.66	0.87	12.6
9	R2	6	0.0	6	0.0	0.031	54.1	LOS D	0.2	1.4	0.91	0.65	0.91	3.3
Approach		22	0.0	22	0.0	0.051	34.7	LOS C	0.3	1.9	0.88	0.66	0.88	9.1
West: Liverpool Road														
10	L2	35	4.0	35	4.0	0.611	6.7	LOS A	4.5	32.7	0.33	0.31	0.33	18.5
11	T1	1411	4.0	1411	4.0	0.611	3.4	LOS A	5.0	35.8	0.34	0.31	0.34	31.8
Approach		1445	4.0	1445	4.0	0.611	3.5	LOS A	5.0	35.8	0.34	0.31	0.34	31.4
All Vehicles		2433	4.3	2433	4.3	0.611	2.7	LOS A	5.0	35.8	0.23	0.21	0.23	32.1

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.
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
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	24.9	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		105	39.6	LOS D			0.93	0.93

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: 1 [Liverpool Road / Victoria Street-Base-PM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-Basecase-PM Peak]

Existing-PM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Victoria Street														
1	L2	35	1.0	35	1.0	0.045	25.3	LOS B	0.7	5.1	0.62	0.64	0.62	19.4
3	R2	211	3.0	211	3.0	0.279	28.1	LOS B	4.9	35.4	0.70	0.73	0.70	11.9
Approach		245	2.7	245	2.7	0.279	27.7	LOS B	4.9	35.4	0.69	0.72	0.69	13.2
East: Liverpool Road														
4	L2	198	0.0	198	0.0	0.845	34.2	LOS C	7.6	55.0	0.88	0.86	0.94	14.0
5	T1	1193	5.0	1193	5.0	0.845	30.1	LOS C	7.6	55.0	0.88	0.84	0.93	14.5
Approach		1391	4.3	1391	4.3	0.845	30.7	LOS C	7.6	55.0	0.88	0.84	0.93	14.5
West: Liverpool Road														
11	T1	759	4.0	759	4.0	0.831	31.1	LOS C	20.8	150.8	0.87	0.82	0.93	11.4
12	R2	66	4.0	66	4.0	0.831	67.1	LOS E	5.0	36.3	1.00	1.00	1.27	10.5
Approach		825	4.0	825	4.0	0.831	34.0	LOS C	20.8	150.8	0.88	0.84	0.95	11.3
All Vehicles		2461	4.0	2461	4.0	0.845	31.5	LOS C	20.8	150.8	0.86	0.83	0.91	13.3

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.
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
P1	South Full Crossing	12	54.2	LOS E	0.0	0.0	0.95	0.95
P2	East Full Crossing	44	54.2	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	65	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		121	54.3	LOS E			0.95	0.95

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: 2 [Liverpool Road / Grimmond Avenue-Base-PM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-Basecase-PM Peak]

Existing-PM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Liverpool Road														
5	T1	1391	5.0	1391	5.0	0.973	47.4	LOS D	13.4	98.0	0.04	0.32	0.40	6.2
6	R2	24	0.0	24	0.0	0.051	5.8	LOS A	0.1	0.7	0.16	0.51	0.16	25.4
Approach		1415	4.9	1415	4.9	0.973	46.7	LOS D	13.4	98.0	0.04	0.33	0.40	6.3
North: Grimmond Avenue														
7	L2	44	0.0	44	0.0	0.143	29.4	LOS C	0.9	6.4	0.89	0.71	0.89	11.8
9	R2	36	0.0	36	0.0	0.330	55.7	LOS D	1.2	8.3	0.94	0.71	0.94	3.3
Approach		80	0.0	80	0.0	0.330	41.2	LOS C	1.2	8.3	0.91	0.71	0.91	7.2
West: Liverpool Road														
10	L2	3	4.0	3	4.0	0.411	6.1	LOS A	2.3	16.7	0.24	0.21	0.24	19.1
11	T1	969	4.0	969	4.0	0.411	2.9	LOS A	2.5	18.2	0.25	0.22	0.25	33.0
Approach		973	4.0	973	4.0	0.411	2.9	LOS A	2.5	18.2	0.25	0.22	0.25	33.0
All Vehicles		2467	4.4	2467	4.4	0.973	29.2	LOS C	13.4	98.0	0.15	0.30	0.36	10.7

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.
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
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	25.6	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		105	39.9	LOS D			0.93	0.93

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: 1 [Liverpool Road / Victoria Street-WD-AM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-WD-AM Peak]

Post Dev-AM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Victoria Street														
1	L2	37	1.0	37	1.0	0.083	41.1	LOS C	1.0	7.2	0.81	0.69	0.81	14.6
3	R2	301	3.0	301	3.0	0.824	54.8	LOS D	10.8	77.9	0.97	0.92	1.13	7.1
Approach		338	2.8	338	2.8	0.824	53.3	LOS D	10.8	77.9	0.95	0.90	1.10	7.9
East: Liverpool Road														
4	L2	266	0.0	266	0.0	0.434	10.8	LOS A	5.0	35.4	0.31	0.46	0.31	26.3
5	T1	720	5.0	720	5.0	0.434	6.6	LOS A	5.0	35.4	0.29	0.31	0.29	28.3
Approach		986	3.6	986	3.6	0.434	7.7	LOS A	5.0	35.4	0.30	0.35	0.30	27.8
West: Liverpool Road														
11	T1	1133	4.0	1133	4.0	0.837	12.7	LOS A	16.6	120.0	0.55	0.55	0.59	19.6
12	R2	159	4.0	159	4.0	0.837	28.8	LOS C	9.8	70.7	0.65	0.75	0.78	18.6
Approach		1292	4.0	1292	4.0	0.837	14.7	LOS B	16.6	120.0	0.57	0.57	0.61	19.4
All Vehicles		2616	3.7	2616	3.7	0.837	17.1	LOS B	16.6	120.0	0.51	0.53	0.56	18.8

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.
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
P1	South Full Crossing	12	54.2	LOS E	0.0	0.0	0.95	0.95
P2	East Full Crossing	44	54.2	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	65	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		121	54.3	LOS E			0.95	0.95

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: 1 [Liverpool Road / Victoria Street-WD-AM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-WD-AM Peak]

Post Dev-AM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Victoria Street														
1	L2	37	1.0	37	1.0	0.083	41.1	LOS C	1.0	7.2	0.81	0.69	0.81	14.6
3	R2	301	3.0	301	3.0	0.824	54.8	LOS D	10.8	77.9	0.97	0.92	1.13	7.1
Approach		338	2.8	338	2.8	0.824	53.3	LOS D	10.8	77.9	0.95	0.90	1.10	7.9
East: Liverpool Road														
4	L2	266	0.0	266	0.0	0.434	10.8	LOS A	5.0	35.4	0.31	0.46	0.31	26.3
5	T1	720	5.0	720	5.0	0.434	6.6	LOS A	5.0	35.4	0.29	0.31	0.29	28.3
Approach		986	3.6	986	3.6	0.434	7.7	LOS A	5.0	35.4	0.30	0.35	0.30	27.8
West: Liverpool Road														
11	T1	1133	4.0	1133	4.0	0.837	12.7	LOS A	16.6	120.0	0.55	0.55	0.59	19.6
12	R2	159	4.0	159	4.0	0.837	28.8	LOS C	9.8	70.7	0.65	0.75	0.78	18.6
Approach		1292	4.0	1292	4.0	0.837	14.7	LOS B	16.6	120.0	0.57	0.57	0.61	19.4
All Vehicles		2616	3.7	2616	3.7	0.837	17.1	LOS B	16.6	120.0	0.51	0.53	0.56	18.8

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.
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
P1	South Full Crossing	12	54.2	LOS E	0.0	0.0	0.95	0.95
P2	East Full Crossing	44	54.2	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	65	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		121	54.3	LOS E			0.95	0.95

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: 1 [Liverpool Road / Victoria Street-WD-PM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-WD-PM Peak]

Post Dev-PM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Victoria Street														
1	L2	45	1.0	45	1.0	0.059	25.5	LOS B	1.0	6.7	0.63	0.65	0.63	19.3
3	R2	271	3.0	271	3.0	0.359	29.1	LOS C	6.6	47.3	0.73	0.75	0.73	11.6
Approach		316	2.7	316	2.7	0.359	28.6	LOS C	6.6	47.3	0.72	0.74	0.72	12.9
East: Liverpool Road														
4	L2	212	0.0	212	0.0	0.855	35.1	LOS C	7.6	55.0	0.89	0.87	0.96	13.8
5	T1	1193	5.0	1193	5.0	0.855	31.0	LOS C	7.6	55.0	0.89	0.86	0.95	14.2
Approach		1404	4.2	1404	4.2	0.855	31.6	LOS C	7.6	55.0	0.89	0.86	0.95	14.2
West: Liverpool Road														
11	T1	759	4.0	759	4.0	0.865	33.2	LOS C	23.5	170.3	0.90	0.88	0.98	10.9
12	R2	75	4.0	75	4.0	0.865	72.6	LOS F	4.4	32.0	1.00	1.04	1.37	9.9
Approach		834	4.0	834	4.0	0.865	36.7	LOS C	23.5	170.3	0.91	0.89	1.02	10.7
All Vehicles		2554	4.0	2554	4.0	0.865	32.9	LOS C	23.5	170.3	0.88	0.86	0.94	12.9

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.
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
P1	South Full Crossing	12	54.2	LOS E	0.0	0.0	0.95	0.95
P2	East Full Crossing	44	54.2	LOS E	0.1	0.1	0.95	0.95
P4	West Full Crossing	65	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		121	54.3	LOS E			0.95	0.95

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: 2 [Liverpool Road / Grimmond Avenue-WD-PM Peak]

Network: N101 [Liverpool Rd/Victoria St/Grimmond Ave-WD-PM Peak]

Post Dev-PM Peak
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (CCG User-Given Cycle Time)
Common Control Group: CCG1 [Liverpool Road Staggered Intersection]

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Liverpool Road														
5	T1	1404	5.0	1404	5.0	0.983	53.0	LOS D	14.7	107.2	0.04	0.35	0.44	5.6
6	R2	24	0.0	24	0.0	0.053	5.9	LOS A	0.1	0.7	0.16	0.51	0.16	25.4
Approach		1428	4.9	1428	4.9	0.983	52.2	LOS D	14.7	107.2	0.04	0.36	0.44	5.7
North: Grimmond Avenue														
7	L2	44	0.0	44	0.0	0.143	29.4	LOS C	0.9	6.4	0.89	0.71	0.89	11.8
9	R2	36	0.0	36	0.0	0.330	55.7	LOS D	1.2	8.3	0.94	0.71	0.94	3.3
Approach		80	0.0	80	0.0	0.330	41.2	LOS C	1.2	8.3	0.91	0.71	0.91	7.2
West: Liverpool Road														
10	L2	3	4.0	3	4.0	0.436	6.2	LOS A	2.5	18.3	0.25	0.22	0.25	19.0
11	T1	1029	4.0	1029	4.0	0.436	2.9	LOS A	2.8	20.0	0.26	0.23	0.26	32.9
Approach		1033	4.0	1033	4.0	0.436	2.9	LOS A	2.8	20.0	0.26	0.23	0.26	32.9
All Vehicles		2541	4.4	2541	4.4	0.983	31.8	LOS C	14.7	107.2	0.16	0.31	0.38	10.1

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.
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
P2	East Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	25.6	LOS C	0.1	0.1	0.90	0.90
All Pedestrians		105	39.9	LOS D			0.93	0.93

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: 101 [Queen St / Harland St-Base-AM Peak]

Network: N101 [Queen St / Harland St / Service Ave-Basecase-AM Peak]

Existing-AM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Queen Street														
2	T1	458	1.0	458	1.0	0.374	2.1	LOS A	0.9	6.1	0.38	0.22	0.46	25.5
3	R2	146	0.0	146	0.0	0.374	5.5	LOS A	0.9	6.1	0.38	0.22	0.46	26.4
Approach		604	0.8	604	0.8	0.374	2.9	NA	0.9	6.1	0.38	0.22	0.46	25.6
East: Harland Street														
4	L2	97	0.0	97	0.0	0.664	9.1	LOS A	1.1	7.4	0.69	1.12	1.32	26.8
6	R2	140	0.0	140	0.0	0.664	17.1	LOS B	1.1	7.4	0.69	1.12	1.32	21.9
Approach		237	0.0	237	0.0	0.664	13.9	LOS A	1.1	7.4	0.69	1.12	1.32	23.4
North: Queen Street														
7	L2	63	0.0	63	0.0	0.265	3.4	LOS A	0.0	0.0	0.00	0.06	0.00	39.5
8	T1	446	3.0	446	3.0	0.265	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	39.7
Approach		509	2.6	509	2.6	0.265	0.4	NA	0.0	0.0	0.00	0.06	0.00	39.7
All Vehicles		1351	1.3	1351	1.3	0.664	3.9	NA	1.1	7.4	0.29	0.32	0.44	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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Harland St / Service Avenue-Base-AM Peak]

Network: N101 [Queen St / Harland St / Service Ave-Basecase-AM Peak]

Existing-AM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Service Avenue														
1	L2	12	0.0	12	0.0	0.024	6.1	LOS A	0.0	0.2	0.33	0.60	0.33	43.9
2	T1	1	0.0	1	0.0	0.024	6.0	LOS A	0.0	0.2	0.33	0.60	0.33	43.2
3	R2	11	0.0	11	0.0	0.024	7.9	LOS A	0.0	0.2	0.33	0.60	0.33	42.5
Approach		23	0.0	23	0.0	0.024	6.9	LOS A	0.0	0.2	0.33	0.60	0.33	43.1
East: Harland St														
4	L2	42	0.0	42	0.0	0.127	5.6	LOS A	0.0	0.0	0.00	0.11	0.00	53.9
5	T1	198	0.0	198	0.0	0.127	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	51.4
6	R2	1	0.0	1	0.0	0.127	6.2	LOS A	0.0	0.0	0.00	0.11	0.00	23.8
Approach		241	0.0	241	0.0	0.127	1.0	NA	0.0	0.0	0.00	0.11	0.00	52.2
North: Service Avenue														
7	L2	5	0.0	5	0.0	0.008	5.4	LOS A	0.0	0.1	0.31	0.55	0.31	20.2
8	T1	1	0.0	1	0.0	0.008	5.3	LOS A	0.0	0.1	0.31	0.55	0.31	45.6
9	R2	2	0.0	2	0.0	0.008	7.0	LOS A	0.0	0.1	0.31	0.55	0.31	28.2
Approach		8	0.0	8	0.0	0.008	5.8	LOS A	0.0	0.1	0.31	0.55	0.31	24.7
West: Harland St														
10	L2	1	0.0	1	0.0	0.111	6.3	LOS A	0.0	0.2	0.04	0.03	0.04	33.1
11	T1	201	0.0	201	0.0	0.111	0.0	LOS A	0.0	0.2	0.04	0.03	0.04	57.9
12	R2	8	0.0	8	0.0	0.111	6.4	LOS A	0.0	0.2	0.04	0.03	0.04	53.6
Approach		211	0.0	211	0.0	0.111	0.3	NA	0.0	0.2	0.04	0.03	0.04	57.4
All Vehicles		483	0.0	483	0.0	0.127	1.1	NA	0.0	0.2	0.04	0.10	0.04	52.4

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Queen St / Harland St-Base-PM Peak]

Network: N101 [Queen St / Harland St / Service Ave-Basecase-PM Peak]

Existing-PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Queen Street														
2	T1	456	1.0	456	1.0	0.310	1.0	LOS A	0.4	2.8	0.23	0.14	0.23	25.6
3	R2	93	0.0	93	0.0	0.310	4.0	LOS A	0.4	2.8	0.23	0.14	0.23	26.4
Approach		548	0.8	548	0.8	0.310	1.5	NA	0.4	2.8	0.23	0.14	0.23	25.6
East: Harland Street														
4	L2	120	0.0	120	0.0	0.508	5.7	LOS A	0.7	5.2	0.55	0.83	0.83	30.3
6	R2	120	0.0	120	0.0	0.508	11.6	LOS A	0.7	5.2	0.55	0.83	0.83	23.6
Approach		241	0.0	241	0.0	0.508	8.6	LOS A	0.7	5.2	0.55	0.83	0.83	26.1
North: Queen Street														
7	L2	45	0.0	45	0.0	0.203	3.4	LOS A	0.0	0.0	0.00	0.05	0.00	39.5
8	T1	345	3.0	345	3.0	0.203	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	39.7
Approach		391	2.7	391	2.7	0.203	0.4	NA	0.0	0.0	0.00	0.05	0.00	39.7
All Vehicles		1180	1.3	1180	1.3	0.508	2.6	NA	0.7	5.2	0.22	0.25	0.27	29.5

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Harland St / Service Avenue-Base-PM Peak]

Network: N101 [Queen St / Harland St / Service Ave-Basecase-PM Peak]

Existing-PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Service Avenue														
1	L2	8	0.0	8	0.0	0.018	6.1	LOS A	0.0	0.2	0.30	0.58	0.30	44.4
2	T1	1	0.0	1	0.0	0.018	5.4	LOS A	0.0	0.2	0.30	0.58	0.30	43.6
3	R2	8	0.0	8	0.0	0.018	7.1	LOS A	0.0	0.2	0.30	0.58	0.30	42.8
Approach		18	0.0	18	0.0	0.018	6.5	LOS A	0.0	0.2	0.30	0.58	0.30	43.5
East: Harland St														
4	L2	18	0.0	18	0.0	0.105	5.6	LOS A	0.0	0.1	0.01	0.06	0.01	54.7
5	T1	179	0.0	179	0.0	0.105	0.0	LOS A	0.0	0.1	0.01	0.06	0.01	54.3
6	R2	3	0.0	3	0.0	0.105	5.9	LOS A	0.0	0.1	0.01	0.06	0.01	24.1
Approach		200	0.0	200	0.0	0.105	0.6	NA	0.0	0.1	0.01	0.06	0.01	53.0
North: Service Avenue														
7	L2	3	0.0	3	0.0	0.006	5.1	LOS A	0.0	0.1	0.25	0.54	0.25	20.4
8	T1	1	0.0	1	0.0	0.006	4.7	LOS A	0.0	0.1	0.25	0.54	0.25	46.1
9	R2	2	0.0	2	0.0	0.006	6.4	LOS A	0.0	0.1	0.25	0.54	0.25	28.9
Approach		6	0.0	6	0.0	0.006	5.5	LOS A	0.0	0.1	0.25	0.54	0.25	27.0
West: Harland St														
10	L2	6	0.0	6	0.0	0.071	5.9	LOS A	0.0	0.2	0.04	0.06	0.04	32.6
11	T1	121	0.0	121	0.0	0.071	0.0	LOS A	0.0	0.2	0.04	0.06	0.04	56.5
12	R2	6	0.0	6	0.0	0.071	6.1	LOS A	0.0	0.2	0.04	0.06	0.04	53.0
Approach		134	0.0	134	0.0	0.071	0.6	NA	0.0	0.2	0.04	0.06	0.04	54.5
All Vehicles		358	0.0	358	0.0	0.105	1.0	NA	0.0	0.2	0.04	0.09	0.04	51.5

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Queen St / Harland St-WD-AM Peak]

Network: N101 [Queen St / Harland St / Service Ave-WD-AM Peak]

Post Dev-AM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Queen Street														
2	T1	458	1.0	458	1.0	0.429	3.0	LOS A	1.3	8.9	0.48	0.29	0.64	25.6
3	R2	198	0.0	198	0.0	0.429	6.2	LOS A	1.3	8.9	0.48	0.29	0.64	26.4
Approach		656	0.7	656	0.7	0.429	3.9	NA	1.3	8.9	0.48	0.29	0.64	25.7
East: Harland Street														
4	L2	109	0.0	109	0.0	0.812	15.6	LOS B	1.7	11.9	0.74	1.48	2.00	23.2
6	R2	157	0.0	157	0.0	0.812	25.2	LOS B	1.7	11.9	0.74	1.48	2.00	20.0
Approach		266	0.0	266	0.0	0.812	21.3	LOS B	1.7	11.9	0.74	1.48	2.00	21.0
North: Queen Street														
7	L2	85	0.0	85	0.0	0.276	3.4	LOS A	0.0	0.0	0.00	0.07	0.00	39.3
8	T1	446	3.0	446	3.0	0.276	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	39.6
Approach		532	2.5	532	2.5	0.276	0.6	NA	0.0	0.0	0.00	0.07	0.00	39.6
All Vehicles		1454	1.2	1454	1.2	0.812	5.9	NA	1.7	11.9	0.35	0.43	0.65	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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Harland St / Service Avenue-WD-AM Peak]

Network: N101 [Queen St / Harland St / Service Ave-WD-AM Peak]

Post Dev-AM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Service Avenue														
1	L2	12	0.0	12	0.0	0.027	6.2	LOS A	0.0	0.3	0.37	0.62	0.37	43.1
2	T1	1	0.0	1	0.0	0.027	6.6	LOS A	0.0	0.3	0.37	0.62	0.37	42.6
3	R2	11	0.0	11	0.0	0.027	8.7	LOS A	0.0	0.3	0.37	0.62	0.37	41.9
Approach		23	0.0	23	0.0	0.027	7.3	LOS A	0.0	0.3	0.37	0.62	0.37	42.5
East: Harland St														
4	L2	42	0.0	42	0.0	0.141	5.6	LOS A	0.0	0.0	0.01	0.10	0.01	54.1
5	T1	224	0.0	224	0.0	0.141	0.0	LOS A	0.0	0.0	0.01	0.10	0.01	52.1
6	R2	1	0.0	1	0.0	0.141	6.6	LOS A	0.0	0.0	0.01	0.10	0.01	23.9
Approach		267	0.0	267	0.0	0.141	0.9	NA	0.0	0.0	0.01	0.10	0.01	52.6
North: Service Avenue														
7	L2	5	0.0	5	0.0	0.009	5.6	LOS A	0.0	0.1	0.37	0.58	0.37	19.9
8	T1	1	0.0	1	0.0	0.009	5.9	LOS A	0.0	0.1	0.37	0.58	0.37	45.0
9	R2	2	0.0	2	0.0	0.009	7.7	LOS A	0.0	0.1	0.37	0.58	0.37	27.2
Approach		8	0.0	8	0.0	0.009	6.2	LOS A	0.0	0.1	0.37	0.58	0.37	24.4
West: Harland St														
10	L2	1	0.0	1	0.0	0.150	6.5	LOS A	0.0	0.2	0.03	0.02	0.03	33.2
11	T1	275	0.0	275	0.0	0.150	0.0	LOS A	0.0	0.2	0.03	0.02	0.03	58.4
12	R2	8	0.0	8	0.0	0.150	6.5	LOS A	0.0	0.2	0.03	0.02	0.03	53.7
Approach		284	0.0	284	0.0	0.150	0.3	NA	0.0	0.2	0.03	0.02	0.03	57.9
All Vehicles		583	0.0	583	0.0	0.150	0.9	NA	0.0	0.3	0.04	0.09	0.04	53.3

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Queen St / Harland St-WD-PM Peak]

Network: N101 [Queen St / Harland St / Service Ave-WD-PM Peak]

Post Dev-PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Queen Street														
2	T1	456	1.0	456	1.0	0.319	1.1	LOS A	0.4	3.1	0.25	0.15	0.25	25.6
3	R2	102	0.0	102	0.0	0.319	4.1	LOS A	0.4	3.1	0.25	0.15	0.25	26.5
Approach		558	0.8	558	0.8	0.319	1.6	NA	0.4	3.1	0.25	0.15	0.25	25.7
East: Harland Street														
4	L2	164	0.0	164	0.0	0.701	8.5	LOS A	1.4	9.9	0.59	1.06	1.24	28.3
6	R2	164	0.0	164	0.0	0.701	15.1	LOS B	1.4	9.9	0.59	1.06	1.24	22.6
Approach		328	0.0	328	0.0	0.701	11.8	LOS A	1.4	9.9	0.59	1.06	1.24	24.8
North: Queen Street														
7	L2	51	0.0	51	0.0	0.206	3.4	LOS A	0.0	0.0	0.00	0.06	0.00	39.5
8	T1	345	3.0	345	3.0	0.206	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	39.7
Approach		396	2.6	396	2.6	0.206	0.5	NA	0.0	0.0	0.00	0.06	0.00	39.7
All Vehicles		1282	1.2	1282	1.2	0.701	3.9	NA	1.4	9.9	0.26	0.36	0.43	29.0

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Harland St / Service Avenue-WD-PM Peak]

Network: N101 [Queen St / Harland St / Service Ave-WD-PM Peak]

Post Dev-PM Peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Service Avenue														
1	L2	8	0.0	8	0.0	0.019	6.3	LOS A	0.0	0.2	0.36	0.60	0.36	43.8
2	T1	1	0.0	1	0.0	0.019	5.9	LOS A	0.0	0.2	0.36	0.60	0.36	43.2
3	R2	8	0.0	8	0.0	0.019	7.7	LOS A	0.0	0.2	0.36	0.60	0.36	42.4
Approach		18	0.0	18	0.0	0.019	6.9	LOS A	0.0	0.2	0.36	0.60	0.36	43.0
East: Harland St														
4	L2	18	0.0	18	0.0	0.140	5.6	LOS A	0.0	0.1	0.01	0.05	0.01	55.0
5	T1	246	0.0	246	0.0	0.140	0.0	LOS A	0.0	0.1	0.01	0.05	0.01	55.6
6	R2	3	0.0	3	0.0	0.140	6.0	LOS A	0.0	0.1	0.01	0.05	0.01	24.3
Approach		267	0.0	267	0.0	0.140	0.5	NA	0.0	0.1	0.01	0.05	0.01	54.3
North: Service Avenue														
7	L2	3	0.0	3	0.0	0.006	5.2	LOS A	0.0	0.1	0.27	0.55	0.27	20.2
8	T1	1	0.0	1	0.0	0.006	5.1	LOS A	0.0	0.1	0.27	0.55	0.27	45.7
9	R2	2	0.0	2	0.0	0.006	6.9	LOS A	0.0	0.1	0.27	0.55	0.27	28.2
Approach		6	0.0	6	0.0	0.006	5.7	LOS A	0.0	0.1	0.27	0.55	0.27	26.7
West: Harland St														
10	L2	6	0.0	6	0.0	0.079	6.0	LOS A	0.0	0.2	0.05	0.05	0.05	32.6
11	T1	136	0.0	136	0.0	0.079	0.1	LOS A	0.0	0.2	0.05	0.05	0.05	56.7
12	R2	6	0.0	6	0.0	0.079	6.4	LOS A	0.0	0.2	0.05	0.05	0.05	53.0
Approach		148	0.0	148	0.0	0.079	0.6	NA	0.0	0.2	0.05	0.05	0.05	54.8
All Vehicles		440	0.0	440	0.0	0.140	0.8	NA	0.0	0.2	0.04	0.08	0.04	52.4

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

SIDRA Movement Summary of the following intersections:

- Old Canterbury Road / Prospect Road
- Old Canterbury Road / Hurlstone Avenue

MOVEMENT SUMMARY

Site: 101 [Base Case: Old Canterbury Rd-Prospect Rd - AM peak]

Network: N101 [AM Base]

Base Case: Old Canterbury Rd-Prospect Rd - AM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Arlington St														
21	L2	32	3.3	32	3.3	0.028	6.1	LOS A	0.0	0.3	0.23	0.55	0.23	51.8
Approach		32	3.3	32	3.3	0.028	6.1	LOS A	0.0	0.3	0.23	0.55	0.23	51.8
NorthEast: Old Canterbury Road														
24	L2	1	0.0	1	0.0	0.064	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
25	T1	453	5.1	453	5.1	0.284	2.1	LOS A	0.5	3.4	0.18	0.04	0.21	56.5
26b	R3	22	9.5	22	9.5	0.284	19.1	LOS B	0.5	3.4	0.24	0.05	0.29	52.5
Approach		476	5.3	476	5.3	0.284	2.9	NA	0.5	3.4	0.18	0.04	0.22	56.3
North: Prospect Road														
7b	L3	49	2.1	49	2.1	0.545	18.8	LOS B	0.9	6.9	0.34	1.07	0.57	28.4
9a	R1	57	13.0	57	13.0	0.545	50.7	LOS D	0.9	6.9	0.34	1.07	0.57	37.3
Approach		106	7.9	106	7.9	0.545	35.9	LOS C	0.9	6.9	0.34	1.07	0.57	34.0
SouthWest: Old Canterbury Road														
30a	L1	112	15.1	112	15.1	0.091	5.5	LOS A	0.0	0.0	0.00	0.41	0.00	54.0
31	T1	925	3.2	925	3.2	0.457	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.5
Approach		1037	4.5	1037	4.5	0.457	0.7	NA	0.0	0.0	0.00	0.06	0.00	58.3
All Vehicles		1651	4.9	1651	4.9	0.545	3.7	NA	0.9	6.9	0.08	0.13	0.10	54.4

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Base Case: Old Canterbury Rd-Hurlstone Ave - AM peak]

Network: N101 [AM Base]

Base Case: Old Canterbury Rd-Hurlstone Ave - AM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Old Canterbury Road														
25	T1	458	5.7	458	5.7	0.772	22.6	LOS B	5.1	37.5	1.00	0.28	2.01	10.0
26a	R1	120	0.9	120	0.9	0.772	33.8	LOS C	5.1	37.5	1.00	0.28	2.01	19.9
Approach		578	4.7	578	4.7	0.772	24.9	NA	5.1	37.5	1.00	0.28	2.01	12.6
West: Hurlstone Avenue														
10a	L1	223	1.9	223	1.9	0.764	29.7	LOS C	1.9	13.4	0.93	1.31	2.07	17.4
12b	R3	19	22.2	19	22.2	0.238	52.5	LOS D	0.3	2.3	0.93	0.99	1.00	9.0
Approach		242	3.5	242	3.5	0.764	31.5	NA	1.9	13.4	0.93	1.29	1.98	16.6
SouthWest: Old Canterbury Road														
30b	L3	12	0.0	12	0.0	0.087	5.4	LOS A	0.0	0.0	0.00	0.04	0.00	49.1
31	T1	985	3.1	985	3.1	0.435	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.8
Approach		997	3.1	997	3.1	0.435	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.8
All Vehicles		1817	3.7	1817	3.7	0.772	12.2	NA	5.1	37.5	0.44	0.26	0.90	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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Base Case: Old Canterbury Rd-Prospect Rd - PM peak]

Network: N102 [PM Base]

Base Case: Old Canterbury Rd-Prospect Rd - PM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
SouthEast: Arlington St														
21	L2	35	3.0	35	3.0	0.034	4.5	LOS A	0.0	0.4	0.34	0.51	0.34	37.9
Approach		35	3.0	35	3.0	0.034	4.5	LOS A	0.0	0.4	0.34	0.51	0.34	37.9
NorthEast: Old Canterbury Road														
24	L2	4	0.0	4	0.0	0.139	3.4	LOS A	0.0	0.0	0.00	0.01	0.00	40.2
25	T1	798	3.6	798	3.6	0.613	0.3	LOS A	0.2	1.4	0.04	0.01	0.06	39.7
26b	R3	13	25.0	13	25.0	0.613	10.1	LOS A	0.2	1.4	0.05	0.01	0.09	39.4
Approach		815	3.9	815	3.9	0.613	0.5	NA	0.2	1.4	0.04	0.01	0.06	39.7
North: Prospect Road														
7b	L3	28	0.0	28	0.0	0.487	17.1	LOS B	0.8	5.8	0.35	1.11	0.52	22.0
9a	R1	53	6.0	53	6.0	0.487	50.7	LOS D	0.8	5.8	0.35	1.11	0.52	28.3
Approach		81	3.9	81	3.9	0.487	38.9	LOS C	0.8	5.8	0.35	1.11	0.52	26.7
SouthWest: Old Canterbury Road														
30a	L1	59	10.7	59	10.7	0.050	3.5	LOS A	0.0	0.0	0.00	0.31	0.00	38.9
31	T1	519	2.0	519	2.0	0.252	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	39.9
Approach		578	2.9	578	2.9	0.252	0.4	NA	0.0	0.0	0.00	0.05	0.00	39.7
All Vehicles		1508	3.5	1508	3.5	0.613	2.6	NA	0.8	5.8	0.05	0.10	0.07	38.4

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Base Case: Old Canterbury Rd-Hurlstone Ave - PM peak]

Network: N102 [PM Base]

Base Case: Old Canterbury Rd-Hurlstone Ave - PM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
NorthEast: Old Canterbury Road														
25	T1	826	1.9	826	1.9	0.549	1.7	LOS A	1.1	7.7	0.21	0.04	0.31	30.6
26a	R1	66	0.0	66	0.0	0.549	10.5	LOS A	1.1	7.7	0.21	0.04	0.31	37.2
Approach		893	1.8	893	1.8	0.549	2.4	NA	1.1	7.7	0.21	0.04	0.31	31.6
West: Hurlstone Avenue														
10a	L1	105	3.0	105	3.0	0.158	6.5	LOS A	0.2	1.7	0.52	0.70	0.52	30.2
12b	R3	9	22.2	9	22.2	0.088	35.4	LOS C	0.1	0.8	0.89	0.95	0.89	11.6
Approach		115	4.6	115	4.6	0.158	8.8	NA	0.2	1.7	0.55	0.72	0.55	27.6
SouthWest: Old Canterbury Road														
30b	L3	6	0.0	6	0.0	0.043	4.1	LOS A	0.0	0.0	0.00	0.04	0.00	40.8
31	T1	495	1.9	495	1.9	0.217	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	39.9
Approach		501	1.9	501	1.9	0.217	0.1	NA	0.0	0.0	0.00	0.01	0.00	39.9
All Vehicles		1508	2.0	1508	2.0	0.549	2.1	NA	1.1	7.7	0.17	0.08	0.23	35.5

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Scenario 1: Old Canterbury Rd-Prospect Rd - AM peak]

Network: N101 [AM Scenario 1]

Scenario 1: Old Canterbury Rd-Prospect Rd - AM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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	Aver. No. Cycles	Average Speed km/h
SouthEast: Arlington St														
21	L2	32	3.3	32	3.3	0.027	6.1	LOS A	0.1	0.7	0.22	0.55	0.22	51.8
Approach		32	3.3	32	3.3	0.027	6.1	LOS A	0.1	0.7	0.22	0.55	0.22	51.8
NorthEast: Old Canterbury Road														
24	L2	1	0.0	1	0.0	0.060	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
25	T1	453	5.1	453	5.1	0.299	2.4	LOS A	1.3	9.7	0.20	0.04	0.25	56.0
26b	R3	25	8.4	25	8.4	0.299	19.4	LOS B	1.3	9.7	0.27	0.05	0.33	52.1
Approach		479	5.3	479	5.3	0.299	3.3	NA	1.3	9.7	0.20	0.04	0.25	55.8
North: Prospect Road														
7b	L3	54	2.0	54	2.0	0.554	20.2	LOS B	2.7	19.7	0.31	1.08	0.52	27.6
9a	R1	63	11.7	63	11.7	0.554	52.2	LOS D	2.7	19.7	0.31	1.08	0.52	36.7
Approach		117	7.2	117	7.2	0.554	37.5	LOS C	2.7	19.7	0.31	1.08	0.52	33.4
SouthWest: Old Canterbury Road														
30a	L1	123	13.7	123	13.7	0.092	5.5	LOS A	0.0	0.0	0.00	0.44	0.00	53.8
31	T1	925	3.2	925	3.2	0.462	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.5
Approach		1048	4.4	1048	4.4	0.462	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.2
All Vehicles		1675	4.8	1675	4.8	0.554	4.1	NA	2.7	19.7	0.08	0.14	0.11	53.8

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Scenario 1: Old Canterbury Rd-Hurlstone Ave - AM peak]

Network: N101 [AM Scenario 1]

Scenario 1: Old Canterbury Rd-Hurlstone Ave - AM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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	Aver. No. Cycles	Average Speed km/h
NorthEast: Old Canterbury Road														
25	T1	458	5.7	458	5.7	0.834	27.3	LOS B	15.0	109.4	1.00	0.32	2.40	8.9
26a	R1	134	0.8	134	0.8	0.834	38.3	LOS C	15.0	109.4	1.00	0.32	2.40	18.6
Approach		592	4.6	592	4.6	0.834	29.8	NA	15.0	109.4	1.00	0.32	2.40	11.5
West: Hurlstone Avenue														
10a	L1	231	1.8	231	1.8	0.792	32.5	LOS C	5.1	36.5	0.94	1.31	2.23	16.9
12b	R3	21	20.0	21	20.0	0.255	52.6	LOS D	0.7	6.1	0.93	0.99	1.01	9.3
Approach		252	3.3	252	3.3	0.792	34.1	NA	5.1	36.5	0.94	1.29	2.13	16.1
SouthWest: Old Canterbury Road														
30b	L3	12	0.0	12	0.0	0.087	6.5	LOS A	0.0	0.0	0.00	0.05	0.00	56.0
31	T1	985	3.1	985	3.1	0.435	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		997	3.1	997	3.1	0.435	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.6
All Vehicles		1841	3.6	1841	3.6	0.834	14.3	NA	15.0	109.4	0.45	0.28	1.06	30.1

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Scenario 1: Old Canterbury Rd-Prospect Rd - PM peak]

Network: N101 [PM Scenario 1]

Scenario 1: Old Canterbury Rd-Prospect Rd - PM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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	Aver. No. Cycles	Average Speed km/h
SouthEast: Arlington St														
21	L2	26	4.0	26	4.0	0.025	6.6	LOS A	0.1	0.7	0.32	0.58	0.32	51.4
Approach		26	4.0	26	4.0	0.025	6.6	LOS A	0.1	0.7	0.32	0.58	0.32	51.4
NorthEast: Old Canterbury Road														
24	L2	5	0.0	5	0.0	0.130	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.2
25	T1	798	3.6	798	3.6	0.652	0.4	LOS A	0.5	3.7	0.04	0.01	0.07	59.2
26b	R3	13	25.0	13	25.0	0.652	12.6	LOS A	0.5	3.7	0.05	0.02	0.10	54.7
Approach		816	3.9	816	3.9	0.652	0.6	NA	0.5	3.7	0.04	0.01	0.07	59.1
North: Prospect Road														
7b	L3	31	0.0	31	0.0	0.576	22.2	LOS B	2.5	18.2	0.31	1.10	0.51	25.1
9a	R1	65	4.8	65	4.8	0.576	54.3	LOS D	2.5	18.2	0.31	1.10	0.51	34.5
Approach		96	3.3	96	3.3	0.576	44.1	LOS D	2.5	18.2	0.31	1.10	0.51	32.2
SouthWest: Old Canterbury Road														
30a	L1	69	9.1	69	9.1	0.051	5.4	LOS A	0.0	0.0	0.00	0.44	0.00	54.0
31	T1	519	2.0	519	2.0	0.257	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	59.6
Approach		588	2.9	588	2.9	0.257	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.3
All Vehicles		1526	3.4	1526	3.4	0.652	3.5	NA	2.5	18.2	0.04	0.11	0.07	55.1

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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 SUMMARY

Site: 101 [Scenario 1: Old Canterbury Rd-Hurlstone Ave - PM peak]

Network: N101 [PM Scenario 1]

Scenario 1: Old Canterbury Rd-Hurlstone Ave - PM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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	Aver. No. Cycles	Average Speed km/h
NorthEast: Old Canterbury Road														
25	T1	826	1.9	826	1.9	0.568	2.0	LOS A	3.2	22.5	0.25	0.06	0.37	38.3
26a	R1	77	0.0	77	0.0	0.568	12.4	LOS A	3.2	22.5	0.25	0.06	0.37	46.6
Approach		903	1.7	903	1.7	0.568	2.9	NA	3.2	22.5	0.25	0.06	0.37	39.7
West: Hurlstone Avenue														
10a	L1	119	2.6	119	2.6	0.178	8.5	LOS A	0.7	4.8	0.53	0.77	0.53	33.1
12b	R3	9	22.2	9	22.2	0.088	37.6	LOS C	0.3	2.1	0.89	0.96	0.89	12.3
Approach		129	4.1	129	4.1	0.178	10.6	NA	0.7	4.8	0.55	0.78	0.55	30.4
SouthWest: Old Canterbury Road														
30b	L3	6	0.0	6	0.0	0.043	6.5	LOS A	0.0	0.0	0.00	0.05	0.00	56.0
31	T1	495	1.9	495	1.9	0.217	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.7
Approach		501	1.9	501	1.9	0.217	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.7
All Vehicles		1533	2.0	1533	2.0	0.568	2.6	NA	3.2	22.5	0.19	0.10	0.26	47.5

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

SIDRA Movement Summary of the Post Mitigation Scenario:

- Old Canterbury Road / Prospect Road

MOVEMENT SUMMARY

Site: 101 [Scenario 1: Old Canterbury Rd-Prospect Rd - AM peak - Mitigation 2]

Network: N101 [AM Scenario 1 - Mitigation 2]

Scenario 1: Old Canterbury Rd-Prospect Rd - AM peak
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival 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	Aver. No. Cycles	Average Speed km/h
SouthEast: Arlington St														
21	L2	32	3.3	32	3.3	0.028	6.1	LOS A	0.1	0.7	0.23	0.55	0.23	51.8
Approach		32	3.3	32	3.3	0.028	6.1	LOS A	0.1	0.7	0.23	0.55	0.23	51.8
NorthEast: Old Canterbury Road														
24	L2	1	0.0	1	0.0	0.066	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.3
25	T1	453	5.1	453	5.1	0.293	2.4	LOS A	1.3	9.5	0.20	0.04	0.24	56.1
26b	R3	25	8.4	25	8.4	0.293	19.4	LOS B	1.3	9.5	0.27	0.05	0.33	52.3
Approach		479	5.3	479	5.3	0.293	3.3	NA	1.3	9.5	0.20	0.04	0.25	55.9
North: Prospect Road														
7b	L3	54	2.0	54	2.0	0.047	9.2	LOS A	0.2	1.3	0.12	0.92	0.12	46.7
9a	R1	63	11.7	63	11.7	0.505	49.5	LOS D	1.8	13.8	0.94	1.09	1.25	33.4
Approach		117	7.2	117	7.2	0.505	31.0	LOS C	1.8	13.8	0.57	1.01	0.73	36.6
SouthWest: Old Canterbury Road														
30a	L1	123	13.7	123	13.7	0.092	5.1	LOS A	0.0	0.0	0.00	0.43	0.00	54.2
31	T1	925	3.2	925	3.2	0.462	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	59.5
Approach		1048	4.4	1048	4.4	0.462	0.7	NA	0.0	0.0	0.00	0.07	0.00	58.3
All Vehicles		1675	4.8	1675	4.8	0.505	3.6	NA	1.8	13.8	0.10	0.13	0.13	54.6

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.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road 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.

Appendix C – Road Authority consultation: presentation and correspondence

Boris Muha 12:14 (6 minutes ago)
to me, Conor, Joe, Peter, Tim, Iwan

Sorry-correction where highlighted to be kerb islands not medians.

•••

Boris Muha
Engineer - Traffic and Parking Services
p +61 2 9392 5989 e Boris.Muha@innerwest.nsw.gov.au

Council acknowledges the Traditional Custodians of these lands, the Gadigal-Wangal people of the Eora Nation.

From: Boris Muha
Sent: Wednesday, 2 June 2021 12:11 PM
To: Mel Fyfe <mel@streetlevelstrategies.com>; Conor Wilson <conor.wilson@innerwest.nsw.gov.au>; Joe Bertacco <Joe.Bertacco@innerwest.nsw.gov.au>
Cc: Peter Brogan <pbrogan@bloompark.com.au>; Tim Russell <trussell@bloompark.com.au>; Iwan Smith <iwan.smith@viae-consulting.com>
Subject: RE: In-Principle Agreement for Trinity Grammar School project

Agree in principle noting that the LoS change, and of the understanding that axillary works as shown in the presentation also include the raising (with kerb blistering where possible) of the pedestrian crossing in Prospect Road. Note there are Bus stops on the departure sides of the crossing. Might have to do with painted departure medians, unless shown otherwise in draft design drawing.
Also point 3 below:

> *Consultation with local residents is to take place showing the detailed plans/ proposal and a provide to the satisfaction of Council with a report/ statement summarising any submissions and how those submissions will be resolved (plus revised plans, as relevant); and*

The developer is to carry out this task with advice/discussion from Council to assist in the matter.

Boris Muha
Engineer - Traffic and Parking Services
p +61 2 9392 5989 e Boris.Muha@innerwest.nsw.gov.au

Council acknowledges the Traditional Custodians of these lands, the Gadigal-Wangal people of the Eora Nation.

SYD19/01183/05 - Additional Information & Revised Plans - Trinity Grammar School Redevelopment - 113-119 Prospect Road - Summer Hill - SSD-10371 (fA9845588) External Inbox ×

Brett Morrison 11:27 (20 minutes ago)
to Prity.Cleary@planning.nsw.gov.au, me, Brendan, Narelle

Prity,
TfNSW has reviewed the revised plans and a presentation by street level strategies for the proponent on 31 May 2021.

It is noted by TfNSW that there are no proposed changes to any signalised intersection (s) or classified road network that requires approval / concurrence under sections 87 and 138 of the *Roads Act 1993*.

Furthermore, TfNSW advises that there is no objection 'in-principle' to the amendments proposed.

If you have any questions, regarding the above, please let me know.

Brett Morrison
Development Assessment Officer
Planning & Programs
Greater Sydney
Transport for NSW

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.

M 0419 338 081
27-31 Argyle Street Parramatta NSW 2150

NSW GOVERNMENT | Transport for NSW

Trinity Grammar School

Additional Traffic Assessment - briefing

Today's briefing

Context

DPIE Request for Information re: traffic

Scope of work

Five intersections assessed

Approach and findings

SIDRA Network model and LoS outcomes

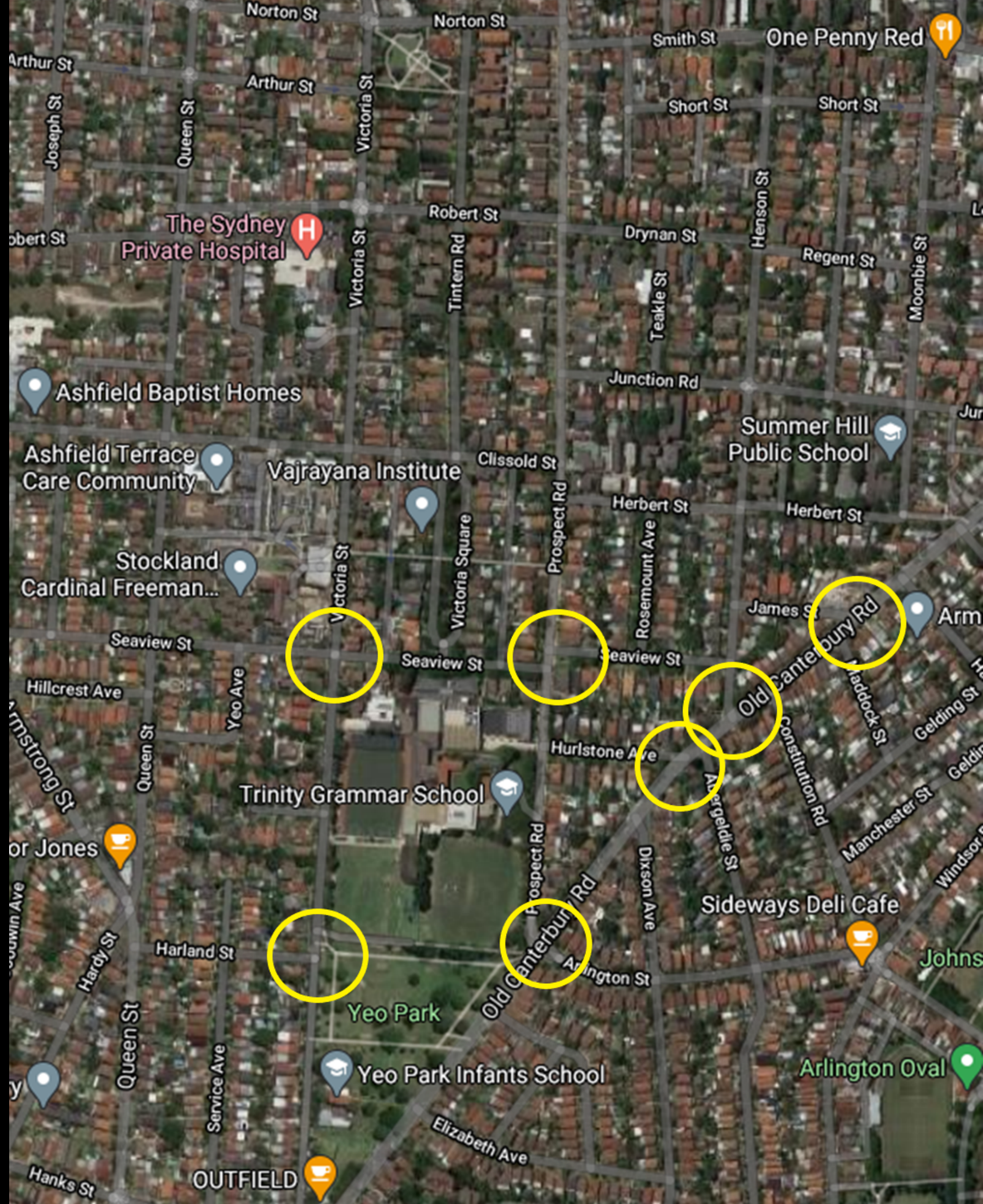
Ancillary works

Prospect Rd intersection and pedestrian crossing

EIS traffic assessment

SEARs
1. Old Canterbury Road/Prospect Road;
2. Old Canterbury Road/Hurlstone Avenue;
3. Old Canterbury Road/Henson Street; and
4. Old Canterbury Road/James Street.

Local
5. Prospect Road/Seaview Street – East;
6. Prospect Road/Seaview Street - West;
7. Victoria Street/Seaview Street; and
8. Victoria Street/Harland Street.

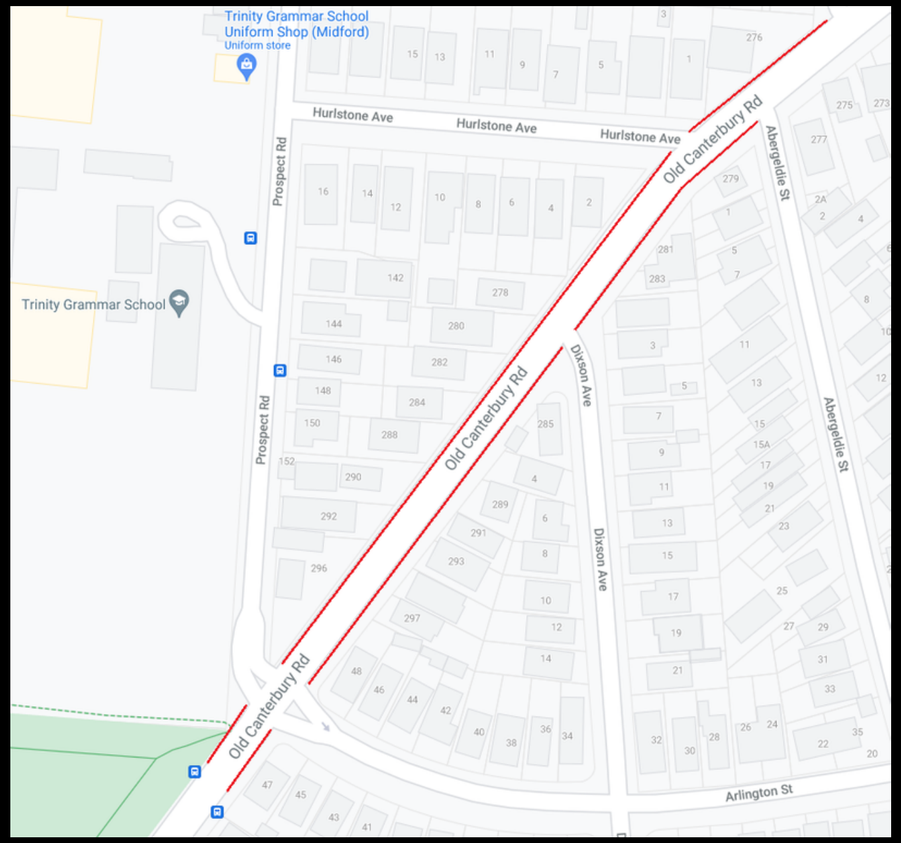


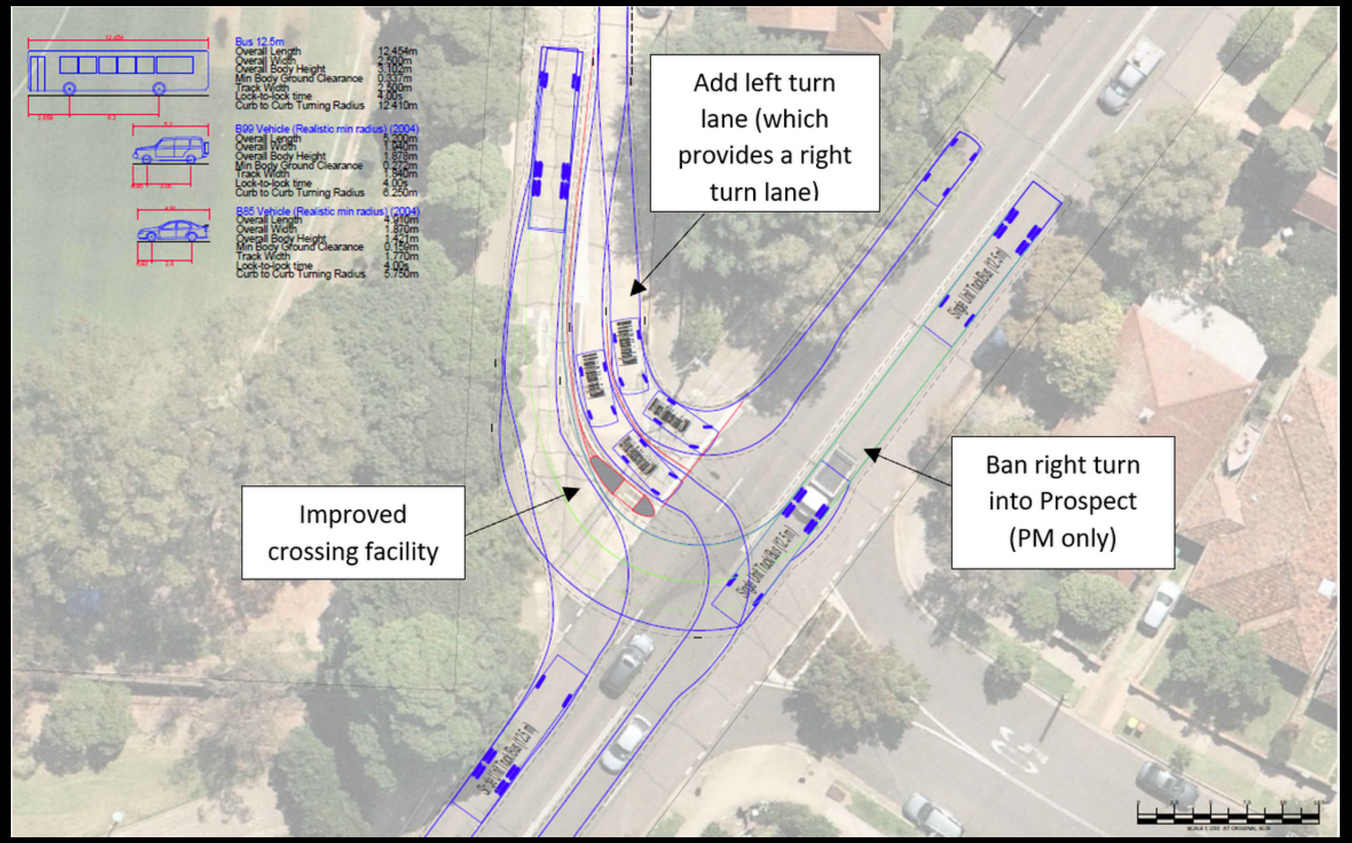
EIS Results

Intersection	Requirement	AM Base (current)	PM Base (current)	AM Future (full development)	PM Future (full development)
Old Canterbury Rd/ Prospect Rd	SEAR	F	F	F	F
Old Canterbury Rd/ Hurlstone Ave	SEAR	F	E	F	E
Old Canterbury Rd/ Henson St	SEAR	F	F	F	F
Old Canterbury Rd/ James St	SEAR	E	E	E	E
Prospect Rd/ Seaview St (E)	Local	A	A	A	A
Prospect Rd/ Seaview St (W)	Local	A	A	A	A
Victoria St/ Seaview St	Local	A	A	A	A
Victoria St/ Harland St	Local	A	A	A	A

Proposed mitigations

Peak clearways on OCR + Prospect Rd intersection works





Request for Information: Scope of works

1. Traffic analysis

(a) Provide detailed traffic analysis prepared by a suitably qualified professional traffic consultant (including SIDRA analysis or other appropriate methods required by the relevant roads authorities for current and proposed student population) for the following intersections:

i) Victoria Street and Liverpool Road;

ii) Harland Street and Queen Street; and

iii) Service Avenue and Harland Street.

(b) If the traffic analysis for the above identified intersections indicate that the intersections would operate at a minimum of Level of Service C or below, mitigation measures are to be proposed to improve the operations.

(c) If mitigation measures are required as per point 1(b) above, the proposed mitigation works and any accompany analysis is to be prepared in consultation with relevant road authorities and include written evidence of in principle agreements.

(d) If mitigation works are proposed, the approval pathway for those works and the likely timing shall be detailed as part of the application and their relationship to increased student numbers.

RFI scope item 1

2. Mitigation measures

(a) For intersections of Old Canterbury Road with Prospect Road and Hurlstone Avenue, provide:

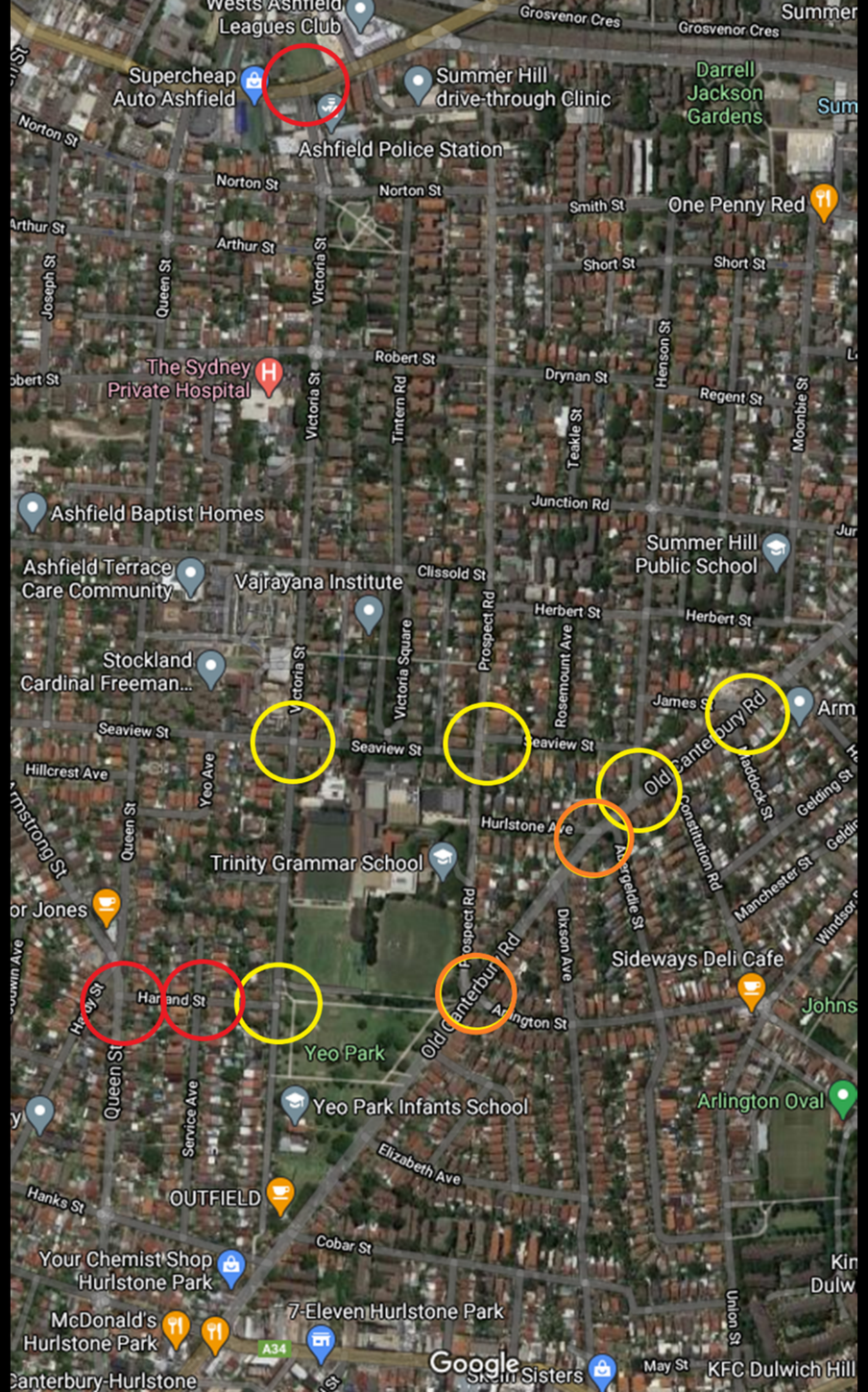
i) further analysis and evidence of consultation with and endorsement from relevant road authorities to demonstrate that the proposed mitigation measures (such as clearways, parking restrictions) would be sufficient to offset impacts of increased student numbers and / or

ii) alternate mitigation / management measures are proposed in consultation with the road authorities at these intersections;

iii) all proposed mitigation works and any accompany analysis is to be prepared in consultation with relevant road authorities and include written evidence of in principle agreements; and

iv) if mitigation works are proposed, the approval pathway for those works and the likely timing shall be detailed as part of the application and their relationship to increased student numbers.

RFI scope item 2



Additional intersections

Original intersections in yellow
Scope item 1 intersections in red
Scope item 2 intersections in orange

Modelling approach

Review previous modelling

Check assumptions, distribution and calibration

SIDRA Network model

Network model for closely-spaced intersections

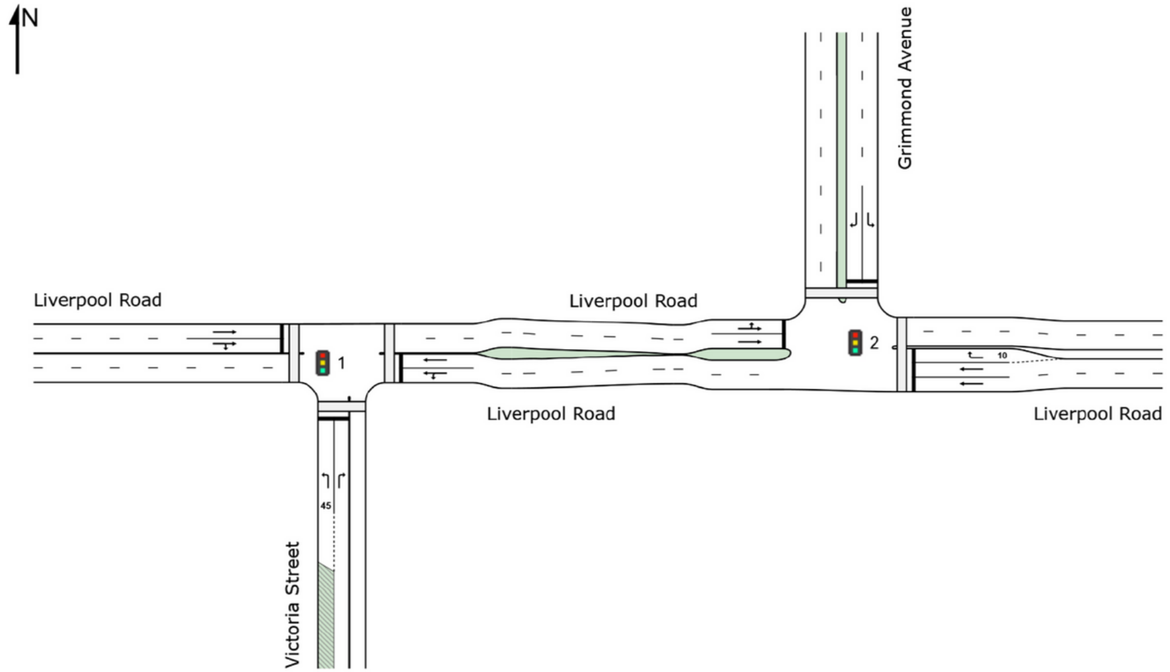
Focus on AM peak

AM school peak coincides with commuter peak

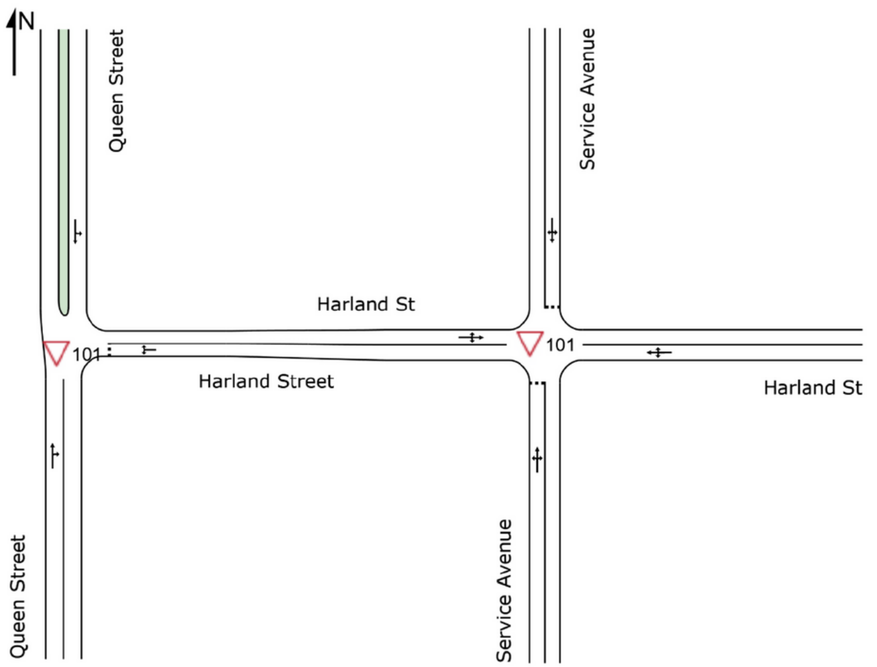
Base + Future cases

Current year 2021 + Full Development 2028


Scope 1



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
1	CCG1	Liverpool Road / Victoria Street-Base-AM Peak
2	CCG1	Liverpool Road / Grimmond Avenue-Base-AM Peak



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101	NA	Queen St / Harland St-Base-AM Peak
101	NA	Harland St / Service Avenue-Base-AM Peak

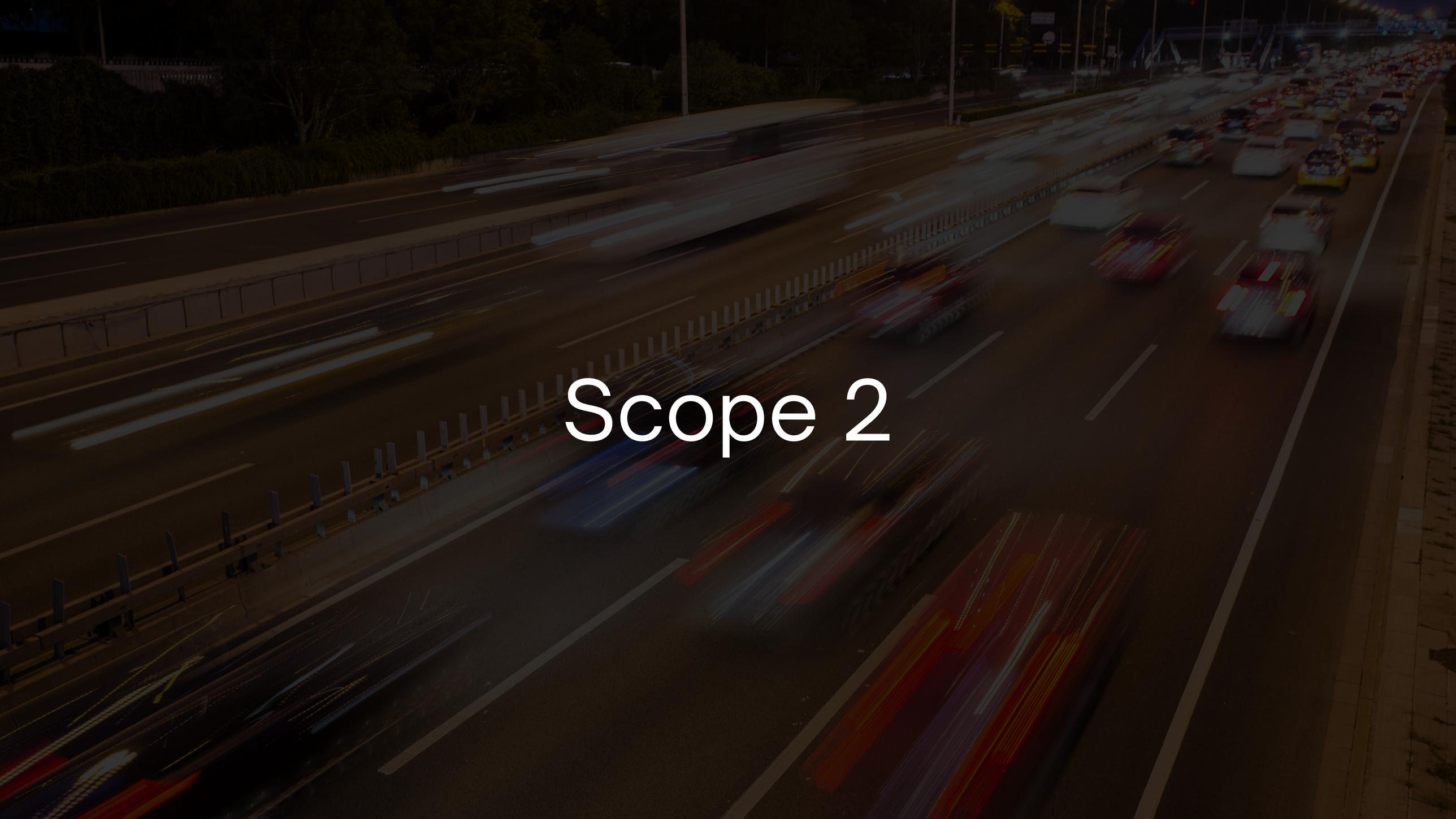
Intersection layouts

Liverpool Rd network + Harland St network

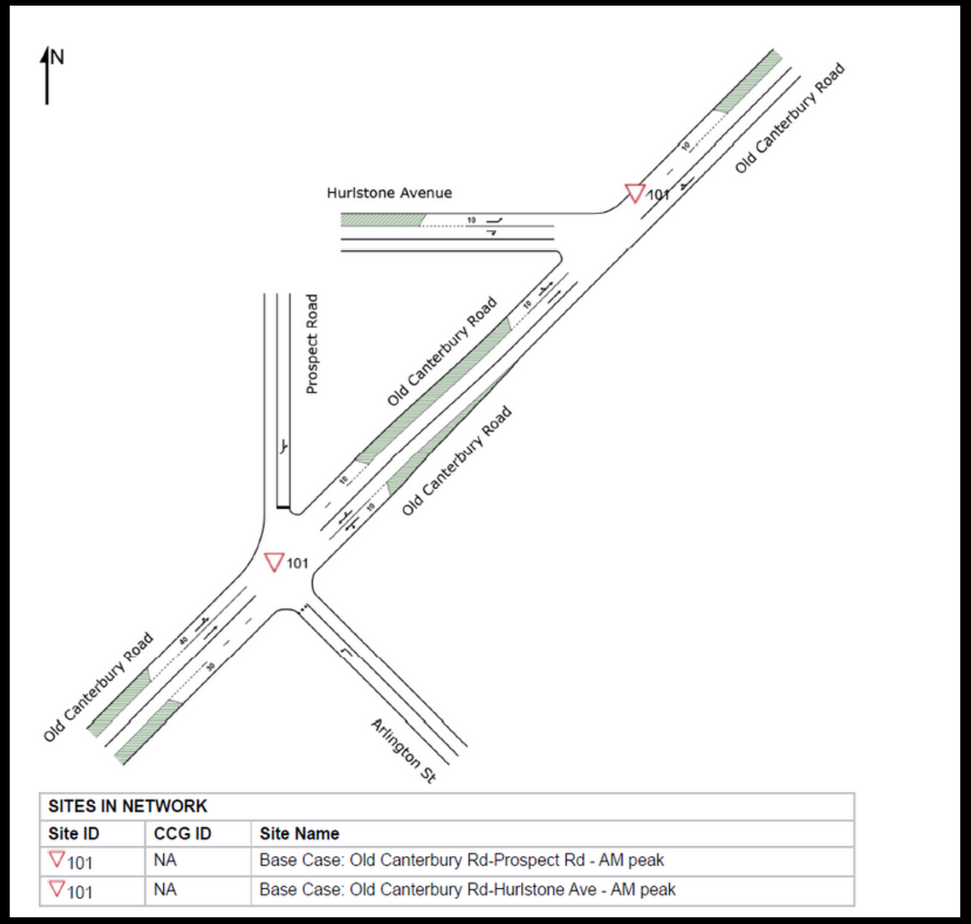
Intersection	AM Base (current)	PM Base (current)	AM Future (full development)	PM Future (full development)
Liverpool Rd/ Victoria St	A	C	B	C
Harland St/ Queen St	B	A	B	C
Harland St/ Service Ave	A	A	A	A

Scope 1: results

Liverpool Rd + Harland St

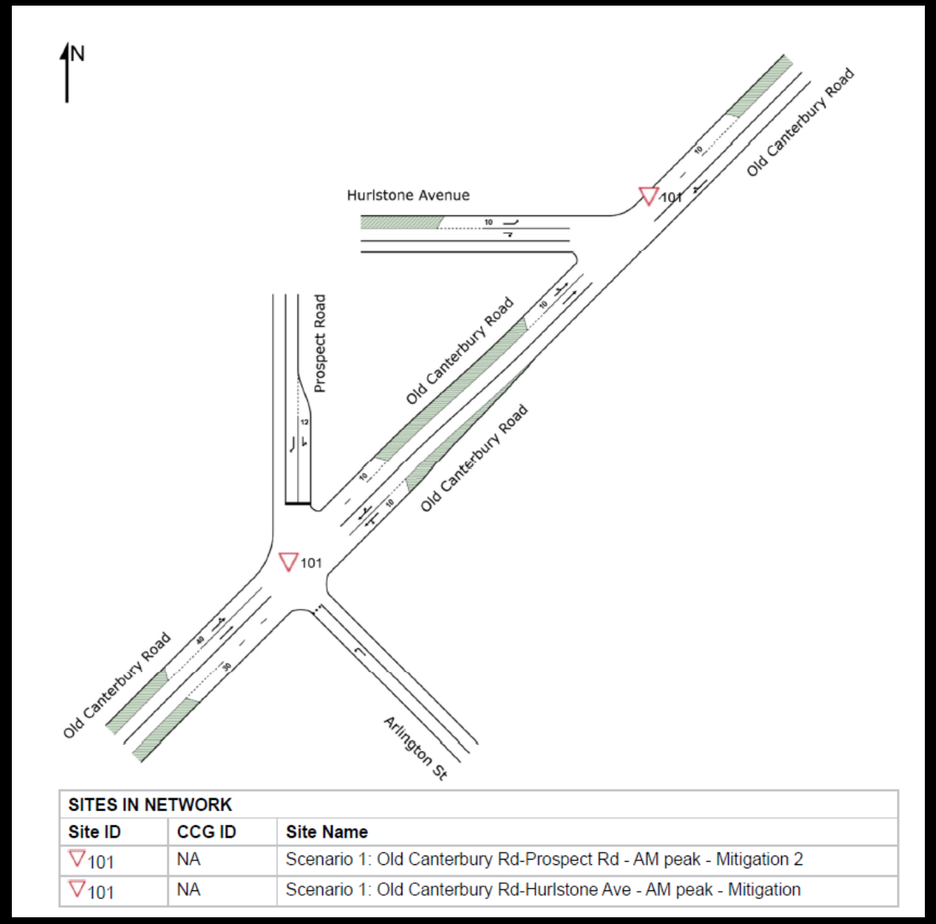


Scope 2



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽101	NA	Base Case: Old Canterbury Rd-Prospect Rd - AM peak
▽101	NA	Base Case: Old Canterbury Rd-Hurlstone Ave - AM peak

Current layout



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
▽101	NA	Scenario 1: Old Canterbury Rd-Prospect Rd - AM peak - Mitigation 2
▽101	NA	Scenario 1: Old Canterbury Rd-Hurlstone Ave - AM peak - Mitigation

With mitigation

Intersection layouts

Intersection	AM Base (current)	PM Base (current)	AM Future (full development)	PM Future (full development)	AM Future (mitigation)	PM Future (mitigation)
Old Canterbury Rd/ Prospect Rd	C	C	C	D	C	D
Old Canterbury Rd/ Hurlstone Ave	D	C	D	C	D	C

Scope 2: results

Old Canterbury Road intersections

Ancillary Works

Upgrade works

Prospect Rd intersection

Realignment to create RT from Prospect Rd & pedestrian refuge island

Raised pedestrian X

Replace the existing zebra crossing on Prospect Rd with a raised mid-block crossing

Victoria St footpath

Upgrade the Victoria St footpath along the site frontage to IWC standards

Next steps

Provide comments or feedback

Email all comments or feedback to Mel

Provide in-principle approval

Request for in-principle approval in writing

Outline approval pathways

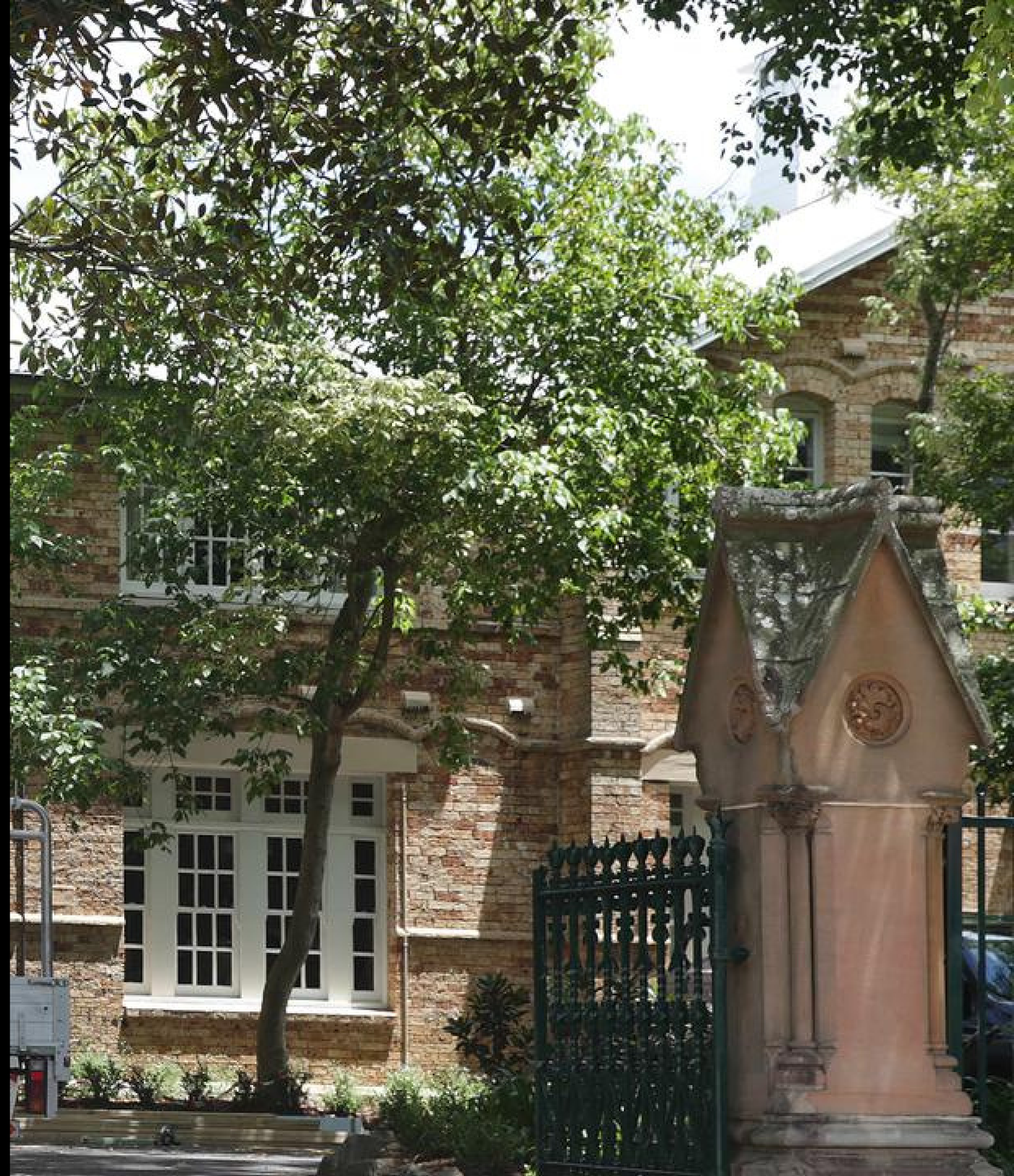
Please email with an outline of approval pathways

Thank you

Contact:

Mel Fyfe
mel@streetlevelstrategies.com
0411 202 970

street level
strategies



street
level
strategies

Appendix D – Revised Green Travel Plan

street level strategies

TRINITY GRAMMAR SCHOOL

GREEN TRAVEL PLAN (REVISION)

TRINITY GRAMMAR SCHOOL SUMMER HILL - RENEWAL PROJECT

1 JUNE 2021

Table of Contents

Revision History

Our ref	Version	Date	Purpose	Author	Approved
TTM Consulting	EIS	28/02/2020	EIS	J. Knight	M. Fyfe
202104_024	00	25/05/2021	RFI -Draft for comment	M. Fyfe	M. Fyfe
202104_024	01	28/05/2021	RFI - Client briefing	M. Fyfe	M. Fyfe
202104_024	02	01/06/2021	RFI - Final	M. Fyfe	M. Fyfe

Executive Summary

Context

This revised Green Travel Plan (GTP) has been prepared by Street Level Strategies following a Request for Information (RFI) from the Department of Planning, Industry and Environment (DPIE) on 15 April 2021.

The DPIE has made the following RFI:

> ***Green Travel Plan (GTP)***
>
> *(a) The GTP is to be revised and further details to include:*
>
> *i) specific tools and actions to help achieve the objectives and mode share targets;*
>
> *ii) details to demonstrate how bus services would be increased and accommodated to satisfy the additional demand likely to be generated by additional students;*
>
> *iii) measures to promote and support the implementation of the plan, including financial and human resource requirements, roles and responsibilities for relevant employees involved in the implementation of the GTP; and*
>
> *iv) the methodology and monitoring/review program to measure the effectiveness of the objectives and mode share targets of the GTP, including the frequency of monitoring and the requirement for travel surveys to identify travel behaviours of users of the development.*

This request follows a number of other requests and submissions as outlined in Table 1.

Item	Date	Transport Elements	Consultant
Environmental Impact Statement (EIS): Transport & Accessibility Assessment	April 2020	• Transport Assessment • SIDRA Modelling • Green Travel Plan • Construction Traffic Management Plan Framework	TTM Consulting
Response to Submissions	November 2020	• Clarifications on EIS • Additional traffic assessment	Street Level Strategies
Request for Information 1	11 December 2020	• Pick up/ drop off capacity • Traffic distribution	Street Level Strategies
Request for Information 2	22 January 2021	• Nil	Street Level Strategies
Request for Information 3	15 April 2021	• Additional traffic assessment • Further analysis on proposed mitigations • Revised Green Travel Plan	Street Level Strategies

Table 1 History of submissions for Trinity Grammar School SSDA 10371

This GTP is a revision of the plan submitted by TTM Consulting in April 2020 for the Environmental Impact Statement. It is not an entirely new GTP.

For context, in July 2020 TTM Consulting closed its NSW consulting division (where Mel Fyfe of Street Level Strategies was employed as a Director) and to maintain continuity, Street Level Strategies has been engaged since the Response to Submissions.

As a result, the GTP has been revised and updated to respond to the RFI in April 2021. Table 2 maps the content within this GTP to the specific RFI. See below.

RFI - Green Travel Plan	Sections
The GTP is to be revised and further details to include:	
(i) Specific tools and actions to help achieve the objectives and mode share targets	Section 3 and Table 7
(ii) Details to demonstrate how bus services would be increased and accommodated to satisfy the additional demand likely to be generated by additional students	Section 3.5
(iii) Measures to promote and support the implementation of the plan, including financial and human resource requirements, roles and responsibilities for relevant employees involved in the implementation of the GTP	Section 4 and Table 9
(iv) The methodology and monitoring/review program to measure the effectiveness of the objectives and mode share targets of the GTP, including the frequency of monitoring and the requirement for travel surveys to identify travel behaviours of users of the development	Section 4.1 and Table 9

Table 2 RFI3 Green Travel Plan items in document

Summary

This revision of the GTP provides a clearer approach than the previous plan on the actions required to achieve the target 10% shift in mode share toward sustainable travel by 2030.

Implementing a Green Travel Plan is an exercise in behavioural change and Trinity Grammar School is starting from a strong base. As evidenced by travel surveys of students and staff between 2013-2020, the school has already achieved an 8% shift to sustainable modes in seven years.

This history of achieving modal shift sends very strong signals that the target 10% mode shift set in this GTP will be achieved, and may potentially be exceeded.

The core of the strategy to achieve the 2030 target is to:

1. Increase travel by active transport through:
    - Improved cycling facilities (creating 96 bicycle parking spaces on campus);

- Removing barriers to active travel (e.g. building riders skills and confidence through continuing the mandatory Year 9 rider training and a 'bike bus');
- Advocating for improved infrastructure (e.g. safe pedestrian crossing facilities to access to public transport services);
- Participating in activities such as National Walk/ Cycle to Work/ School Days; and
- Creating cycling communities (e.g. Bicycle User Groups).

2. Increase travel by public transport through:
    - Providing shuttle services between Ashfield and Summer Hill train stations in the AM and PM peaks to assist with the 'last mile'; and
    - Incentivising staff to travel by public transport.
3. Increase use of Trinity bus services through:
    - Continued monitoring of patronage and service levels, and increase as necessary
4. Reducing the number of car trips (particularly single-occupancy trips) by:
    - Implement carpool initiatives for staff;
    - Promoting public and active transport to school events above car travel/ car parking;
    - Continue to implement flexible learning timetables for Senior years;
    - Implement remote working program for support staff;
    - Continue staff travel outside of the peaks where possible, and include incentives where relevant;
    - Continue to hold co-curricular activities outside of commuter peaks and travel by bus where appropriate; and
    - Not significantly increasing the level of car parking within the school.
5. Engagement and governance on the GTP through:
    - Consistent and deliberate consultation and engagement with staff, students, parents and stakeholders about transport choices and behaviours;
    - Designating the Head of Operations - Summer Hill role as the responsible person for the plan (with support from others);
    - Embedding a regular reporting, review and monitoring framework for the plan; and

- Ensuring the School Executive and School Council has full visibility of the GTP progress against targets and actions.

This revision of the GTP provides greater clarity on the proposed actions, governance and how implementation of the plan will be resourced. A summary of the GTP actions are outlined in Table 7 and the Monitoring Framework in Table 9.

1. Introduction

A Green Travel Plan (GTP) is a management strategy for delivering long term behavioural change towards sustainable travel patterns. It is about understanding how people make their transport decisions and using this to influence behaviours that lead to better organisational and health outcomes, while reducing adverse impacts such as congestion.

The plan will provide students, staff and parents with the framework, tools and actions to make sustainable transport choices and continue the school's downward trend in reducing travel to and from the school by private vehicle.

While in the context of a school environment the capacity to Retime (i.e. shifting trips from the peak to the off-peak) and Reroute (i.e. taking a different route to reduce impact) trips is limited, there is an opportunity to Remode (i.e. changing from one mode to another such as car to train) and Reduce (i.e. increase online meetings rather than travel in-person) trips to achieve the outcomes in this GTP.

This plan is a revision of the original GTP submitted by TTM Consulting to support the State Significant Development (SSD-10371) Application for the Trinity Grammar School (TGS) Renewal Project. It is intended that this document addresses the requirements of a Green Travel Plan and a Workplace Travel Plan.

Successful development and implementation of this Green Travel Plan will address the following needs:

- Enable growth in student and staff numbers without adversely impacting the surrounding environment;
- Reduce reliance on on-site parking;
- Reduce congestion on local roads during the school peaks;
- Improved health (physical and mental) for staff and students;
- Reduced greenhouse gas emissions;
- A more active workplace and school campus; and
- An improved community and corporate image.

1.1 Project Description

The proposed development is for new teaching and educational facilities, as detailed below:

- New five (5) storey building at the heart of the Campus to accommodate modern, flexible teaching and learning spaces;
- Improve movement and flow for students, with better east-west and north-south links across the school grounds and between levels, including more accessible connections between the Junior School, ovals and car park, and providing strong visual and physical connections;
- Renewal and Refurbishment of existing teaching and learning facilities;
- Reconfiguration and connection of underground car park to improve traffic flow for the school drop-off and pick-up zone and improve the safety of boys and visitors who enter the school grounds as pedestrians from Victoria Street;
- New multipurpose pavilion between Ovals 1 and 3 containing a multipurpose space and basketball court;
- Demolition of school-owned residences at 46, 48, 50 and 52 Seaview Street, improving the existing service, maintenance and delivery facilities;
- Improvement and extension to Junior School outdoor teaching area and outdoor assembly area; and
- Increase the number of students attending Summer Hill to 2,100 and staff to 321 (FTE).

The location of the renewal project is within the existing grounds of the school's Summer Hill Campus at 119 Prospect Road, bounded by Victoria Street, Prospect Road, Seaview Street and Yeo Park. The site is within the Inner West Council local government area. An aerial view of the site is shown in Figure 1.

Figure 1 Site Location Aerial View

1.2 Objectives

The main objective of this Green Travel Plan is to support the increase in students and staff by reducing the reliance on car-based modes of travel and increased sustainable travel including:

- Continuing the school's trend of a rising mode share toward Trinity bus services, public transport, cycling and walking to school trips;
- Provide adequate facilities on school grounds to enable staff, visitors and students to travel by sustainable and active transport modes;
- Reduce the number of car-based trips to and from the school, particularly in the AM peak; and
- Increasing travel by sustainable and active transport.

2. Existing Travel Behaviours

2.1 Student catchment

Students who attend the school come from all over the Sydney metropolitan area, as can be seen by the heat map below.

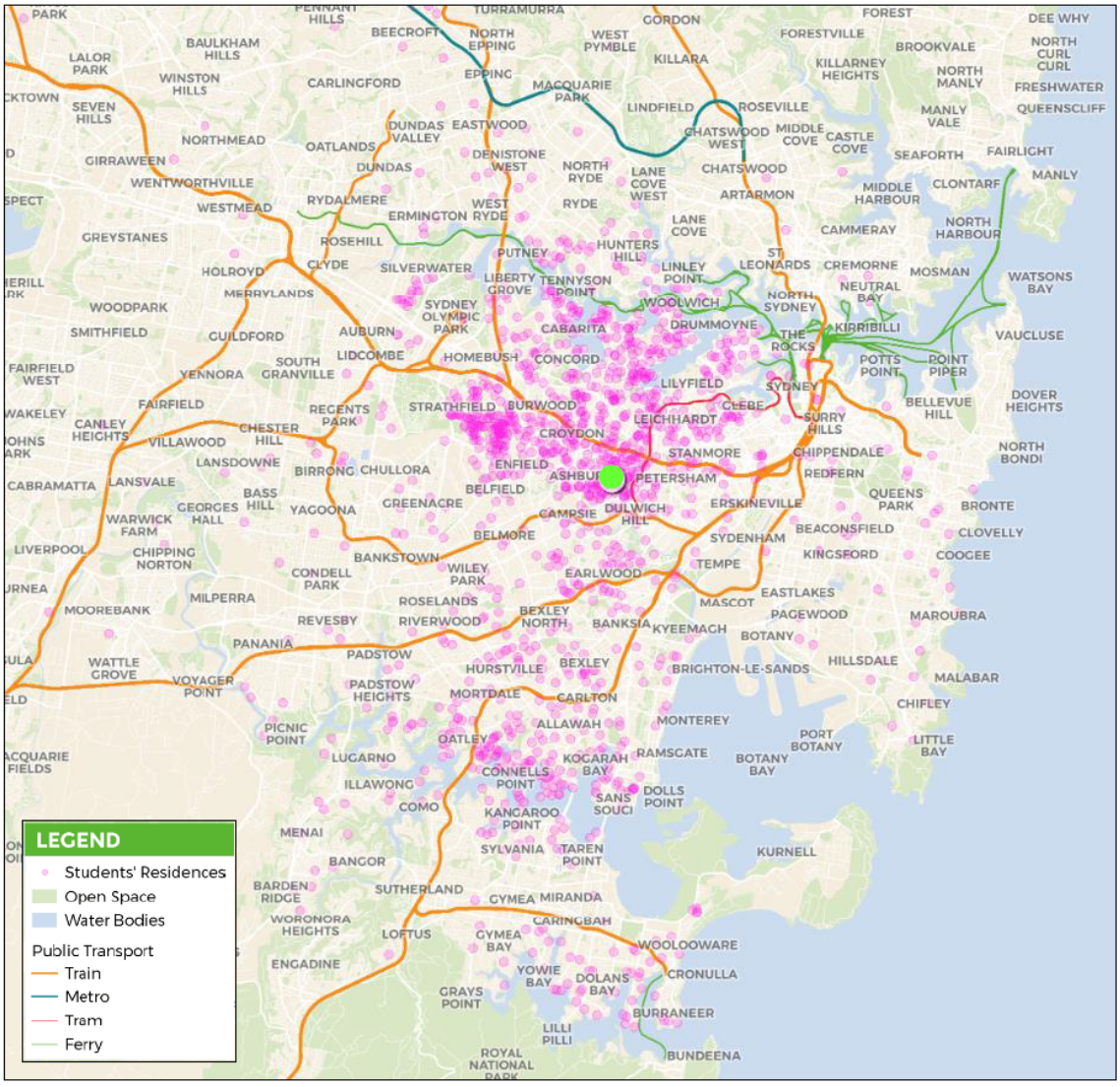


Figure 2 Heat Map of Trinity Grammar School (Summer Hill) students

However, most students live within a five kilometre radius of the school, and a slightly lesser proportion within 10 kilometres.

Table 3 presents a summary of the distance from school that students reside.

	Distance (kilometres)				
	0-5	**5-10**	**10-15**	**15-20**	**>20**
Junior	50%	35%	11%	3%	0%
Middle	46%	33%	13%	7%	1%
Senior	41%	33%	18%	6%	3%
Total	**45%**	**33%**	**15%**	**6%**	**1%**

Table 3 Distance students reside from School

The proximity of students to the Summer Hill campus, particularly for the Middle and Senior school, provides an excellent opportunity to increase access to school by active and public transport which will be addressed in the actions.

2.2 Existing Mode Share

A Travel Survey was conducted in February 2020. The survey was carried out online by all students from K-12, and staff.

The school has a history of carrying out travel surveys with students and staff since 2013. This historical view provides longitudinal evidence of how travel behaviours have changed over time for students and staff at Trinity Grammar School and demonstrates an 8% decline in car mode share over seven years.

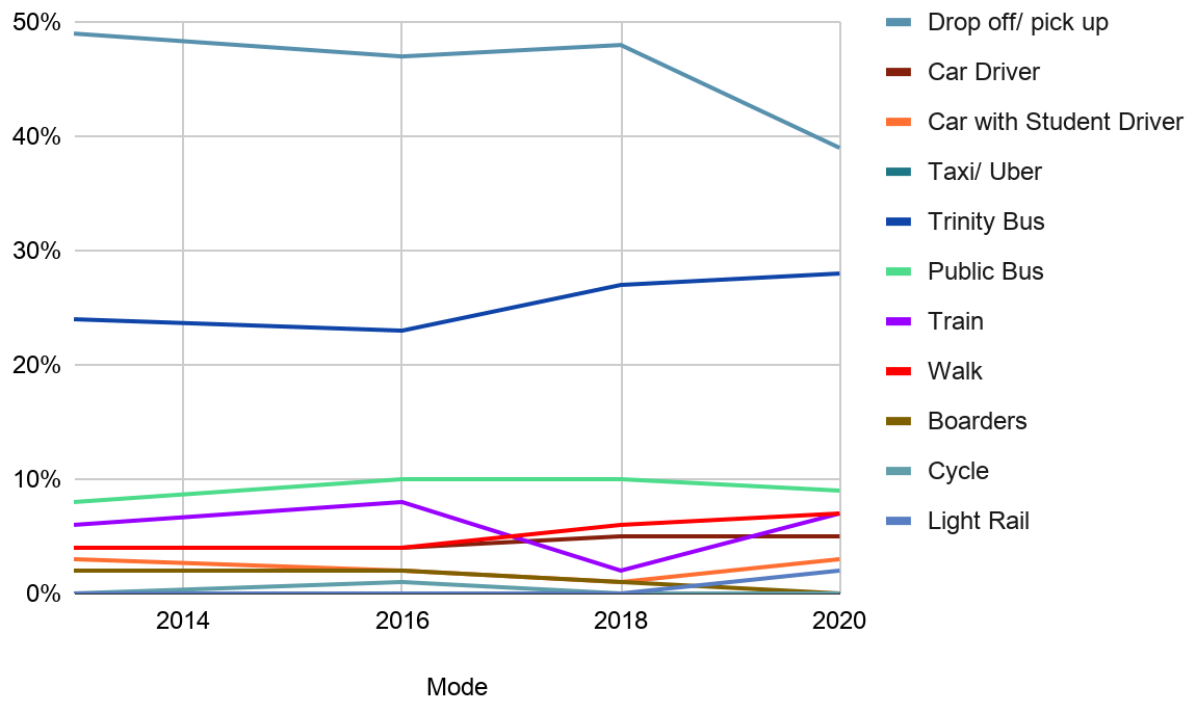


Figure 3 Mode Share distribution from 2013 to 2020

Student Mode Share

The existing mode share is shown in Table 4 below.

Transport Mode		%	
Car-based Modes	Car (passenger) - pick up/ drop off	39%	**47%**
	Car (passenger) - with student/ staff driver	3%	
	Car (driver) - park at school	5%	
Sustainable/ Active Modes	Light Rail	2%	**53%**
	Train	7%	
	Public Bus	9%	
	Trinity Bus	28%	
	Bicycle	0%	
	Walk	7%	
	Total	**100%**	

Table 4 Student Mode Share 2020

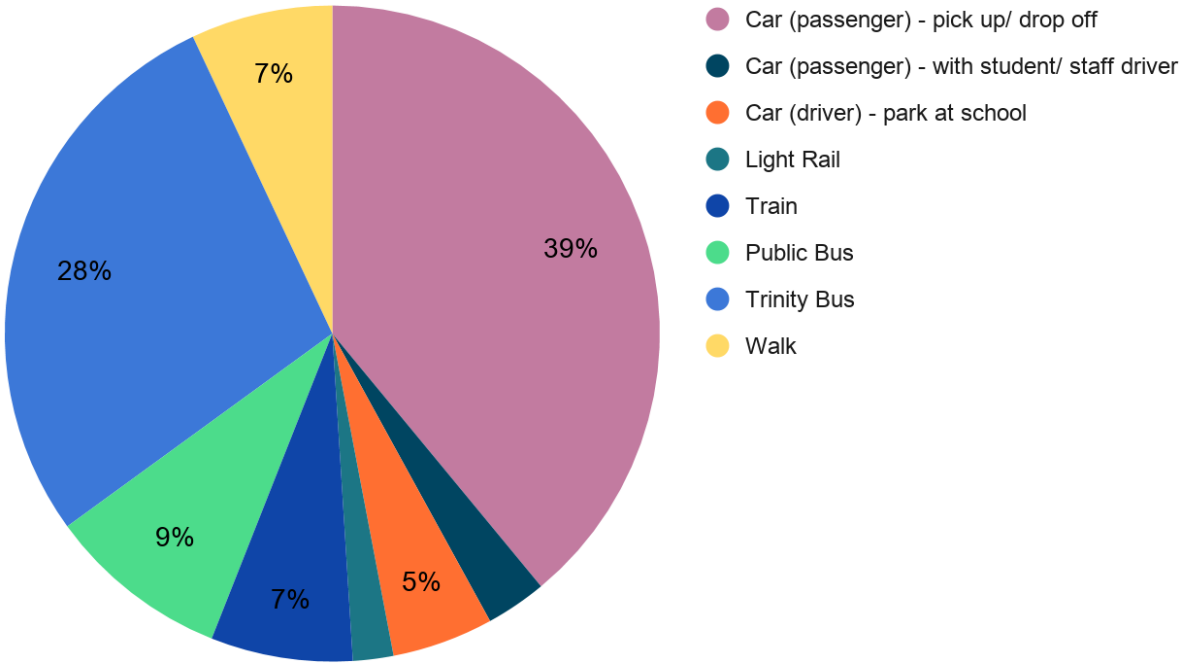


Figure 4 Student Mode Share 2020

This data tells us that while a large proportion of students travel by car; public transport services are well used, particularly the bus services provided by the school which have very high patronage and services the dispersed student catchment.

Staff Mode Share

The number of staff walking, riding and travelling by train to work is promising. While it is not feasible for all staff to travel to school by sustainable transport modes due to proximity to public transport, there are opportunities to reduce single occupancy car trips through car pooling, public transport incentives such as an Opal card credit, and shuttles to and from Ashfield and Summer Hill stations. This plan will outline actions that the school will take to progressively reduce the driver mode share over time.

The existing mode share for staff is shown below.

Transport Mode		%	
Car-based Modes	Car (passenger) - pick up/ drop off	2%	83%
	Car (passenger) - with student/ staff driver	1%	
	Car (driver) - park at school	79%	
Sustainable/ Active Modes	Light Rail	1%	17%
	Train	4%	
	Public Bus	1%	
	Bicycle	2%	
	Walk	8%	
	Total	**100%**	

Table 5 Staff Mode Share 2020

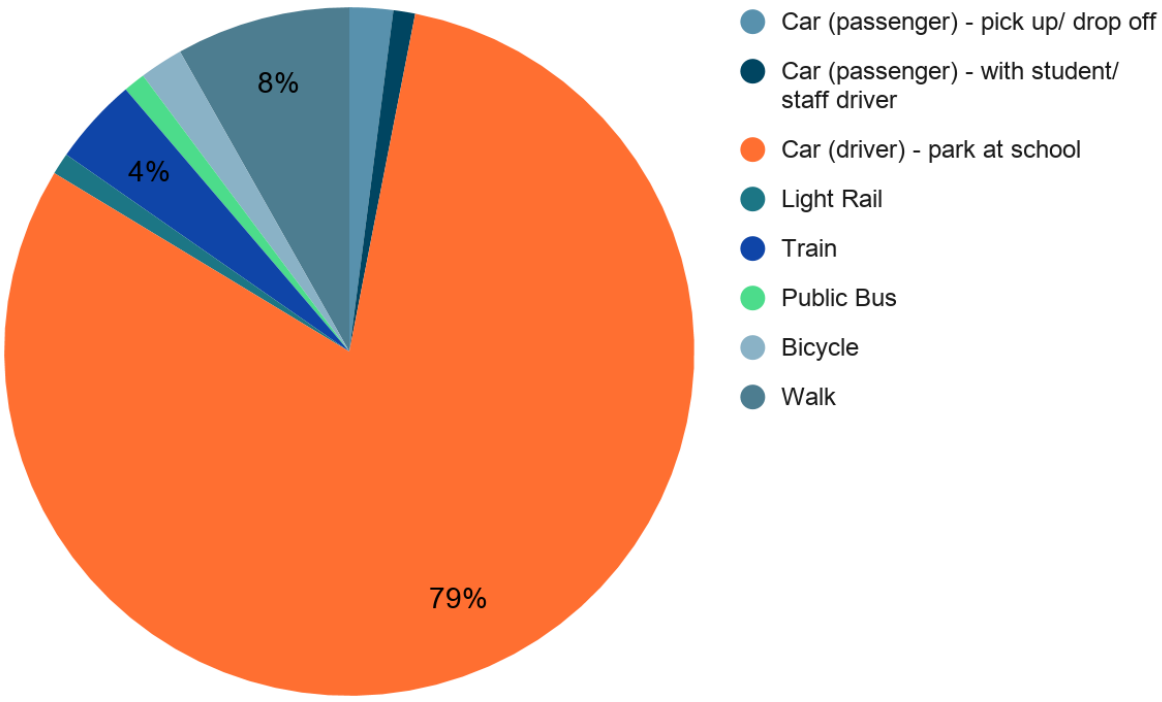


Figure 5 Staff Mode Share 2020

2.2 Current Trends

Table 6 compares the results from the recent travel mode survey to previous surveys undertaken for the school. The data shows a trend towards sustainable and active modes of transport.

Travel Mode		2013		2016		2018		2020	
Car-based modes	Drop off/ Pick up	49%	**55%**	47%	**53%**	48%	**54%**	39%	**47%**
	Car Driver	4%		4%		5%		5%	
	Car with Student Driver	3%		2%		1%		3%	
	Taxi/ Uber	0%		0%		0%		0%	
Sustainable / Active	Trinity bus	24%	**45%**	23%	**47%**	27%	**46%**	28%	**53%**
	Public Bus	8%		10%		10%		9%	
	Train	6%		8%		2%		7%	
	Walk	4%		4%		6%		7%	
	Boarders	2%		2%		1%		0%	
	Cycle	0%		1%		0%		0%	
	Light Rail	-		0%		0%		2%	

Table 6 Past and Present Travel Mode Splits

3. Initiatives

A summary of the proposed actions to be implemented as part of this GTP are in the table below. The timeframes for implementation are as follows:

- Short: within 2 years
- Medium: 3-6 years
- Ongoing: annual or recurring

Most actions are short term to be able to achieve the mode share targets for this GTP.

#	Action	Focus	Timeframe	Responsibility
Increase travel by Active Transport				
1	Provide end of trip facilities on campus	Students and Staff	Existing	Head of Operations
2	Advocate to the Local Council and other relevant authorities for improved public or active transport services and infrastructure such as cycleways, as relevant	Students and Staff	Ongoing	Head Master/ Deputy Head Master
3	Promote and participate in National Walk and Cycle to School/Work Day	Students and Staff	Ongoing	Head of Operations
4	Continue to provide the mandatory Year 9 bike rider training to all students to build cycling skills and confidence	Students	Ongoing	Head of Operations
5	Deliver 96 bicycle parking spaces on campus as part of the Renewal Project	Students and Staff	Short	Head of Operations
6	Advocate to Transport for NSW for pedestrian crossing facilities across Old Canterbury Road to improve access to Arlington light rail stop	Executive	Short	Head Master/ Deputy Head Master
7	Consult with parents, students and staff to establish a ‘bike bus’ program to increase cycling to school especially for younger students	Students	Short-Medium	Head of Operations
8	Consult with students and staff to understand barriers to walking and cycling, including any infrastructure gaps or safety concerns, and plan a course of action (may include providing infrastructure/ services or advocacy)	Students and Staff	Short-Medium	Head of Operations

9	Provide information on bike parking facilities on the Trinity app	Students and Staff	Short-Medium	Head of Operations
10	Set up a Bicycle User Group (BUG) program	Students and Staff	Short-Medium	Head of Operations
11	Include opportunities for staff to salary sacrifice the purchase of a bicycle and insurance, and negotiate discounts with local cycle dealers	Staff	Medium	Head of Operations
12	Provide a bi-annual mobile bike mechanic service at the school to encourage cycling	Students and Staff	Medium	Head of Operations
Increase travel by Public Transport				
13	Increase morning and afternoon peak shuttle services to/ from Ashfield, Summer Hill and Sydenham train stations with a potential later afternoon service to Ashfield	Students and Staff	Ongoing	Head of Operations
14	Integrate information on public transport services, walking and cycling routes on the Trinity app	Students and Staff	Short	Head of Operations
15	Provide staff within a public transport catchment with incentives to use public transport	Staff	Short	Head of Operations
Increase use of Trinity bus services				
16	Deliver an increase in Trinity bus services when service capacity threshold reached using existing processes	Students	Ongoing	Bursar
17	Provide a service on the Trinity app to request additional Trinity bus services or to report issues including crowding	Students	Short	Head of Operations
Reduce the number of car trips				
18	Provide orientation of the GTP to all incoming students as part of their start at Trinity Grammar School	Students	Ongoing	Head of Operations
19	Capturing information from prospective incoming students to inform the student's travel planning and service planning for Trinity buses	Students	Ongoing	Head of Operations/ Enrolments

20	Continue to implement flexible learning timetables for Senior students to learn remotely	Students	Ongoing	Head of Operations
21	Implement a remote working program for support staff	Staff	Ongoing	Head of Operations
22	On promotional materials encourage visitors to the school for meetings or events to travel by public transport, walk or cycle before driving	Visitors	Ongoing	Marketing and Communications
23	Investigate and encourage parents/ families to carpool	Students	Short	Head of Operations
24	Implement a carpool scheme for staff and consider incentives to join	Staff	Short	Head of Operations
Engagement and Governance				
25	Allocate budget annually to fund the implementation and monitoring of the GTP	Executive	Ongoing	Bursar/ Head Master
26	Carry out annual online travel surveys with all students and staff to track performance against mode share targets and analyse the effectiveness of actions	Students and Staff	Ongoing	Head of Operations
27	Report to the School Executive each Term on progress against the GTP targets and actions, with a remedy plan if/ as required	Executive	Ongoing	Head of Operations
28	Carry out an annual review of the GTP and report to the School Executive and School Council on progress against targets	Executive	Short	Head of Operations
29	Annually review campus attendance and incoming students' place of origin and increase Trinity bus services as required	Students	Short	Bursar/ Head of Operations

Table 7 Summary of GTP actions

3.1 Targets

In a GTP, targets for the various modes of sustainable and active transport must be realistic but ambitious and must be time-bound so that progress can be assessed against targets.

The school will adopt the mode share targets with Table 8. The rate of change in these targets is consistent with the mode shift that is already occurring at the school to maintain this ambition and be achievable.

	Transport Mode	Current		Target 2030	
		No.	%	No.	%
Students	Car-based	778	47%	778	37% (-11%)
	Sustainable/ Active	877	53%	1,322	63% (+10%)
	Total	**1,655**	**100%**	**2,100**	**100%**
Staff	Car-based	230	83%	230	72% (-11%)
	Sustainable/ Active	47	17%	91	28% (+11%)
	Total	**277**	**100%**	**321**	**100%**

Table 8 Mode Share Targets by 2030

Given behavioural change takes time and effort, it is unreasonable to place a time burden to achieve these targets beyond what is sustainable; so in this regard, we propose the school should aim to achieve these targets over a ten-year period with an approximate 1% shift towards sustainable modes occurring year on year.

3.2 Cycling

The local road network provides good cycling connections in all directions. Staff and high school students should be encouraged to cycle to school.

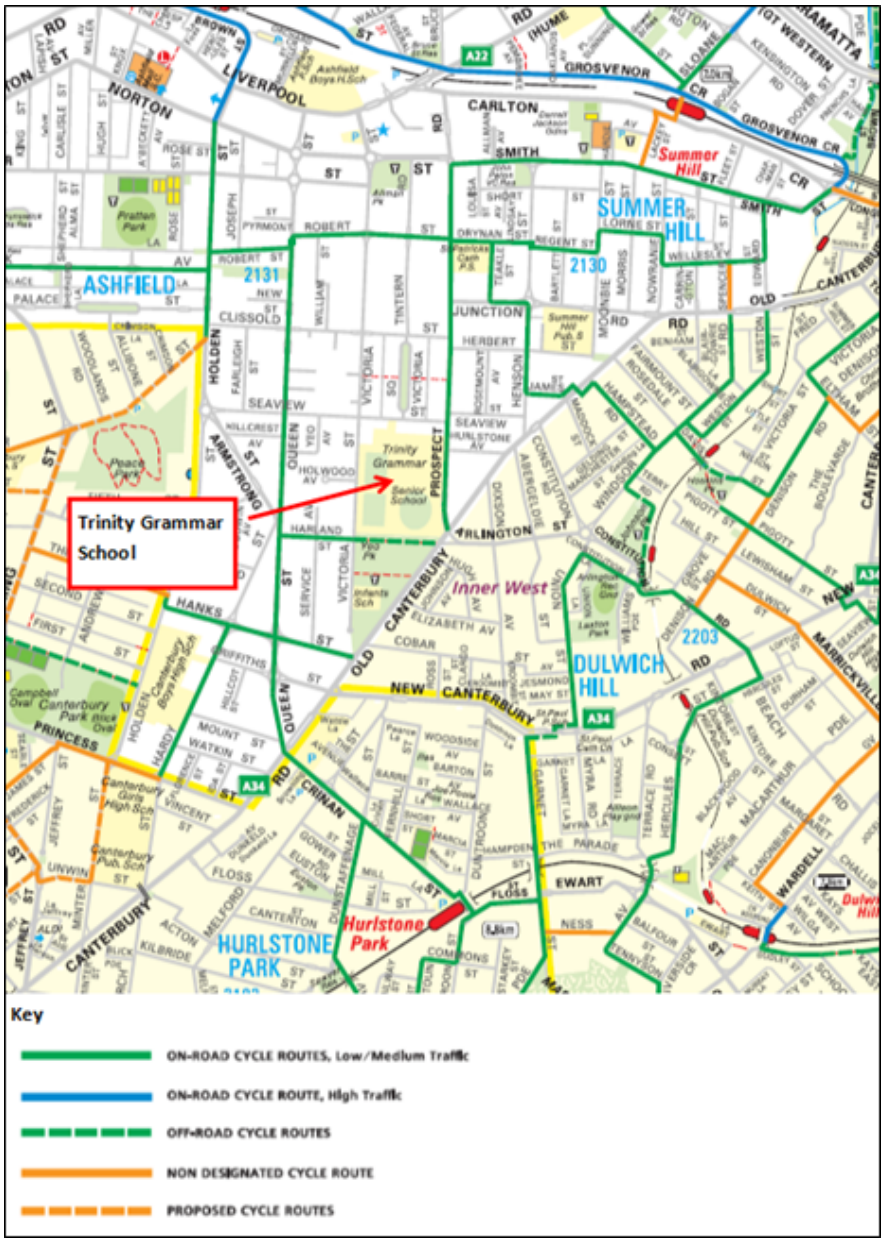


Figure 6 Extract from Ashfield Cycle Map

Currently, less than 1% of staff and students ride to school. A very low amount of bike parking is provided. Six bicycle parks are provided for students and five are provided for staff. This limits the amount of staff and students that can safely store their bicycle and discourages riding to school. This bike parking provided is significantly less than recommended by Austroads Guidelines and the Ashfield *Development Control Plan* (DCP).

The student catchment data shows that 44% of Middle and Senior school students live within five kilometres of the school, which is an ideal distance for cycling. There is significant opportunity for the number of students using this mode to increase. As part of this plan, the school will increase the number of bicycle parking spaces on campus.

In the initial GTP submitted as part of the Environmental Impact Statement for this project, a total of 37 bike parking spaces were proposed. However, in the period since, the school is now proposing a total of 96 bicycle spaces to be provided as follows:

For Students

- 40 spaces close to the main Victoria Street entry; and
- 40 spaces close to the Prospect Road entry.

For Staff

- 16 spaces close to the staff end-of-trip facilities in the Founders building

These bike parking spaces are intended to offer the infrastructure to remove barriers to cycling, particularly for students and staff that live within five kilometres of the school (a comfortable cycling distance).

The yellow highlighted areas of Figure 7 shows the indicative locations of the bicycle parking spaces as described above.

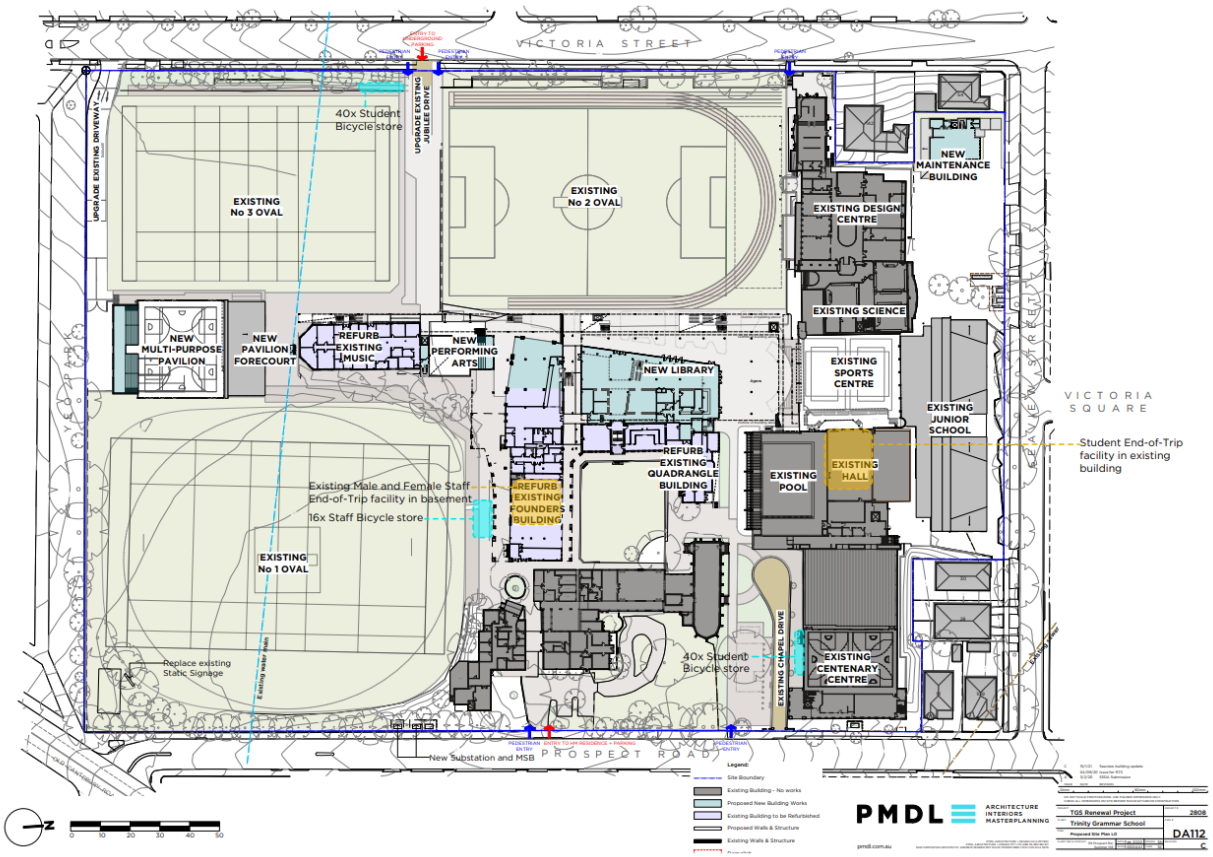


Figure 7 Indicative Location of Bicycle Storage Facility

Bike parking facilities should be designed in accordance with Standards Australia AS2890.3 (Bicycle Parking Facilities) and should be provided in a well-lit, sheltered and secure location. The shower and change room facilities in the gym and aquatic centre are available for those that require use of an end of trip facility, and staff can use the existing end of trip facilities in the Founders building.

It is noted that cycling guidelines generally do not contain requirements to provide bicycle parking for students up to Year 4. Where appropriate, students should be encouraged to cycle to school from a young age. This will also assist in embedding in students the benefits of active living. For young students, adult supervision is required. Initiatives such as parent-run 'bike buses', where parents and younger students ride in a convoy together are an effective way of promoting cycling and maintaining safety.

The school is less than one kilometre from the Green Way. The Green Way is a 5.8km environmental and active travel corridor linking the Cooks River at Earlwood with the Parramatta River at Iron Cove. The Green Way mostly follows the route of the Inner West Light Rail and Hawthorne Canal and features bike paths and foreshore walks, cultural and historical sites, cafes, bush care sites and a range of parks, playgrounds and sporting facilities. Cyclists could use the Green Way as part of their ride to or from school, or could detour via this path to extend the length of their ride and the duration of exercise. Using the heat map, a good proportion of students would have access to the GreenWay (a map is attached in Appendix B).

Queen Street, Prospect Road and Harland Street are all designated on-street cycle routes. There is an opportunity for the school to work with students and staff to identify barriers to cycling and identify a plan of action to increase the rate of cycling.

3.3 Walking

All streets around the school have concrete footpaths on both sides of an adequate size for the student volumes. The pedestrian infrastructure is outlined below:

- There is a pedestrian (zebra) crossing on Prospect Road near the entrance to the school, and this will be upgraded to a raised pedestrian crossing;
- There is a signalised pedestrian crossing on Old Canterbury Road;
- A pedestrian refuge island on Victoria Street at the southern end of the school (near Yeo Park);
- A pedestrian refuge island has been provided on Queen Street near Seaview Street; and
- A pedestrian refuge island has been provided on Old Canterbury Road near Constitution Road. Students that access light rail may use this facility.

Figure 8 Pedestrian facilities near the school

As part of the Renewal Project, improvements to the Prospect Road/ Old Canterbury Road intersection are proposed including providing a pedestrian refuge to enable safer crossing. As part of the development, it is also proposed that the existing zebra crossing on Prospect Road is upgraded to a raised pedestrian crossing.

Travel Survey data reveals 14% of students live within two kilometres of the school. Walking to school is a viable option for these students. *Sydney's Walking Future* is a strategy that recognises walking's place as an active, sustainable and enjoyable transport mode, and encourages people to walk for transport, especially for trips under two kilometres. The strategy aims to increase walking trips to school to reduce pressure on the road network. Currently only 7% of students walk to school. There is opportunity for the number of students using this mode to increase.

3.4 Public Transport

The school is serviced by the public bus network, heavy rail and light rail. Currently, 9% of students and 5% of staff use public transport to travel to school.

Based on the Travel Survey, the majority of students who travel by train access Ashfield or Summer Hill stations. The walk between these stations and the school are between 1.5-2 kilometres, and take between 15-25 minutes. While the 562s service provides a direct afternoon connection between the school and Ashfield station, it is only one service each weekday departing at 3.44pm from Victoria Street.

Providing ‘last mile’ services between Ashfield and Summer Hill stations could greatly increase the attractiveness of train travel for staff and students within the rail catchment, especially since students have access to free School Opal cards. There is potential to incentivise this trip for staff with an annual Opal card credit.

Figure 9 Public Transport near School

The light rail stop at Arlington is around 800 metres from the school which is a short walk. The 2020 Travel Survey was the first time that a mode share above zero was achieved for light rail (2%). There is an opportunity to increase the mode share for light rail, particularly for students and staff travelling from Leichhardt, Lilyfield, Abbotsford and Glebe areas.

3.5 Trinity Bus

The school operates a substantial bus network to meet the needs of its students and 28% of students use this service to travel to school. This service has a charge per trip that is invoiced each Term. The network for this service is shown in Figure 10.

Figure 10 School operated bus network

This mode of travel to and from school is well used by students. The school provides excellent information on its website on the operation of this service and on the Trinity app.

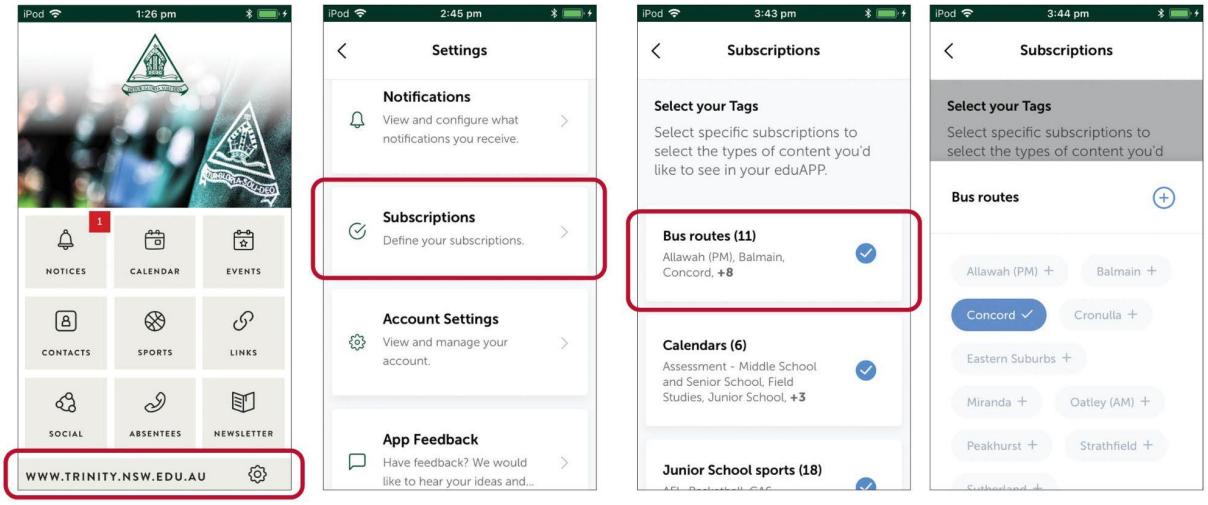


Figure 11 Trinity app bus service subscription screenshot

The network has been well designed to meet the dispersed student catchment. The school bus service is the most heavily favoured sustainable transport mode for students. Reliability and convenience are likely to be the key contributing factors for students and parents selecting this mode.

Service Reviews

The school has a process for reviewing services. Capacity constraints are reported in various ways by students, parents, staff and the bus drivers. The central coordination point is the Student Centre that will then allocate the request/ concern to the relevant person. The school's Bursar manages the bus services.

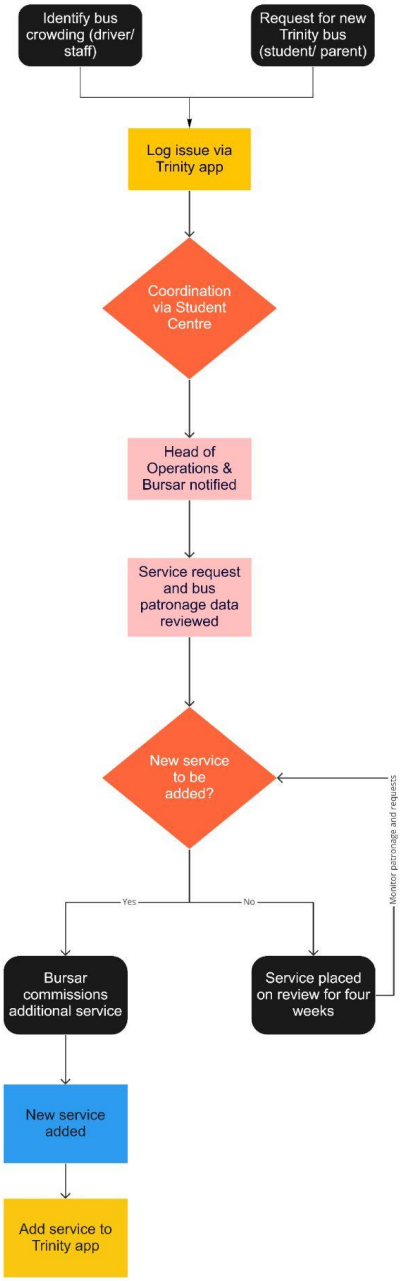


Figure 12 Trinity bus service review process

The school considers a bus' capacity 'full' when all licensed seats are occupied but the bus still has standing room. A bus is 'over capacity/ crowded' when students are required to stand for their journey.

As part of this plan, it is recommended that the school undertakes proactive reviews of the origin location for incoming students to assess the likelihood of new bus services being required, and actively provide prospective students and parents with information on Trinity bus services and other public and active transport services prior to starting at Summer Hill.

The school should continue to review the operation of Trinity bus services to ensure that it continues to meet the needs of the student population. Consideration could be given to extending the service to areas such as Silverwater, Abbotsford, Strathfield South and Enfield into the future when demand is sufficient.

3.6 Car Pooling

Carpooling is an opportunity to reduce the number of trips on the network by combining trips that might otherwise be taken by a single occupant.

The school will implement a carpool system for staff to reduce the number of trips, and investigate and encourage carpooling by families.

3.7 Car Parking

The existing Jubilee and staff car parks have a combined total of 312 parking spaces. Under the proposed arrangement, 324 car spaces are to be provided.

The design of the car park has been deliberate to not provide parking in excess of requirements, even with proposed future growth in the student and staff population. The proposed parking spaces will adequately meet the parking demand within the school now and into the future.

4. Management and Monitoring

4.1 Governance and Leadership

Ownership for the implementation and monitoring of this GTP will sit with the Head of Operations (Summer Hill) with support from the Bursar, Deputy Head Master - Strategy and Policy, Head Master and relevant school departments including the Student Centre and Marketing and Communications.

Senior Executive support of the GTP is critical to ensuring its success and will be demonstrated by:

- Leading by example and actively promoting implementation;
- Providing recurrent budget and resources for implementation;
- Being highly consultative and engaged in developing, implementing and reviewing the GTP;
- Taking a proactive approach to the review and performance of the GTP against targets and actions within a School Executive/ School Council forum;
- Advocating for services, infrastructure or policy to be developed to support the implementation of the GTP (where this sits outside of the school's authority, control or responsibility); and
- Development of policy, its documentation and communication to relevant stakeholders where the school is responsible or is the appropriate authority.

4.1 Management and monitoring

GTPs should evolve and develop over time. They should be flexible enough to respond to change, and adapt to either accelerate or refocus actions throughout the lifecycle of the plan.

Part of this process is to review and monitor the plan on a regular basis. The methodology and frequency to be implemented is as follows:

Item	Frequency	Responsibility
Carry out an annual online Travel Survey of all staff and students at a consistent time of year to understand travel behaviours and track performance against mode share targets (perhaps to coincide with the School Census Day)	Annually	Head of Operations
Review Trinity bus patronage data periodically (e.g. each Term) against capacity to determine if new services are required	Each Term	
Carry out traffic counts on the same day as the Travel Survey at the car park entry/ exit to identify volume of traffic, number of vehicles parking and direction of travel	Annually	
Report to the School Executive and School Council annually, following the Travel Survey and traffic counts, on performance against targets and progress of GTP actions	Annually	
Regularly report on the progress of the GTP to the school community using forums such as the school newsletter	Each Term	
Undertake a thorough review of the GTP and its actions annually, including making adjustments as necessary to ensure the objectives of the GTP remain on track or mode share ambition is increased	Annually	
Carry out consultation and engagement with students, staff, parents and relevant stakeholders in developing actions and the annual review program that represents best practice in Travel Demand Management	Ongoing	
Engage a transport planning consultant to assist with the travel survey design	Once	

Table 9 GTP Monitoring Program

4.3 Promotion

The GTP will be regularly promoted by the school using various existing methods including the Weekly Bulletin, social media, and school website. Collateral will be developed by the school's Marketing and Communications department.

In keeping with the sustainability objective inherent in a GTP, printed promotional materials should be kept to a minimum and electronic formats such as apps, social media or the school's website should be used instead.

Promotion and reporting on the performance against the GTP actions and targets will be shared with the broader school community regularly to inform and create awareness

If engagement with authorities such as the Local Council or Transport for NSW is required, this is coordinated by the Head of Operations.

5. Conclusion

This revised plan includes specific actions and tools to meet the mode share targets by 2030, and a monitoring plan to continuously review and improve the performance against targets and actions.

Given a GTP is a behaviour change tool, it is important to recognise that change will take time. However, given the school's existing success in increasing sustainable travel (and reducing car-based travel) over the past eight years, the 2030 target is highly attainable.

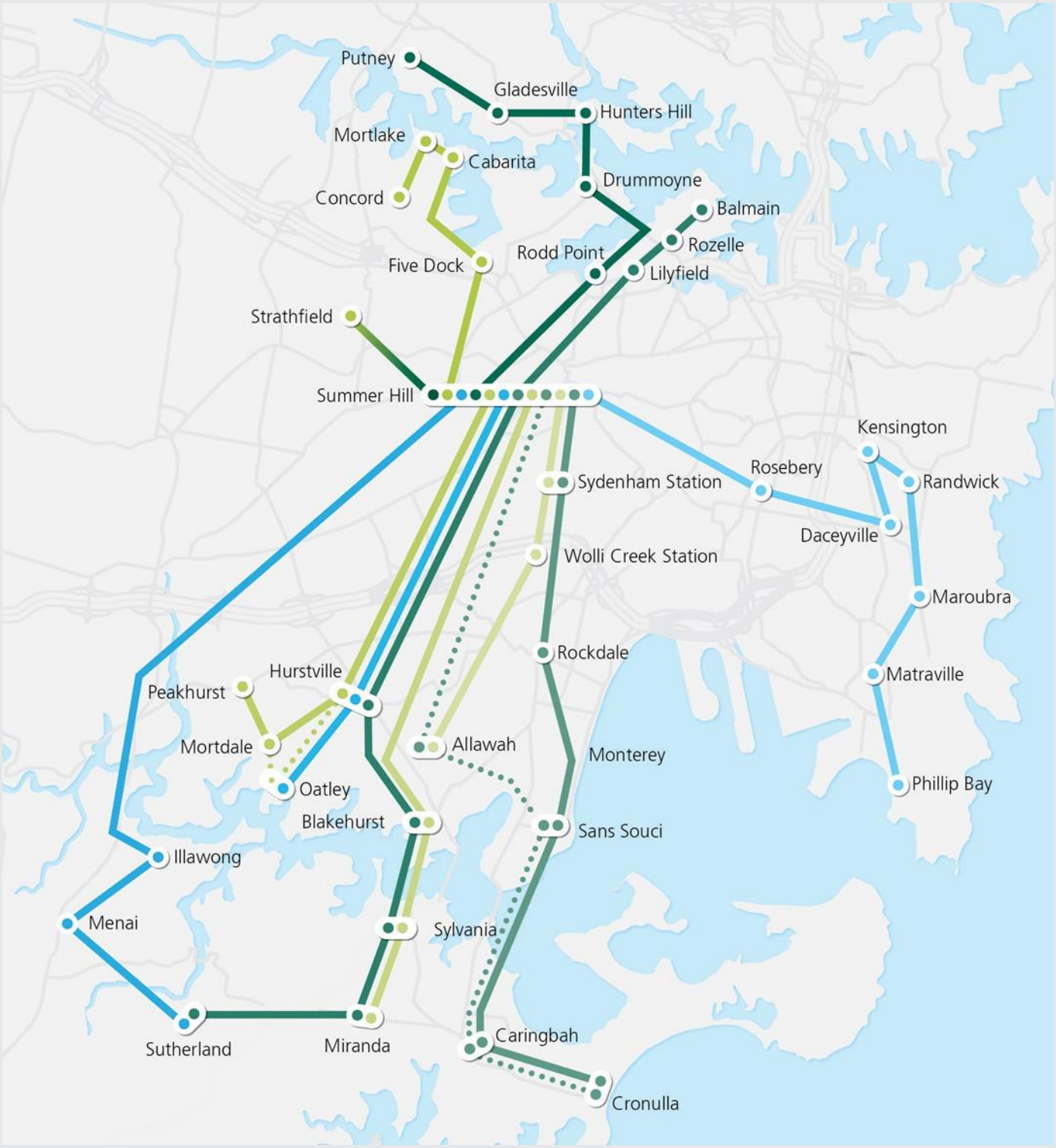
Any behaviour change program requires a strong level of consultation and engagement to be successful, and it is important that this approach is taken in developing these actions and implementing them.

A Green Travel Plan is a useful tool to manage the cumulative impacts of the development by enabling staff and students of the school to reduce reliance on private car travel and increase public and active transport use.

The school already has some excellent initiatives in place such as the school bus. The popularity of this service demonstrates that it significantly addresses the travel needs of the student population. The school should seek to further build on the success of this service as demand increases.

There are significant opportunities for improvement, in particular reducing the amount of staff using private vehicles and promoting walking and cycling within reasonable 2km and 5km catchments respectively.

Appendix A – Trinity Bus Service information



TRINITY TRANSPORT 2021

BUS ROUTES

More detailed maps of the School's bus routes can be found at the following URL: **https://www.telfordtours.com.au/Trinity**

BUS AND TRAIN TRAVEL

Students are entitled to free travel on both Private buses and Government buses/ trains when travelling to and from School. Trinity also provides bus travel, to and from School, which incurs an additional charge per trip. These charges are outlined on page 3 of this booklet.

The School's Buses

- Allawah Bus (afternoon)
- Balmain Bus (morning and afternoon)
- Concord Bus (morning and afternoon)
- Cronulla Bus (morning and afternoon)
- Eastern Suburbs Bus (morning and afternoon)
- Miranda Bus (morning and afternoon)
- Peakhurst Bus (morning and afternoon)
- Prep School Bus (morning and afternoon)
- Putney (morning and afternoon)
- Strathfield Bus (morning and afternoon)
- Sutherland Bus (morning and afternoon)
- Late Sutherland Bus (afternoon only)
- Late Peakhurst Bus (Wednesday afternoon only)

CONDITIONS OF TRAVEL

- **STUDENTS SHOULD BE AT PICKUP POINT AT LEAST 10 MINUTES PRIOR TO THE STATED TIME OF DEPARTURE.**
- Student ID Card must be produced to be scanned on each journey.
- Any report of misconduct on the bus may result in withdrawal of bus usage.
- An Administration fee will be charged for the re-issue of a Student ID Card.
- Student ID Card, is to be surrendered to the bus driver or staff if requested

BEHAVIOUR ON BUSES & TRAINS

All boys will be expected to obey the following rules

Boys who do not comply with this "Code of Behaviour" may have their Opal Card or Travel on Trinity Buses cancelled.

- All School Rules in terms of Uniform and Behaviour apply as per the Handbook.
- Board and leave the bus or train in an orderly manner.
- Behave appropriately and safely at all times.
- Accept that the driver or train guard is in charge and obey his or her instructions.
- Sit properly on a seat.
- Respect bus and train property and the property of others by not marking or damaging it.
- Do not carry bags on your back when entering and exiting the bus or train.
- Place bags under the seat, near your feet or in the storage areas provided.
- Do not put bags on the seats as this stops other people from using the seats.
- Have the School Opal Card ready to tap on and off on Government Buses and at Railway stations
- When waiting for buses, line up in order from the person who first arrives to the person who arrives last.
- Stand on the footpath away from the kerb while waiting for the bus or behind the yellow line while waiting for a train.
- Treat other travellers and bus and railway employees with respect.
- Show constraint, keep the noise level down and do not move around the bus or train while it is in motion.
- Keep all parts of your body within the train or bus.
- Only attract the attention of the driver in the case of an emergency.

DO NOT

- Move around the bus whilst bus in motion.
- throw any objects inside the bus or train.
- throw any objects outside the bus or train.
- eat or drink while on trains or buses.
- obstruct the aisle, door or emergency exits.
- alter, or deface School ID Cards or School Opal Card.
- give, lend or transfer School ID card or School Opal card to another student.
- stand or put your feet on the seats.

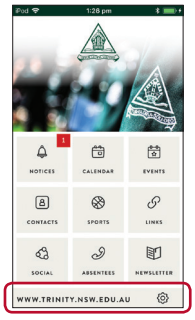
TRINITY APP

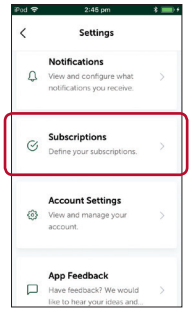
Customising the App to receive bus route notifications

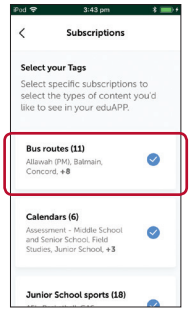
Click on Settings to manage your Notifications, Subscriptions etc. according to your son's school, academic year, sports and bus route.

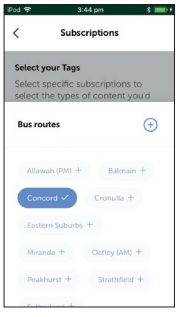
Click on 'Subscriptions' then 'Bus Routes' and finally select your son's bus route.

Notification will be given, whenever possible, of any changes.









BUS CHARGES

These prices were current at the time this fee schedule was printed but are subject to change without notice. All charges quoted inclusive of GST.

School Bus Travel

The Student ID Card is used to travel on the School's route buses.

Students are to carry their ID Card and appropriate Opal Card at all times when travelling.

Charges

The cost per one way journey for each route is listed below and will be charged on your son's fee account (including GST). The applicable one way journey costs are:

PAGE	BUS ROUTE	COST
4	Allawah | Sydenham Station | Wolli Creek Station	$4.50
4	Balmain | Rozelle | Lilyfield	$5.00
4	Concord | Cabarita | Canada Bay	$5.00
4	Cronulla | Caringbah | Sans Souci | Allawah	$5.60
4	Eastern Suburbs: Phillip Bay | Matraville | Maroubra | Randwick | Daceyville	$5.00
4	Miranda | Sylvania | Blakehurst	$5.60
5	Peakhurst | Mortdale | Hurstville	$5.00
5	Putney | Hunters Hill | Drummoyne | Rodd Point	$5.00
5	Strathfield | Summer Hill	$3.60
5	Sutherland | Menai | Illawong	$5.60

Transport for NSW - School Student Transport Scheme (School Opal Card) (Government Buses and Trains/Private Bus)

For students in the Opal network (https://apps.transport.nsw.gov.au/ssts/OpalNetworkByPostcode), the student's existing Opal card will automatically be updated for travel in the new school year without you having to re-apply for it in most circumstances.

You will need to do an update application if the student has a current School Opal Card and:

- The student is progressing from Year 2 to year 3
- The student is progressing from Year 6 to Year 7
- The student's circumstances change, e.g. change of school, home address or school year outside of the usual progression.

Update application: https://apps.transport.nsw.gov.au/ssts/#/updateDetails

You will need to do a new application (https://apps.transport.nsw.gov.au/ssts/applyNow) if:

- Applying for a School Opal Card for the first time
- Enrolling in Kindergarten
- Requesting an additional pass as a result of a new shared parental responsibility situation (e.g. joint custody).

New application: https://apps.transport.nsw.gov.au/ssts/applyNow#/howToApply

TRANSPORT CONTACTS

Transport Info | Trip Planner	www.transportnsw.info/trip#/
Transport Information Line	p. 13 1500
Sydney Buses	https://transportnsw.info/routes/bus
Train Timetables	www.sydneytrains.info
School Student Transport Scheme	www.transportnsw.info/school-students

If you would like further information about any of the Trinity Transport services, please contact Student Services on p. 02 9581 6000.

PLEASE NOTE that Trinity Grammar School and Sydney Buses reserve the right to alter the bus schedules of their bus services when necessary.

ALLAWAH BUS

PM SUMMER HILL TO SYDENHAM STATION | WOLLI CREEK STATION | ALLAWAH application reference no: 1

PICK-UP SET DOWN POINT			
Summer Hill	**Prospect Road**	**3.45**	PM
Sydenham Stn	cnr Railway Pde & Gleeson Ave	3.55	
Wolli Creek Stn	WOLLI CK INTERCHANGE	4.10	
Allawah	cnr Park Road & Princess Hwy (Red Rooster)	4.30	

BALMAIN BUS

AM BALMAIN | SUMMER HILL

PM SUMMER HILL | BALMAIN application reference no: 2

PICK-UP SET DOWN POINT			
Balmain	Start At Gladstone Park	7:35	
Balmain	Montague Street	7:37	
Balmain	Elliot Street/Darling Street	7:39	
Balmain	Beattie Street	7:40	
Rozelle	Darling St and Merton St	7:47	
Lilyfield	Balmain Rd just before Cecily St.	7:49	
Lilyfield	Balmain Rd just before Grove St.	7:51	
Lilyfield	Perry St at Orange Grove Public school.	7.52	
Summer Hill	**Prospect Road**	**8:10**	AM
Summer Hill	**Prospect Road**	**4:00**	PM
Lilyfield	Perry Street/Glover Street	4:10	
Rozelle	Darling St and Merton St	4:15	
Balmain	Darling St and Elliott St	4:18	
Balmain	Darling St and Montague St	4:25	
Balmain	Elliot Street/Darling Street	4:18	
Balmain	Darling St (opp Gladstone Park)	4:30	

CONCORD BUS

AM CONCORD | CONCORD WEST | | MORTLAKE | CABARITA | CANADA BAY | TO SUMMER HILL

PM SUMMER HILL TO FIVE DOCK | CABARITA | MORTLAKE | CONCORD application reference no: 3

PICK-UP SET DOWN POINT			
Concord	Brewer St & Ellis St (opp Community Church)	7.10	
Mortlake	Brays Rd just prior to Watkins St	7.15	
Mortlake	Bus zone opp. Palace Hotel Tennyson Rd	7.25	
Cabarita	Bus Zone opp. shops Cabarita Rd	7.32	
Canada Bay	Cnr Bayview Rd & Watt St	7.45	
Canada Bay	Cnr Lang & Church St	7.50	
Summer Hill	**Prospect Road**	**8.05**	AM
Summer Hill	**Prospect Road**	**3.50**	PM
Five Dock	cnr Lyons Rd & Regatta Rd	4.30	
Cabarita	cnr Cabarita Rd & Mortlake St	4.40	
Mortlake	Palace Hotel Tennyson Rd	4.50	

CRONULLA BUS (AM)

AM CRONULLA | CARINGBAH | SANS SOUCI & ALLAWAH TO SUMMER HILL application reference no: 4

PICK-UP SET DOWN POINT			
Cronulla Station	Cronulla Street	7.00	AM
Caringbah	Kingsway - outside Westpac Bank	7.08	
Sans Souci	cnr Bonney St & Rocky Point Rd	7.18	
Summer Hill	**Prospect Road**	**8.00**	

CRONULLA BUS (PM)

PM SUMMER HILL TO MARRICKVILLE | SYDENHAM STATION ROCKDALE | MONTEREY | SANS SOUCI | CARINGBAH CRONULLA application reference no: 4

PICK-UP SET DOWN POINT			
Summer Hill	**Prospect Road**	**3.45**	PM
Sydenham Stn	cnr Railway Pde & Gleeson Ave	4.05	
Rockdale	cnr West Botany & Bestic Streets	4.15	
Monterey	cnr Hollywood St & Chuter Ave	4.20	
Sans Souci	cnr Russell & Napoleon Streets	4.35	
Sans Souci	Russell Av and Jameson Ln	4.37	
Caringbah Station	Opposite LJ Hooker	5.00	
Cronulla Station	Cronulla Street	5.10	

EASTERN SUBURBS BUS

AM PHILLIP BAY | MATRAVILLE | MAROUBRA | RANDWICK | KENSINGTON | DACEYVILLE | ROSEBERY TO SUMMER HILL

PM SUMMER HILL TO ROSEBERY | DACEYVILLE | KENSINGTON | RANDWICK | MAROUBRA | MATRAVILLE | PHILLIP BAY application reference no: 6

PICK-UP SET DOWN POINT			
Phillip Bay	Anzac Pde opp Pine Ave	7.10	
Phillip Bay	Anzac Pde cnr Nurla Ave	7.11	
Matraville	Matraville Shopping Centre, cnr Australia Ave	7.12	
Matraville	Bunnerong Rd, Cnr Beauchamp St	7.13	
Maroubra	cnr Maroubra Rd & Anzac Pde (southern side)	7.20	
Randwick	Barker St/Young St	7.25	
Mascot	University Gate 14 | along Barker Street	7.30	
Daceyville	Cnr Gardeners Rd crn Sutherland St	7.36	
Rosebery	cnr Gardeners Rd & Botany Rd	7.40	
Rosebery/St Peters	Canal Road	7.45	
Summer Hill	**Prospect Road**	**8.10**	AM
Summer Hill	**Prospect Road**	**4.00**	PM
Rosebery	cnr Gardeners Rd & Botany Rd	4.20	
Kingsford	Gardeners Rd | Dacey Gardens	4.25	
Kingsford	Gardiners Rd / Bunnerrong Rd	4.30	
Randwick	Barker St/Young St	4.40	
Maroubra	cnr Maroubra Rd & Anzac Pde (southern side)	4.45	
Matraville	Matraville Shopping Centre	5.00	

MIRANDA BUS

AM MIRANDA | SYLVANIA | BLAKEHURST | ALLAWAH TO SUMMER HILL

PM SUMMER HILL TO BLAKEHURST | SYLVANIA | MIRANDA application reference no: 7

PICK-UP SET DOWN POINT			
Miranda Station	Kiora Road outside Westfield	7.05	
Sylvania	Southgate cnr Port Hacking Rd & Princes Hwy	7.14	
Blakehurst	Church Street	7.24	
Allawah	cnr Park Rd & Princess Highway (Red Rooster)	7.28	
Summer Hill	**Prospect Road**	**8.00**	AM
Summer Hill	**Prospect Road**	**3.55**	PM
Blakehurst	Water Street, Caltex Station	4.25	
Sylvania	Formosa Street (behind Southgate)	4.33	
Miranda Station	Kiora and Karimbla Roads	4.45	

PEAKHURST BUS

AM PEAKHURST | MORTDALE | HURSTVILLE TO SUMMER HILL

PM SUMMER HILL TO HURSTVILLE | OATLEY | MORTDALE PEAKHURST application reference no: 8

PICK-UP SET DOWN POINT			
Peakhurst	Bus Zone, Belmore Rd before Isaac Street	7.10	
Mortdale	Bus Zone, Roberts Ave (btwn Cromdale & Gungah Bay)	7.15	
Oatley Station	Bus Stop, Oatley Parade	7.20	
Hurstville Station	Bus Zone, Ormonde Pde near RSL Club	7.30	
Hurstville	Wright Street & Queens Road	7.40	
Bexley	Preddys Rd (Opposite Oportos)	7.50	
Bexley North	Bexley Rd (Outside North Bexley shops)	7.55	
Campsie	Canterbury Rd near Park St (opp Canterbury BMW)	8.00	
Summer Hill	**Prospect Road**	**8.10**	AM
Summer Hill	**Prospect Road**	**3.55**	PM
Hurstville	cnr Wright Street & Queens Road	4.15	
Hurstville Station	Bus Zone, Ormonde Pde near RSL Club	4.20	
Oatley Station	Bus Stop, Oatley Parade	4.30	
Mortdale	Bus Stop, Roberts Ave (btwn Cromdale & Gungah Bay)	4.40	
Peakhurst	Bus Stop, Belmore Rd after Isaac Street	4.45	

LATE PEAKHURST BUS (WEDNESDAY ONLY)

application reference no: 9

PICK-UP SET DOWN POINT			
Summer Hill	**Prospect Road**	**5.20**	PM
Kingsgrove	Near Kinsgrove station	5.40	
Hurstville	cnr Wright Street & Queens Road	5.50	
Hurstville Station	Bus Zone, Ormonde Pde near RSL Club	5.55	
Oatley Station	Bus Stop, Oatley Parade	6.05	
Mortdale	Bus Stop, Roberts Ave (btwn Cromdale & Gungah Bay)	6.15	
Peakhurst	Bus Stop, Belmore Rd after Isaac Street	6.20	

PUTNEY BUS

AM PUTNEY | GLADESVILLE | HUNTERS HILL | DRUMMOYNE RODD PT | HABERFIELD TO SUMMER HILL

PM SUMMER HILL TO HABERFIELD | RODD POINT | DRUMMOYNE HUNTERS HILL | GLADESVILLE | PUTNEY application reference no: 10

PICK-UP SET DOWN POINT			
Putney	Kissing Point Reserve	7.10	
Gladesville	Morrison Rd just prior to Tennyson Rd	7.15	
Gladesville	cnr Pittwater & Eltham Roads	7.18	
Gladesville	cnr Pittwater & Ryde Roads	7.20	
Hunters Hill	cnr Ryde & Gladesville Roads	7.23	
Drummoyne	cnr Lyons Road & Thompson Street	7.33	
Drummoyne	cnr Lyons Road & Janet Street	7.35	
Rodd Point	cnr First Ave & Arthur Street	7.36	
Haberfield	Dalhousie Street, opposite Library	7.40	
Summer Hill	**Prospect Road**	**8.00**	AM
Summer Hill	**Prospect Road**	**3.55**	PM
Haberfield	Dalhousie Street, opposite Library	4.05	
Rodd Point	cnr First Ave and Duchess Street	4.10	
Drummoyne	cnr Brent & Whittall Street	4.13	
Drummoyne	cnr Lyons Road & Gears Ave	4.17	
Drummoyne	cnr Lyons Road & Thompson Street	4.25	
Hunters Hill	cnr Ryde and Gladesville Roads	4.30	
Hunters Hill	cnr Ryde Road opposite Figtree Road	4.32	
Gladesville	cnr Pittwater and Ryde Roads	4.34	
Gladesville	cnr Ross and Raven Streets	4.35	
Gladesville	cnr Morrison and Tennyson Roads	4.36	
Putney	cnr Morrison Road and Delange Road	4.37	
Putney	Kissing Point Reserve	4.40	

STRATHFIELD CAMPUS TO SUMMER HILL CAMPUS

application reference no: 11

PICK-UP SET DOWN POINT				
Llandilo Avenue, Strathfield Campus	7.50	7.55	8.00*	
Summer Hill Campus	8.05	8.10	8.15	AM
Llandilo Avenue, Strathfield Campus	3.30			PM
Summer Hill Campus	3.50			

* 8am bus takes slightly different route (goes down Greenhill St Croydon Park)

SUMMER HILL CAMPUS TO STRATHFIELD CAMPUS

application reference no: 11

PICK-UP SET DOWN POINT				
Summer Hill Campus	8.05			
Llandilo Avenue, Strathfield Campus	8.30			AM
Prospect Rd, Summer Hill Campus	3.45	4.00*		PM
Llandilo Avenue, Strathfield Campus	4.10	4.25		

* Students must inform driver if they require to be dropped off at Summer Hill Station

SUTHERLAND BUS

AM SUTHERLAND | MENAI | ILLAWONG TO SUMMER HILL

PM SUMMER HILL TO ILLAWONG | MENAI | SUTHERLAND

application reference no: 12

PICK-UP SET DOWN POINT			
Sutherland Stn	East Pde Woronora side	6.55	
Menai	Menai Market Place bus stop	7.05	
Illawong	Blaxland Road	7.15	
Peakhurst	Henry Lawson Drive / Dilke St	7.20	
Kingsgrove	Kinsgrove Road just after Commercial Rd @ Service station.	7.40	
Summer Hill	**Prospect Road**	**8.00**	AM
Summer Hill	**Prospect Road**	**3.55**	PM
Illawong	Blaxland Road	4.35	
Menai	Menai Market Place bus stop	4.45	
Sutherland Stn	cnr Flora and Eton Streets	5.00	

LATE SUTHERLAND SHIRE BUS

PM SUMMER HILL TO HURSTVILLE | BLAKEHURST | SYLVANIA MIRANDA & SUTHERLAND application reference no: 5

PICK-UP SET DOWN POINT			
Summer Hill	**Prospect Road**	**5.20**	PM
Hurstville Station (Mon, Tue, Thu, Fri ONLY)	Bus Zone, Ormonde Pde near RSL Club	5.55	
Blakehurst	Water Street, Caltex Station	6.05	
Sylvania	Formosa Street (Behind Southgate)	6.10	
Miranda Station	Kiora and Karimbla Roads	6.18	
Sutherland Stn	cnr Flora and Eton Streets	6.32	

GOVERNMENT & SCHOOL-HIRED BUSES

SUMMER HILL | ASHFIELD | KINGSGROVE

BUS	DEPARTS	ARRIVES	DEPARTURE TIMES				
563s*	Summer Hill Station (Lackey St)	TGS Prospect Rd	7.53	8.05			
406	Ashfield Station (Brown St)	TGS Prospect Rd	6.25	7.32	8.02		
418	Ashfield (Liverpool Rd & Hercules St)	TGS Queen Street (before Hardy St)	7.11	7.25	7.44	8.08	
418	Sydenham Station	TGS Queen Street	7.06	7.24	7.43		
Telfords	Ashfield Station	TGS Victoria Street	8.10				
464	Ashfield Station (Brown St)	TGS Victoria Street	8.09				
565s*	Kingsgrove Station	TGS Victoria Street	7.50				AM
562s *	TGS Victoria Street (3 buses)	Ashfield Station	3.42	3.45	3.50		PM
566s*	TGS Victoria Street	Kingsgrove Station	3.45				
418	cnr Queen & Armstrong Sts	Ashfield Station	4.11	4.43	5.03	5.21	
418	Queen Street, Ashfield (before Hardy St)	Sydenham Station	4.07	4.21	4.41	4.57	5.17
406**	TGS Prospect Rd	Five Dock via Ashfield Station	4.08	4.38	5.08	5.38	
Telfords***	TGS Prospect Rd	Summer Hill Station (no pass rqd)	3.55				

* Indicates a school special ** after Ashfield Station travel to Five Dock Shops *** student must inform driver if they require to be dropped off at Summer Hill Station

BALMAIN

BUS	DEPARTS	ARRIVES	DEPARTURE TIMES				
445	Balmain (Gladstone Park)	cnr Canterbury & New Canterbury Roads	7.07	7.34			AM
445	Canterbury Rd, Hurlstone Park (nr Watkin St)	Balmain (Gladstone Park)	3.50	4.08	4.21		PM

ROUTE MAPS

To access a map for your bus route please go to:

TRANSPORT INFO | TRIP PLANNER
www.131500.com.au

SYDNEY BUSES
https://transportnsw.info/routes/bus

STUDENT NAME: _____ YEAR: _____ HOUSE: _____ CAMPUS: _____

ADDRESS: _____

Office use only	Date entered:
	Student ID number:

THIS APPLICATION IS A:

☐ NEW APPLICATION

Complete Student details, table at right, authority below.

☐ CHANGE TO EXISTING

Complete Student details, table at right, existing bus route details and authority below.

EXISTING ROUTE DETAILS

Existing bus route:

AM	PM	BOTH

Please tick appropriate service

AUTHORITY

print name of parent/guardian

signature

ph (hm)

ph (wk)

PLEASE NOTE: STUDENTS SHOULD BE AT PICKUP POINT AT LEAST 10 MINUTES PRIOR TO THE STATED TIME OF DEPARTURE

	BUS ROUTE	TIME	SERVICE	DAYS (Pls tick)	PICK-UP POINT	SET DOWN POINT
1	**Allawah Bus** Summer Hill to Sydenham Station | Wolli Creek Station & Allawah	3.45pm	afternoon	M T W T F		
2	**Balmain Bus** Balmain to Summer Hill	7.35am	morning	M T W T F		
	Balmain Bus Summer Hill to Balmain	4.00pm	afternoon	M T W T F		
3	**Concord Bus** Concord | Cabarita | Canada Bay to Summer Hill	7.10am	morning	M T W T F		
	Concord Bus Summer Hill to Canada Bay | Cabarita | Mortlake | Concord	3.50pm	afternoon	M T W T F		
4	**Cronulla Bus** Cronulla | Caringbah | Sans Souci | Allawah to Summer Hill	7.00am	morning	M T W T F		
	Cronulla Bus Summer Hill to Sydenham | Sans Souci | Caringbah | Cronulla	3.55pm	afternoon	M T W T F		
5	**Late Sutherland Shire Bus** | Summer Hill | Hurstville | Blakehurst | Sylvania | Miranda Station | Sutherland	5.20pm	afternoon	M T W T F		
6	**Eastern Suburbs Bus** Phillip Bay | Matraville | Maroubra | Randwick | Kensington | Daceyville | Rosebery | St Peters to Summer Hill	7.10am	morning	M T W T F		
	Eastern Suburbs Bus Summer Hill to St Peters | Rosebery | Daceyville | Kensington | Randwick | Maroubra | Matraville | Phillip Bay	3.50pm	afternoon	M T W T F		
7	**Miranda Bus** Miranda | Sylvania | Blakehurst to Summer Hill	7.05am	morning	M T W T F		
	Miranda Bus Summer Hill to Blakehurst | Sylvania | Miranda	3.55pm	afternoon	M T W T F		
8	**Peakhurst Bus** Peakhurst | Mortdale | Hurstville to Summer Hill	7.05am	morning	M T W T F		
	Peakhurst Bus Summer Hill to Hurstville | Oatley | Mortdale | Peakhurst	3.55pm	afternoon	M T W T F		
9	**Late Peakhurst Bus** Summer Hill to Hurstville | Oatley | Mortdale | Peakhurst	5.20pm	afternoon Wednesdays only	M T W T F		
10	**Putney Bus** Putney | Gladesville | Hunters Hill | Drummoyne | Rodd Point | Haberfield to Summer Hill	7.10am	morning	M T W T F		
	Putney Bus Summer Hill to Haberfield | Rodd Point | Drummoyne | Hunters Hill | Gladesville | Putney	3.55pm	afternoon	M T W T F		
11	**Strathfield Campus Bus** Strathfield to Summer Hill	7.50, 7.55, 8.00am	morning	M T W T F		
	Strathfield Campus Bus Summer Hill to Strathfield	3.45 & 4.00pm	afternoon	M T W T F		
	Strathfield Campus Bus Summer Hill to Strathfield	8.05am	morning	M T W T F		
	Strathfield Campus Bus Strathfield to Summer Hill	3.30pm	afternoon	M T W T F		
12	**Sutherland Bus** Sutherland | Menai | Illawong to Summer Hill	6.55am	morning	M T W T F		
	Sutherland Bus Summer Hill to Illawong | Menai | Sutherland	3.55pm	afternoon	M T W T F		

PLEASE COMPLETE THIS FORM, DETACH WHERE INDICATED AND LODGE WITH TRINITY GRAMMAR SCHOOL STUDENT SERVICES

TRINITY GRAMMAR SCHOOL

119 PROSPECT ROAD | SUMMER HILL NSW 2130 | p. 02 9581 6000 | WWW.TRINITY.NSW.EDU.AU | NOV 2019

Appendix B - Green Way map


greenway
cooks river to iron cove
Iron Cove
CITY WEST LINK
MORTLEY AV
BOOMERANG ST
new pedestrian/ cycle bridge
enter here
enter here
CANAL
HAWTHORNE
PERRY ST
LILYFIELD RD
JAMES
NORTON
Leichhardt Nth
DARLEY RD
WILLIAM ST
NORTON ST
BALMAIN RD
HABERFIELD
Hawthorne
DALHOUSIE ST
KINGSTON
O'CONNOR
RAMSAY ST
STANTON
HAWTHORNE PDE
ALLEN ST
LEICHHARDT
Marion
MARION ST
enter here
FOSTER
LORDS RD
TEBBUTT
FLOOD
ELSWICK
Ashfield
enter here
Taverners Hill
PARRAMATTA RD
GROSVENOR
GOWER
SLOANE
CARLTON
Summer Hill
enter here
BROWN
PETERSHAM
SMITH ST
SUMMER HILL
Lewisham
Lewisham West
WEST
BRIGHTON ST
Petersham
CRYSTAL
RAILWAY TCE
TRAFALGAR
JUNCTION RD
OLD
CANTERBURY RD
VICTORIA ST
FOOTHILL ST
WEST ST
GORDON
HENSON
ROSEDALE
LEWISHAM
Waratah Mills
CONSTITUTION
WINDSOR RD
DAVIS
PROSPECT
PIGOTT ST
Arlington
OLD CANTERBURY RD
route to Cooks River
LENNOX ST
MARRICKVILLE RD
BEACH
NEW CANTERBURY
Dulwich Grove
HURLSTONE PARK
DULWICH HILL
GARNET ST
HERCULES ST
CRINAN ST
route from Cooks River
WARDELL RD
CHALLIS
Hurlstone Park
FLOSS
BEART ST
NESS AV
Dulwich Hill
TENNYSON PDE
EWART ST
enter here
WARDELL RD
Cooks River
enter here
key:
GreenWay corridor
GreenWay catchment
Existing path
Proposed GreenWay path
Regional cycle routes
Lewisham Train stations
The Western & Bankstown lines
Light Rail stops
N
0
500
metres
INNER WEST COUNCIL

Appendix E – Cover letter: consultant transition for the Green Travel Plan revision

street level strategies

55 IVY STREET
DARLINGTON, NSW 2008
M: +61 411 202 970
mel@streetlevelstrategies.com
ABN: 77 291 515 024

28 May 2021

Dear Peter,

Re: Green Travel Plan - transition from TTM Consulting to Street Level Strategies

This letter is to provide context for the change in consultancies used to deliver the Green Travel Plan for the Trinity Grammar School Renewal Project (SSD-10371).

The Transport & Traffic Assessment (including the Green Travel Plan) prepared for the Environmental Impact Statement (EIS) for the SSDA (submitted in April 2020) was completed by TTM Consulting. At that time, I was employed by TTM Consulting in the capacity of Director and led the NSW Division. Prior to the EIS submission, I had been heavily involved in the development of the transport strategy and design for this project.

As a result of the economic impact of COVID-19, TTM Consulting closed their NSW consulting business on 15 July 2020. Following this closure, I opened my own consulting business, Street Level Strategies.

Following the closure of TTM in NSW, and seeking a level of continuity and consistency in the transport strategy, Trinity Grammar School engaged Street Level Strategies to continue the

transport and traffic advice through the Response to Submissions (November 2020) and Requests for Information (December 2020 and January 2021). On 15 April 2021, the Department of Planning, Industry and Environment issued a third Request for Information including a revision to the Green Travel Plan.

The Green Travel Plan submitted in this Request for Information has been completed by Street Level Strategies and is a revision to the existing Green Travel Plan submitted by TTM Consulting for the EIS.

Yours Sincerely,

Mel Fyfe

Managing Director, **Street Level Strategies**