TRAFFIC & PARKING IMPACT ASSESSMENT
PROPOSED HUNTER SPORTS HIGH SCHOOL PROJECT

Pacific Highway, Gateshead

Final Issue: A – 10th February 2015

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HUNTER SPORTS HIGH SCHOOL

PACIFIC HIGHWAY, GATESHEAD

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1 INTRODUCTION

M^{C}Laren Traffic Engineering was commissioned in September 2014 by the *NSW Department of Public Works Government Architects Office* to undertake a traffic & parking impact assessment of the proposed Hunter Sports High School Project.

The project involves the demolition of the existing Hunter Sports High School buildings and construction of a new 5 stream High School under the same name and operation, accommodating a total of 900 students.

The new school will not increase student or staff numbers above existing operation and can effectively be assessed as a renovation of the school, rather than a brand new school on a green-field site. The existing school is approved with 2014 enrolment totalling 832 students, though the new school will be assessed as accommodating 900 students.

The site location is shown in **Figure 1** and **Figure 2** and the site layout is shown in **Annexure A.**

1.1 State Environmental Planning Policy (Infrastructure) 2007

The proposed construction of a renewed Hunter Sports high School is not classified as a development with additional size and/or capacity under Clause 104 of SEPP (Infrastructure) 2007. However, referral to the RMS may technically be necessary given the change in driveway location on a STATE Road and an increase of 50+ students for an educational establishment.

The site is located within the jurisdiction of Lake Macquarie City Council.

2 EXISTING SITE

2.1 Hunter Sports High School

The existing Hunter Sports High School caters for years 7-12 with a current total population of 832 students. The school is located in a residential area along the Pacific Highway, Gateshead, with an industrial area situated to the east of the site. The school is surrounded by a number of sports fields and is located adjacent to Gateshead Public School with Lakeside Public School, Wiripaang Public School and Lake Macquarie Private Hospital located further to the north along the Pacific Highway. Industrial developments also exist on the eastern side of the Pacific Highway opposite the school's site.

The following characteristics of the existing Hunter Sports High School were obtained by the school principal, Rachel Byrne, with additional school data shown in **Annexure B.**

- Student enrolments have ranged between 832 and 966 in the past 5 years with typical absenteeism of about 11%.
- School lessons start at 8:30am and finish at 3:10pm on a typical school day.
- A total of some 108 staff (69 teachers, 29 admin staff, 6 volunteers and 4 cleaners). The school can also have up to 10 casual staff on any one day. On a typical school day however, a total of 98 staff are expected at the school. As of 2014, the school consists of the following breakdown:
    - 146 x Year 7 students
    - 151 x Year 8 students
    - 158 x Year 9 students
    - 167 x Year 10 students
    - 127 x Year 11 students
    - 83 x Year 12 students
    - A special education unit consisting of 36 students and 4 staff.
- An existing off-street car park exists on-site accessed from Pacific Highway to cater for all staff driving to work.
- Most events associated with the school are held on the school grounds in various building locations. The existing school hall has capacity for 1000 persons with an additional capacity for 150 persons standing which is used for ceremonies and other school related events.
- The provided bus service is from Newcastle Buses and according to the 2014 school data obtained, 430 students have bus travel passes (or 1 per 1.9 students or 52%).

3 SURROUNDING ROAD ENVIRONMENT

3.1 Road Hierarchy

The following roads are located near the site and have the following features:

Pacific Highway:

- RMS Classified STATE Road (Road No. 10)
- Approximately 23m in width kerb-to-kerb
- Divided four lane (two lanes in each direction) carriageway with restricted parking on either side of the road
- 60km/h speed limit applies, reducing to 40km/h during school zone periods
- 1.2-2m wide footpaths along either side of the road
- Indented bus stop located along the school frontage
- Access to Hunter Sports HS existing staff carpark
- Southbound U-turn facility at Oakdale Road to the south of the school

Hughes Street:

- LOCAL road classification
- Approximately 12m in width kerb-to-kerb
- Undivided two-way (one lane in each direction) carriageway
- 50km/h speed limit applies, reducing to 40km/h during school zone periods
- 1.2m wide footpath on both sides of the road
- Restricted kerbside parking permitted on both sides of the road
- Access to Lakeside PS staff carpark

Macquarie Avenue:

- LOCAL road classification
- Approximately 12m in width kerb-to-kerb
- Undivided two lane (one lane in each direction) carriageway
- 50km/h speed limit applies, reducing to 40km/h during school zone periods
- Generally unrestricted kerbside parking permitted on both sides of the road

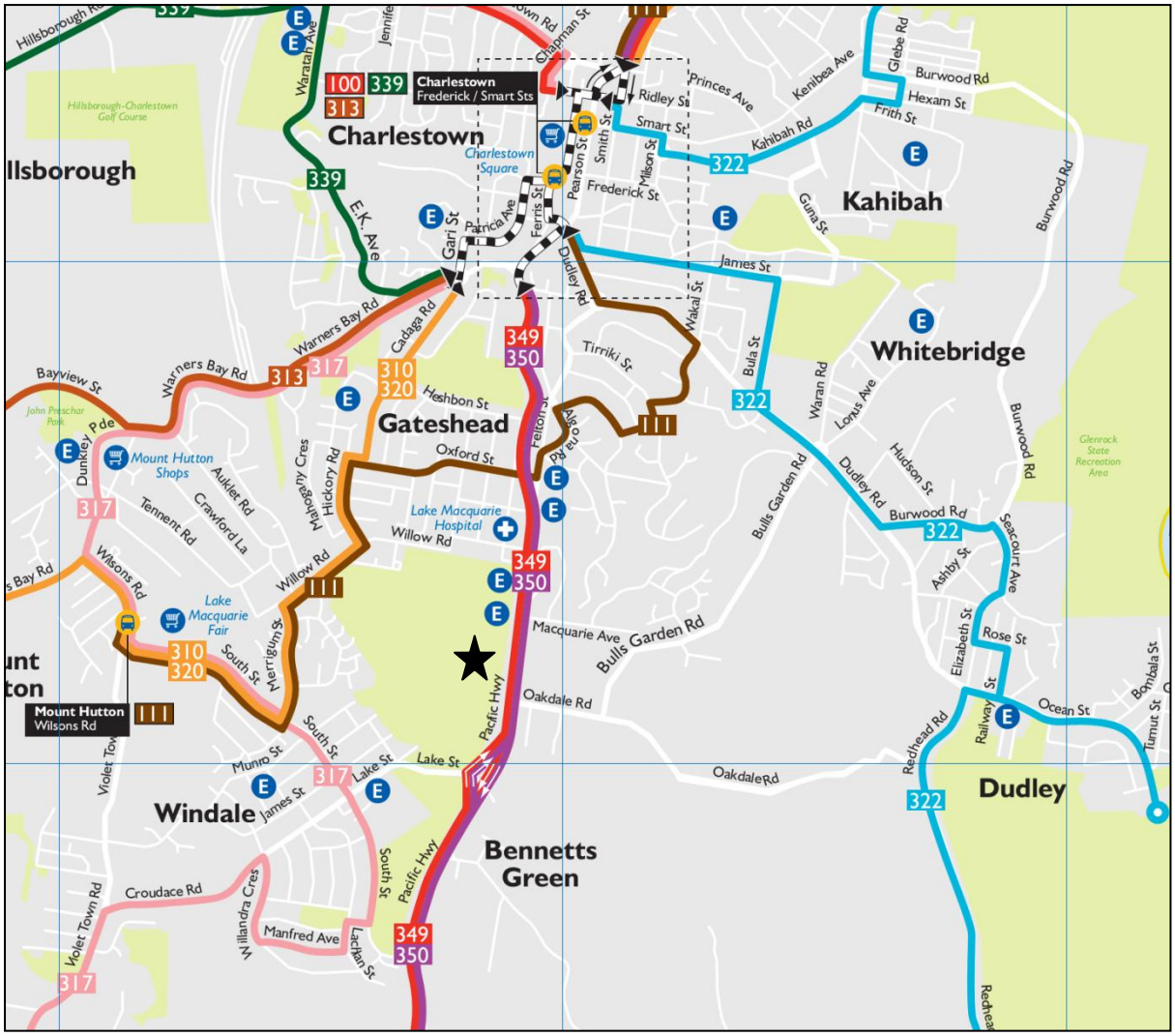
3.2 Existing Traffic & Parking Management

The surrounding traffic and parking management measures are in place:

- Refer to **Annexure C** for the parking map inventory for the existing conditions.
- Signalised intersections at Pacific Highway/Macquarie Avenue & Pacific Highway/Oakdale Road

3.3 Existing Public Transport

There is no rail corridor within close proximity to the school, however, there is a good level of bus services surrounding the site. Newcastle Buses operates two public services along the site frontage being the 349 and 350 routes. Both services run half hourly in both directions, providing a good link to the Charlestown Bus Interchange and further into the Newcastle CBD. Three services are additionally provided on these public routes for the benefit of the school.



★ Site Location

3.4 Existing Parking & Traffic Environment

Traffic and parking surveys were conducted on Wednesday 29th October and Friday 31st October 2014 during the expected peak period of 7.30-9.30am and 2-4pm under the direction of MCLaren Traffic Engineering. The results of the surveys are shown in **Annexure D** and **Annexure E** for reference.

The parking surveys were conducted on the schools road frontages and within 200m of the schools entrances as well as parking accumulation of onsite parking areas on the school grounds. A summary of the parking surveys are shown in **Table 1**.

TABLE 1: KERBSIDE PARKING OCCUPANCY

Distance	Capacity	AM		PM	
		Occupied	Spare	Occupied	Spare
Onsite	38*	70	N/A	57	N/A
0-50m	11	7	4	7	4
50-100m	19	15	4	18	1
100-150m	41	19	22	19	22
150-200m	58	23	35	9	49
Total Spare	129				
Spare Off-site	**91**	**62**	**67**	**52**	**77**

*Onsite parking capacity only includes marked paved car spaces. It was observed that numerous cars were parked in an unsealed area, which had some signage to regulate parking.

As shown in **Table 1**, the kerbside parking capacity of the area is not exceeded during peak usage (up to 67 and 77 spare spaces within 200m during the AM and PM period respectively).

Intersection performance analyses were completed at 4 intersections for their existing conditions and traffic volumes. These included the intersections of Pacific Highway with:

- Sydney Street and The Crescent
- Hughes Street
- Macquarie Avenue
- Oakdale Road

The above intersection performances have been assessed using SIDRA INTERSECTION 5.1 with the results summarised in **Table 2** below.

TABLE 2: EXISTING INTERSECTION PERFORMANCES (SIDRA INTERSECTION 5.1)

Intersection	Peak Hour	Degree of Saturation(1)	Average Delay(2) (sec/vehicle)	Level of Service(3)	Control Type	Worst Movement
EXISTING PERFORMANCE						
Pacific Hwy / Sydney St / The Crescent	AM	0.81	16.7 (40.0)	**B** (Worst: C)	Signals	Right Turn from Pacific Hwy N
	PM	0.87	20.1 (37.5)	**B** (Worst: C)		Right Turn from Pacific Hwy N
Pacific Hwy / Hughes St	AM	0.30	0.4 (33.7)	**A** (Worst: C)	Giveway	Left Turn from Hughes St
	PM	0.29	0.4 (25.5)	**A** (Worst: B)		Left Turn from Hughes St
Pacific Hwy / Macquarie Ave	AM	0.81	14.8 (27.3)	**B** (Worst: B)	Signals	Left Turn from Macquarie Ave
	PM	0.88	20.5 (27.8)	**B** (Worst: B)		Right Turn from Pacific Hwy S
Pacific Hwy / Oakdale Rd	AM	0.87	31.4 (49.0)	**C** (Worst: D)	Signals	Right Turn from Oakdale Rd
	PM	1.00	39.1 (62.2)	**C** (Worst: E)		Right Turn from Pacific Hwy S

NOTES:

(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) Average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.

As shown in **Table 2** above, the nearby intersections currently operate at Levels of Service (LoS) **A, B** and **C**. Detailed SIDRA outputs are presented in **Annexure F**.

The school currently has and enforces a strict parking policy with the following extract representing the policy's guidelines:

"Due to safety and space considerations parking within the school grounds during school hours is limited to staff only. Delivery vehicles and visitors are able to enter the school for the time of their business. Students are ***NOT*** *to park their vehicles within the school grounds at any time. Due to Occupational Health and Safety concerns parents are not to enter the car park to drop students off at school or to park within the school grounds at any time. Remember the safety of our students is our foremost priority."*

This management policy in is accordance with typical operation for public schools as they are a community benefit, so do burden the local community somewhat in regards to parking and traffic. It is assumed then that a portion of the vehicles surveyed to park after 9am and prior to 3pm are student drivers. A rule of thumb of 1 car per 10-12 Year 12 students suggests approximately 7-10 student vehicles are parking on the Pacific Highway or the nearby residential streets during the day. This is a negligible parking level and is existing operation.

4 PROPOSED DEVELOPMENT

4.1 Description

The project involves the demolition of the existing Hunter Sports High School buildings and construction of a new 5 stream High School under the same name and operation, accommodating a total of 900 students.

The new school will not increase student or staff numbers above existing operation and can effectively be assessed as a renovation of the school, rather than a brand new school on a green-field site. The existing school is approved with 2014 enrolment totalling 832 students. The modified school will be assessed as accommodating 900 students. Enrolment numbers for previous years range up to 966 in 2009.

The proposed conceptual site layout is shown in **Annexure A** for reference.

4.2 Site Layout

In regards to traffic and parking, the development will have the following important features:

- Existing indented bus stop on Pacific Highway to be retained. Student walking distance from bus stop to building core will be increased but is acceptable.
- The existing on-site car park will be modified. It will generally retain supply of on-site parking for staff only up to approximately 70 spaces.
- A second on-site carpark is proposed for the southern end of the site for use by visitors. While design of this carpark will strictly conform to AS2890.1, the number of spaces is currently unknown as this carpark is not strictly required and would be an optional facility to benefit the site. The access to this carpark is analysed later in this report.
- Servicing for garbage collection, deliveries and emergency services is accommodated at both driveways to the site with minimum 4m circulation width and appropriate radii at corners. The school currently completes these movements via the existing carpark and it is expected that this may shift or be separated between driveways following relocation and construction of buildings.
- The site will make use of existing kerbside parking along the Pacific Highway including the 14 spaces with 5min parking restrictions during school times. Some extension to this time-restricted parking zone is recommended and will require Local Traffic Committee approval.

5 PARKING ASSESSMENT

The site proposes to provide parking according to **Annexure A**. The southern carpark is not required on grounds of parking demand and hence its construction could practically be delayed to well after occupation of the modified buildings without any adverse effects.

5.1 Council Parking Requirement

Reference is made to *Lake Macquarie DCP 2014 Part 3 – Development in Residential Zones* which requires the following parking requirement related to the subject site:

- Educational Establishments (Secondary School)

  1 space per 1.5 full-time staff

  + 1 space / 50 students

Applying the above rate, the total parking requirement for the school is summarised in **Table 3** below.

TABLE 3: DCP PARKING REQUIREMENT

Land Use	Type	Scale	Rate	Spaces Required
High School	Staff	98	1 space per 1.5 full-time staff	65
	Students	900	1 space per 50 students	18
Total				**83**

As shown above, the school requires a total of **83** off-street spaces according to LMCC DCP. The existing school provides a total of 70 staff spaces on-site though with significant nearby or adjacent kerbside parking being available for parents during drop-off and pickup times. The Council parking rates appears to be fairly accurate for staff parking, anticipating a demand of 65 which is similar to the actual demand of 70. The required parent parking of 18 spaces according to the DCP is provided in full through kerbside parking. Utilising an existing carpark volume and kerbside operation, the DCP requirement is hence satisfied.

5.2 DEC Parking Requirement

The DEC intends public schools to provide staff parking on-site and parent and student parking in the kerbside areas available. Generally this increases the areas available permanently for learning and play while also reducing the financial impacts of construction. On grounds of traffic impact, it requires public schools be generally located in residential or retail areas to ensure the school implies minimal impact on surrounding uses which would otherwise require kerbside parking.

In the case of the Hunter Sports High School, the site is located on a long and low speed length of the Pacific Highway with ample safe kerbside parking available on the correct side of the road for students to enter from the school side footpath.

Numerically, the site is classified as a '5 Stream School' with a DEC parking requirement of 88 spaces. This volume is considered to incorporate staff parking and a smaller portion of parking for visitors. It is deemed appropriate that a staff rate of 70 spaces is reasonable given the survey information suggesting a peak on-site accumulation of 70 vehicles. The 18 other spaces which are recommended represent a similar requirement as the LMCC DCP for purposes of drop-off and pickup and are provided kerbside on Pacific Highway. The DEC guide for parking is hence satisfied.

5.3 Parent Parking

The practical and efficient provision for parent parking should follow the "*Interim Guideline for the Planning and Design of School Traffic and Pedestrian Facilities*" as published by the RMS (formerly Traffic Authority of NSW) which states the following in respect of parent parking:

> *"It is recommended that off-street parent pick-up and drop-off zones should ideally be provided off the vehicular carriageway with left in, left out movements. This would facilitate students to leave the vehicle and step immediately on to the footpath, and vice versa. The parent pick-up / drop-off zones, if provided, require complete separation from the bus zone.*
>
> *The length of a car pick-up zone can be determined by estimating the maximum number of cars likely to arrive at any one time. To avoid U-turn movements at these zones, signposting and barrier lines should be used."*

Given the length of the Pacific Highway frontage, the site proposes to retain use of the existing kerbside parking and 5 min time restriction during drop-off and pick-up times for the school, and extend the zone for the length appropriate to facilitate the anticipated demand of the school in peak times.

A rule of thumb measurement of the school shows that approximately 120 cars will pickup students in the 30 mins following the school day ending. The parking counts in **Annexure E** show the common occurrence of parents to arrive up to 30mins prior to school closing to wait for the students. In the case of this school, approximately 50 cars per day arrive early. Parking demand analysis utilises average rates for pickup efficiency though do not account for early arrival of some cars. The analysis however suggests that if parents only started arriving once school ended then 17 spaces are adequate 66% of the time, 18 spaces would meet the demand 89% of the time but 20 spaces would meet the demand 99% of the time. This analysis is only an indication but does show support of the DCP and DEC requirement for 18 parking spaces to be

available for pickup operations. It is recommended that the 5 min parking zone be shifted to the south to be more located closer to the proposed school core and be extended to a length of 120m starting 10m downstream of the southern driveway entrance. This would ensure there is a minimum of 20 spaces available to parents in the pick-up time, with a further 11 un-restricted spaces available at the northern end of the parking area prior to the traffic signals. Since the school's location allows a minimum of 20 and up to 31 cars to be parked kerbside on the safe side of the road, the parent parking supply is deemed to be satisfied safely, efficiently and numerically adequate.

5.4 Disabled Parking

The DEC parking rate includes one (1) disabled space to be provided on site. The proposed modifications to the existing carpark allow for disabled parking for both a disabled staff vehicle and a disabled visitor vehicle. The existing operation of the school implies that no changes are required.

5.5 Servicing

Currently the site completes servicing and delivery operations from within the informal existing car park. This operation is satisfactory and shall be maintained. Once the southern carpark is constructed, it may be appropriate to transfer deliveries and garbage collection to this location however a simple management plan will likely be required to ensure the larger manoeuvring area required for an MRV (8.8m as denoted in AS2890.2) is clear from parked cars during scheduled garbage collection times.

5.6 Bus Parking

The two existing bus bays on the Pacific Highway can accommodate up to a total of 4 buses simultaneously. The existing operation shows that this is practically sufficient and the rule of thumb bus provision is for 3 buses at once for a school of 900 students.

5.7 Special Events & Community Use

Special events, such as presentation nights, parent teacher interviews and school plays are likely to be held in the school hall during and after school hours. Additionally, the hall will likely be available for community use outside of school hours.

Parking for these times will be both on-site and offsite and prior to construction of the southern car park will mirror existing operation. The only currently anticipated event which would require a high overspill of visitors is the end of year annual presentation. It is assumed that depending on the number of patrons attending, the kerbside parking during these times may extend beyond the regular 200m parking zone for schools, and would be acceptable in any case considering the low frequency of occurrence.

6 TRAFFIC ASSESSMENT

The Roads and Maritime Services (RMS) *Guide to Traffic Generating Developments* (October 2002) does not provide rates for schools, however, given the new school will generally operate the same in the future as the existing school, the proposed traffic generation can be based on existing surveys at the school with no large increase of vehicle trips expected above existing operation.

The expected future behaviour of the local traffic network is as described by the existing operation in **Table 2: EXISTING INTERSECTION PERFORMANCES**. With the school shifting further south, it is anticipated that there will be slightly higher volumes of traffic at the intersection of Pacific Highway/Oakdale Road resulting in approximately double the U-Turn movements currently completed.

The results of the SIDRA analysis for the future performance of the nearby intersection are shown in **Table 4** below. The detailed SIDRA output is presented in **Annexure H**.

TABLE 4: FUTURE INTERSECTION PERFORMANCE (SIDRA INTERSECTION 5.1)

Intersection	Peak Hour	Degree of Saturation[1]	Average Delay[2] (sec/vehicle)	Level of Service[3]	Control Type	Worst Movement
EXISTING PERFORMANCE						
Pacific Hwy / Oakdale Rd	PM	1.00	39.1 (62.2)	**C** (Worst: E)	Signals	Right Turn from Pacific Hwy S
FUTURE PERFORMANCE (POST-DEVELOPMENT)						
Pacific Hwy / Oakdale Rd	PM	1.00	39.2 (62.2)	**C** (Worst: E)	Signals	Right Turn from Pacific Hwy S

As shown in the table above, the increase of U-turn movements at the Pacific Highway / Oakdale Road intersection during the PM peak period has not had any impact on the existing Level of Service and performance of the intersection.

Therefore, the proposed development is acceptable in terms of its traffic generation and impact to the surrounding road network.

7 SCHOOL ACCESSIBILITY

7.1 Bus Bay

The site has two existing bus zones on the western side of the Pacific Highway and makes frequent use of these in the drop-off and pickup times. The zones can facilitate up to four (4) buses simultaneously and this is considered sufficient based on the size of the school and existing operation. The walking distance to these bus zones will be increased by approximately 175m. There is scope in the future to relocate the bus zone and install kerbside parking where the zone currently is, however, is neither necessary nor included as part of this proposal.

7.2 Car Parking Access

The proposed driveways serving the on-site car parking areas and service areas satisfy location requirements of AS2890.1-2004. Sight distances at these driveways can readily achieve those distances specified in Figure 3.2 of AS2890.1-2004 for the design speed of 60km/h and 40km/h for the frontage local roads.

The proposed southern carpark is near to the U-Turn bay on the Pacific Highway at the intersection with Oakdale Road. To ensure safety is achieved at this location it is important to offset the driveway access by an appropriate distance to allow U-Turning vehicles to safely enter the stream of traffic and decelerate adequately to enter the driveway. Austroads Guide to Road Design Part 3 Section 5.3 provides the following method of calculation for stopping distance:

5.3 Stopping Sight Distance (SSD)

Stopping Sight Distance (SSD) is the distance to enable a normally alert driver, travelling at the design speed on wet pavement, to perceive, react and brake to a stop before reaching a hazard on the road ahead.

SSD is derived from two components:

1. The distance travelled during the total reaction time
2. The distance travelled during the braking time from the design speed to fully stopped.

$$SSD = \frac{R_T V}{3.6} + \frac{V^2}{254(d + 0.01a)} \quad (1)$$

R_T = reaction time (sec)

V = operating speed (km/h)

d = coefficient of deceleration (longitudinal friction factor)

a = longitudinal grade (%, + for upgrades and - for downgrades).

Values of R_T and d must be assumed in order to compute the values of SSD appropriate to a specified initial speed, these can be obtained from Table 5.2 and Table 5.3 respectively.

The provision of stopping sight distance is a mandatory design condition for all roads and intersections in the Normal Design Domain. Designers should provide stopping sight distance for both cars and trucks for all roads in daytime conditions.

Assuming then that a car exits the u-turn bay at 40km/h (during school zone times) to turn into the southern carpark, the reaction time is actually a 3 second decision time of whether to enter the driveway or not and the longitudinal friction factor (d) is the recommended 0.36, then the required stopping distance is **50.8m**. The southern car park entrance should therefore be offset from the U-Turn bay by at least 51m to be safe and efficient. Outside of school hours there is adequate sight distance from the south for well above 60km/h speeds both for exiting and entering traffic. The design of the southern carpark should hence follow the concept design in **Annexure F**.

7.3 Servicing

As previously noted, the servicing/loading areas are adequately designed to cater for Small Rigid Vehicles (SRV). No change to existing operation is expected in the short term. If the future yields construction of the southern carpark then some servicing should be moved to this area such as garbage collection and deliveries. It is noted that the gymnasium should have access by emergency and service vehicles at all times even if the remained servicing is completed at the southern carpark.

7.4 Emergency Access

Provision is made for emergency vehicle access to the school grounds. Usual practice is to provide the vehicular access directly via the car parking areas and/or directly to open space playing fields. The southern carpark should provide access to emergency vehicles, potentially by use of the whole internal driveway as this is a rare occurrence. Any modifications to the existing carpark should maintain or improve access to the sports field/s by emergency vehicles, particularly ambulances.

8 RECOMMENDATIONS & CONCLUSION

The proposed relocation of Hunter Sports High School, Gateshead, has minimal impact on the local environment in regards to traffic and parking. To ensure efficient operation of the site at peak times, and to maintain similarly safe access to the site, the following recommendations and design features are included:

- On-site carpark designed in accordance with AS2890.1, AS2890.6 and AS2890.2 except where existing operation supports departure
- Relocate "*5 min 8:00-9:30am; 2:30-4:00pm School Days Only*" parking zone to start 10m from the proposed southern carpark driveway and extend for 120m
- Incorporate access for ambulance and fire service vehicles to all sports fields and parking areas
- Offset of 51m minimum from Pacific Highway U-Turn bay to proposed southern carpark driveway to allow decision and deceleration distance
- Retention of existing bus zones and service arrangements
- Increased U-turn movements at the Pacific Highway / Oakdale Road intersection during the PM peak period has not adversely impacted on the existing Level of Service at the intersection.

In view of the foregoing the proposed relocation of school buildings and other site modifications is supportable on grounds of parking and traffic and should be considered for approval.

Site Location

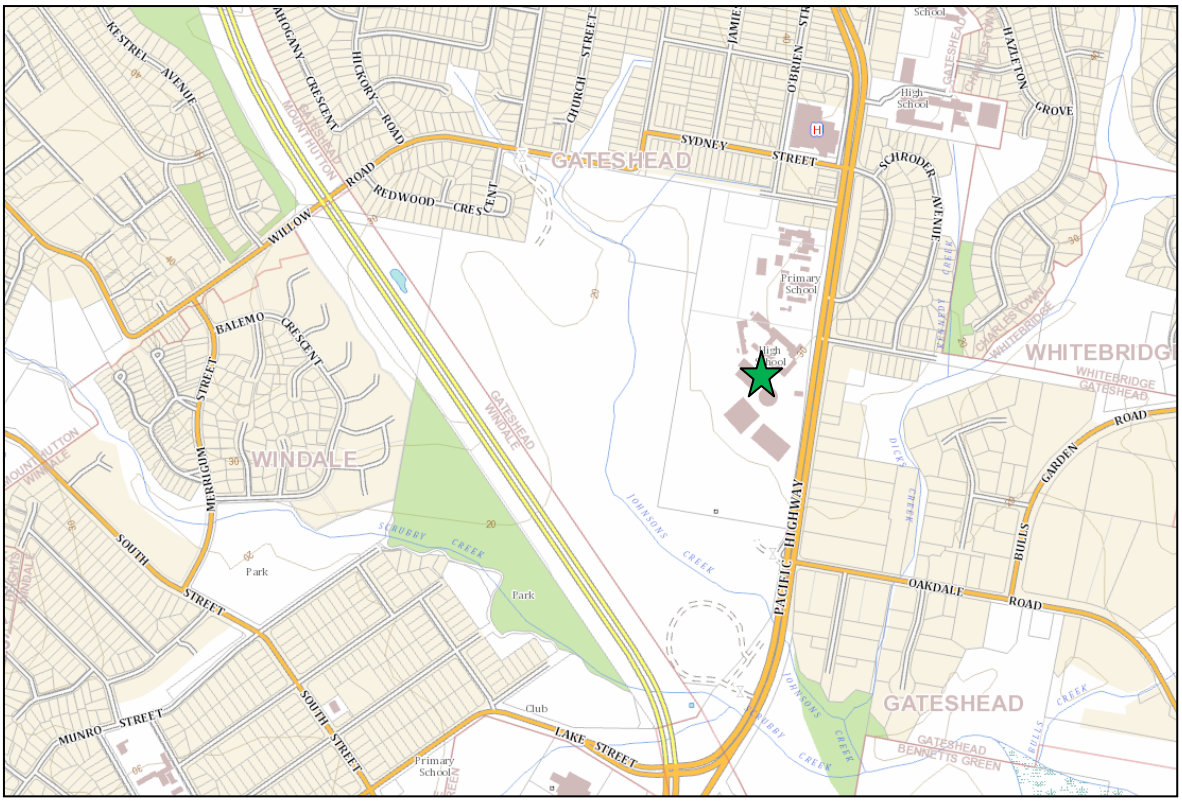
HUNTER SPORTS HIGH SCHOOL

FIGURE 1:

AERIAL SITE LOCATION

PREPARED FOR: GOV. ARCHITECTS OFFICE

BY: M^{C}LAREN TRAFFIC ENGINEERING



Site Location

HUNTER SPORTS HIGH SCHOOL

FIGURE 2:

MAP LOCATION

PREPARED FOR: GOV. ARCHITECTS OFFICE

BY: M^{C}LAREN TRAFFIC ENGINEERING

ANNEXURE A: PROPOSED SITE LAYOUT

ANNEXURE B: SCHOOL DATA (SHEET 1 OF 4)

HIGH SCHOOL PROFORMA

School: HUNTER SPORTS HIGH SCHOOL

Principal: RACHEL BYRNE

Phone: 49435755 Fax: 49422565

1. School Type: **Yrs 7 – 12 Comprehensive**
2. Start Time**: 8.30am** Finish Time: **3.10pm**
   (WEDNESDAYS Start Time: 8.30am Finish Time: 3.10pm)
3. N^{o} of children at school: (a) currently: **830**
   (b) approved:_____ (date?)_____
4. Typical absenteeism %: **89%**
5. Approx. number of children by year: (YR7**) 146** (8**) 151** (9) **158**
   (10**) 167** (11) **127** (YR12**) 83**
6. Number of staff: (a) Typical day (total**): 98** (b) Teachers**: 69**
   (c) Admin/Clerical**: 29** (d) Casuals: **10**
   (e) Cleaners : **4** (f) Volunteers: **6**
7. How many (or what %) staff drive their own car to school and park within or near the school grounds**? 100%**
8. How many Year 11 & 12 students (or what %) drive their own car to school and park within or near the school grounds**? 30%**
9. Previous 5 years student numbers: (2013**) 893** (2012**) 867**
   (2011**) 867** (2010**) 927** (2009**) 966**
10. Special Education Unit? (Yes/No**): Yes**
11. If Yes, how many students? (typically): **36** & Staff **: 4**
12. Porte Cochere delivery? (Yes/No**): Yes**
13. Bus Company Name:**State Transit Ph: 49741680 , Busways Ph: 43926666 , Red Bus Service Ph: 43328655 , Hunter Valley Buses Ph: 49357200 , Rover Motors Ph: 49901699 , Port Stephens Ph: 49822940**
14. N^{O} of students with public bus passes: **430**
15. Public Peak Bus accumulation: AM _____ PM _____ Sports Days _____

Do public school buses transfer other students at your school? (Y/N)_ How Many?_

ANNEXURE B: SCHOOL DATA (SHEET 2 OF 4)

16. Does the school have its own buses for transporting students (sports / events)? (Y/N) **Yes** How Many**? 4** What are the lengths of these buses in metres? **10** What are the heights of these buses in metres**? 3** Seating capacity of buses? **28**
17. Before/After School Care? (Y/N**) No** N^{o} of students: Before _____After _____
18. Hall on site? (Y/N**) Yes** Person Capacity: (seated) **1,000** (standing) **150**
19. If no hall, where are ceremonies/plays held?:_____
20. Any traffic issues**? No**
21. Any parking issues**? No**
22. Any safety issues? **No**
23. Please provide copy of Catchment Plan.
24. Safer Routes to School Details? (Yes / No)
25. Correspondence with Council relating to traffic / parking issues? (Yes / No) If yes, details

NO_____

_____

_____

_____

_____

26. Sports Days (Times) on-site / off-site? (Details)

    PLEASE PROVIDE DATES TO AVOID FOR SURVEY PURPOSE.

Tuesday off site

27. Upcoming Special Event (Non-typical for average week) Eg Swimming Carnivals, plays, ceremonies… PLEASE PROVIDE DATES TO AVOID FOR SURVEY PURPOSE.

ANNEXURE B:SCHOOL DATA (SHEET 3 OF 4)

(SCHOOL RELATED EVENTS)

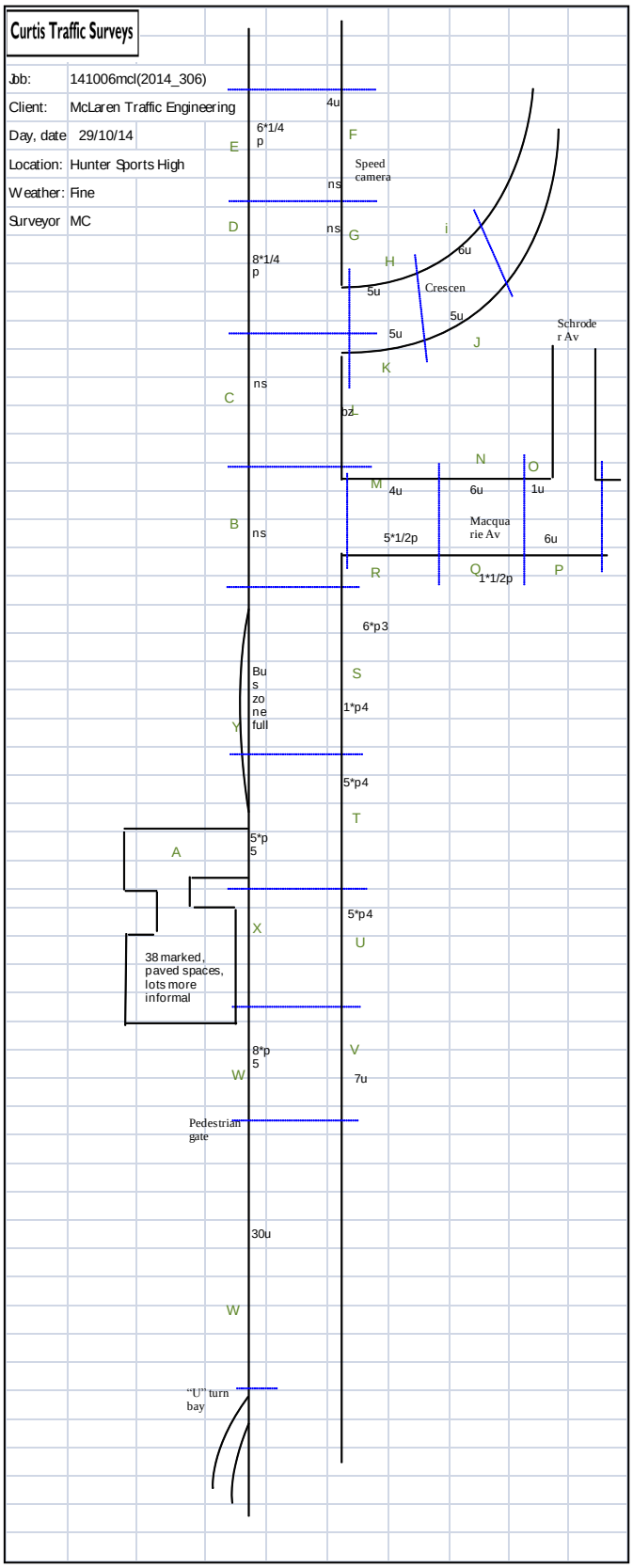
DESCRIPTION	LOCATION WHERE HELD		FREQUENCY	NO. OF PERSONS TYPICALLY ATTENDING
	ON SCHOOLS GROUNDS	OFF SITE		
1. SCHOOL RELATED EVENTS (Not Friday, Saturday & Sunday)				
(a) EVENING EVENTS Annual Presentation	Bini	-	1 per year	800
Concerts	Bini	-	2 TO 3 per year	150-200 (10pm finish)
Discos	Bini	-	1 per term (4 per term)	120-150 (10pm finish)
P & C Meetings	Library	-	1 per month (10 per year)	20
P & T Meetings	Bini		Min 1 per term (6-8 per year)	150-200
Year 12 Formal	-	Off Site	1 each year	
	(b) DAYTIME EVENTS (NOT WEEKENDS)			
Naidoc Day	Bini	-	1 per year	800
Minimbah Celebrations	Bini	-	1 per year	300
Drama Performance	Bini	-	2 to 3 per term (6-12 per year)	800
Presentations and Formal Assemblies	Bini	-	2 to 3 per term (6-12 per year)	800
Year 12 Graduation	Bini	-	1 per year each	800
TSP Open Day	Stadium/Bini	-	2 per year	300
Big Picture	Library	-	2 per year	50

ANNEXURE B: SCHOOL DATA (SHEET 4 OF 4)

(NON - SCHOOL RELATED EVENTS)

DESCRIPTION	LOCATION WHERE HELD		FREQUENCY	NO. OF PERSONS TYPICALLY ATTENDING
	ON SCHOOLS GROUNDS	OFF SITE		
1. NON-SCHOOL RELATED EVENTS				
Newcastle Basketball	Stadium	-	(40-80 per year) 4 nights per year	100
Saturday Basketball	Stadium	-	Saturday	14
Lake Macquarie Auto Club	Ovals	-	1 per week	30
Newcastle Jets Football	Gym/Ovals	-	2 per week	50
Cross Fitness	Gym	-	1 per week	10

ANNEXURE C: EXISTING PARKING RESTRICTIONS (SHEET 1 OF 2)



ANNEXURE C: EXISTING PARKING RESTRICTIONS (SHEET 2 OF 2)

Curtis Traffic Surveys					Start	Finish	Interval	Size		Restriction Table				
					7:30	9:30	0:30			u	unrestricted			
Job:	141006mcl(2014_306)									np	no parking			
Client:	McLaren Traffic Engineering									p	hour parking			
Date	29/10/14									ns	no stopping			
Locatio	Hunter Sports High									dis	disabled			
Weathe	Fine									r	authorised residents or other permit holders excepte			
Survey	MC									bz	bus zone			
										tz	taxi zone			
Zone	Street	From	To	Side of Stre	Capacit	Restriction				res	reserved parking			
a	On site				38	Staff only, deliveries				a	NP 8am-9:30, 2:30-4pm School days			
b	Pacific H'	0	50m	west	0	ns				b	School bus stop 7:00-9:00, 3pm-4:300, full time stop			
c	Pacific H'	50m	100m	west	0	ns				c	NS 8am-9:30, 2:30-4pm School days			
d	Pacific H'	100m	150m	west	8	1/4p2				d	BZ 7:30-8:30 M-F			
e	Pacific H'	150m	200m	west	6	1/4p2				e	BZ 8am-9:30, 2:30-4pm M-F			
f	Pacific H'	200m	150m	east	4	u								
g	Pacific H'	150m	100m	east	0	ns								
h	Cres (sou	Pacific H'	50m	north	5	u								
I	Cres (sou	50m	No 6	north	6	u								
j	Cres (sou	No 9	No 7	south	5	u								
k	Cres (sou	No 5	Pacific H	south	5	u								
l	Pacific H'	Crescent	Macquar	east	0	bz								
m	Macquari	Pacific H'	No 4	north	4	u								
n	Macquari	No 6	No 10	north	6	u				1/4p2	1/4p 8-9:30, 2:30-4pm School days			
o	Macquari	No 10	Schrode	north	1	u				1/2p1	1/2p 9am-6pm M-F, 9am-12 Sat			
p	Macquari	Schroder	Op 10	south	6	u				p3	5min 8am-9:30, 2p 9:30-2:30, 5min 2:30-4pm M-F			
q	Macquari	Op 10	Op 6	south	1	1/2p1				p4	2p 8am-4pm M-F			
r	Macquari	Op 4	Pacific H	south	5	1/2p1				p5	5min 8am-9:30, 2:30-4pm M-F			
s	Pacific H'	Macquari	Peugeot	east	6	p3								
t	Pacific H'	Peugeot	Repco	east	5	p4								
u	Pacific H'	Tyres	Manheir	east	5	p4								
v	Pacific H'	Manheim	blue bui	east	7	u								
w	Pacific H'	ped gate	op Manh	west	9	p5								
x	Pacific H'	op Manh	op Tyre	west	5	p5								
y	Pacific H'	op Repc	op Peug	west	0	bz								
w2	Pacific H'	ped gate	"U" turr	west	30	u								

ANNEXURE D: TRAFFIC SURVEYS (SHEET 1 OF 7)

Curtis Traffic Surveys									
Job:	141006mcl(2014_306)			N	45	683	92	163	
Day, date	29/10/14							375	
Location:	Pacific H'y, Oakdale Rd & "U" turn					1618	501		
Weather:	Fine								
Client:	McLaren Traffic Engineering								
	From Pacific H'y south		From Oakdale Rd		From Pacific H'y north				
Time Period	Through	Right	Left	Right	Left	Through	"U" turn	Total vehicle movements	
07:30 to 07:45	389	136	136	11	21	141	0	834	
07:45 to 08:00	438	154	110	21	21	140	0	884	
08:00 to 08:15	425	131	106	30	26	126	2	844	
08:15 to 08:30	418	126	96	35	18	93	14	786	
08:30 to 08:45	431	116	85	41	19	135	15	827	
08:45 to 09:00	401	141	105	52	25	224	11	948	Peak
09:00 to 09:15	368	118	89	35	30	231	5	871	
09:15 to 09:30	351	95	79	32	25	203	3	785	
Hourly Summary	3221	1017	806	257	185	1293			
07:30 to 08:30	1670	547	448	97	86	500	16	3348	
07:45 to 08:45	1712	527	397	127	84	494	31	3341	
08:00 to 09:00	1675	514	392	158	88	578	42	3405	
08:15 to 09:15	1618	501	375	163	92	683	45	3432	Peak hour
08:30 to 09:30	1551	470	358	160	99	793	34	3431	

ANNEXURE D: TRAFFIC SURVEYS (SHEET 2 OF 7)

Curtis Traffic Surveys									
Job:	141006mcl(2014_306)			N	19	1514	202		
Day, date	29/10/14							252	
Location:	Pacific H'y, Oakdale Rd & "U" turn					1211	597	528	
Weather:	Fine								
Client:	McLaren Traffic Engineering								
	From Pacific H'y south		From Oakdale Rd		From Pacific H'y north				
Time Period	Through	Right	Left	Right	Left	Through	"U" turn	Total vehicle movements	
14:00 to 14:15	133	80	120	23	26	190	0	572	
14:15 to 14:30	152	72	95	40	21	233	1	613	
14:30 to 14:45	210	89	101	56	35	335	3	826	
14:45 to 15:00	274	96	95	38	51	338	8	892	
15:00 to 15:15	315	123	121	56	42	324	6	981	
15:15 to 15:30	234	176	132	63	64	415	8	1084	
15:30 to 15:45	352	156	134	61	54	357	2	1114	
15:45 to 16:00	310	142	141	72	42	418	3	1125	Peak
Hourly Summary	1980	934	939	409	335	2610			
14:00 to 15:00	769	337	411	157	133	1096	12	2903	
14:15 to 15:15	951	380	412	190	149	1230	18	3312	
14:30 to 15:30	1033	484	449	213	192	1412	25	3783	
14:45 to 15:45	1175	551	482	218	211	1434	24	4071	
15:00 to 16:00	1211	597	528	252	202	1514	19	4304	Peak hour

ANNEXURE D:TRAFFIC SURVEYS (SHEET 3 OF 7)

Curtis Traffic Surveys							Peak Hour	76	803	6					
	Turning movement count					27				6					
Job:	141006mcl(2014_306)					12				6		N			
Day, date	29/10/14					71				1					
Location:	Pacific H'y, Sydney St & The Cres						67	1629	24						
Weather:	Fine														
Client:	McLaren Traffic Engineering														
	All motor vehicles														
	From Pacific H'y north			From Sydney St			From Pacific H'y south			From The Crescent			Total vehicle movements		
Time Period	left	through	right	left	through	right	left	through	right	left	through	right			
07:30 to 07:45	1	130	10	6	3	21	12	379	3	0	2	1	568		
07:45 to 08:00	0	152	21	9	5	20	19	452	6	0	3	0	687		
08:00 to 08:15	2	124	12	4	3	12	20	428	5	0	1	2	613		
08:15 to 08:30	1	109	13	7	4	16	16	443	4	0	1	0	614		
08:30 to 08:45	2	131	15	5	2	18	14	451	6	0	0	1	645		
08:45 to 09:00	3	219	18	6	5	19	18	432	5	1	3	2	731	Peak	
09:00 to 09:15	0	235	23	8	3	20	22	387	9	0	1	2	710		
09:15 to 09:30	1	218	20	8	2	14	13	359	4	0	2	1	642		
Totals	10	1318	132	53	27	140	134	3331	42	1	13	9			
07:30 to 08:30	4	515	56	26	15	69	67	1702	18	0	7	3	2482		
07:45 to 08:45	5	516	61	25	14	66	69	1774	21	0	5	3	2559		
08:00 to 09:00	8	583	58	22	14	65	68	1754	20	1	5	5	2603		
08:15 to 09:15	6	694	69	26	14	73	70	1713	24	1	5	5	2700		
08:30 to 09:30	6	803	76	27	12	71	67	1629	24	1	6	6	2728	Peak Hour	

Curtis Traffic Surveys							Peak Hour	60	1615	7					
	Turning movement count					41				11					
Job:	141006mcl(2014_306)					17				7		N			
Day, date	31/10/14					85				8					
Location:	Pacific H'y, Sydney St & The Cres						75	1474	10						
Weather:	Fine														
Client:	McLaren Traffic Engineering														
	All motor vehicles														
	From Pacific H'y north			From Sydney St			From Pacific H'y south			From The Crescent			Total vehicle movements		
Time Period	left	through	right	left	through	right	left	through	right	left	through	right			
14:00 to 14:15	0	210	12	6	3	17	13	152	1	0	0	1	415		
14:15 to 14:30	1	235	9	6	4	16	10	185	1	1	2	1	471		
14:30 to 14:45	1	334	13	5	5	22	12	303	2	0	1	2	700		
14:45 to 15:00	2	351	13	4	2	20	16	312	2	0	0	2	724		
15:00 to 15:15	2	351	14	8	3	18	25	354	3	1	2	3	784		
15:15 to 15:30	1	415	16	9	4	25	18	315	1	1	3	1	809		
15:30 to 15:45	1	398	17	14	5	22	17	420	4	4	0	4	906		
15:45 to 16:00	3	451	13	10	5	20	15	385	2	2	2	3	911	Peak	
Totals	11	2745	107	62	31	160	126	2426	16	9	10	17			
14:00 to 15:00	4	1130	47	21	14	75	51	952	6	1	3	6	2310		
14:15 to 15:15	6	1271	49	23	14	76	63	1154	8	2	5	8	2679		
14:30 to 15:30	6	1451	56	26	14	85	71	1284	8	2	6	8	3017		
14:45 to 15:45	6	1515	60	35	14	85	76	1401	10	6	5	10	3223		
15:00 to 16:00	7	1615	60	41	17	85	75	1474	10	8	7	11	3410	Peak Hour	

ANNEXURE D:TRAFFIC SURVEYS (SHEET 4 OF 7)

Curtis Traffic Surveys					Peak Hour	771	7	
Job:	141006mcl(2014_306)			N				10
Day, date	29/10/14							19
Location:	Pacific H'y, Macquarie Av					1821	24	
Weather:	Fine							
Client:	McLaren Traffic Engineering							
	From Pacific H'y south		From Macquarie Av		From Pacific H'y north			
Time Period	Through	Right	Left	Right	Left	Through	Total vehicle movements	
07:30 to 07:45	408	1	0	0	2	148	559	
07:45 to 08:00	465	2	1	1	1	165	635	
08:00 to 08:15	458	4	2	2	3	141	610	
08:15 to 08:30	471	3	3	1	2	121	601	
08:30 to 08:45	489	8	5	2	3	150	657	
08:45 to 09:00	453	8	8	3	0	241	713	Peak
09:00 to 09:15	408	5	3	4	2	259	681	
09:15 to 09:30	384	2	4	2	1	231	624	
Hourly Summary	3536	33	26	15	14	1456		
07:30 to 08:30	1802	10	6	4	8	575	2405	
07:45 to 08:45	1883	17	11	6	9	577	2503	
08:00 to 09:00	1871	23	18	8	8	653	2581	
08:15 to 09:15	1821	24	19	10	7	771	2652	
08:30 to 09:30	1734	23	20	11	6	881	2675	Peak hour

ANNEXURE D: TRAFFIC SURVEYS (SHEET 5 OF 7)

Curtis Traffic Surveys					Peak Hour	1746	7	
Job:	141006mcl(2014_306)			N				27
Day, date	29/10/14							35
Location:	Pacific H'y, Macquarie Av					1478	28	
Weather:	Fine							
Client:	McLaren Traffic Engineering							
	From Pacific H'y south		From Macquarie Av		From Pacific H'y north			
Time Period	Through	Right	Left	Right	Left	Through	Total vehicle movements	
14:00 to 14:15	159	2	1	0	1	214	377	
14:15 to 14:30	204	4	1	0	1	251	461	
14:30 to 14:45	268	2	5	5	0	371	651	
14:45 to 15:00	321	11	12	6	2	389	741	
15:00 to 15:15	370	15	14	5	2	375	781	
15:15 to 15:30	307	8	16	14	2	497	844	
15:30 to 15:45	412	3	4	6	1	415	841	
15:45 to 16:00	389	2	1	2	2	459	855	Peak
Hourly Summary	2430	47	54	38	11	2971		
14:00 to 15:00	952	19	19	11	4	1225	2230	
14:15 to 15:15	1163	32	32	16	5	1386	2634	
14:30 to 15:30	1266	36	47	30	6	1632	3017	
14:45 to 15:45	1410	37	46	31	7	1676	3207	
15:00 to 16:00	1478	28	35	27	7	1746	3321	Peak hour

ANNEXURE D:TRAFFIC SURVEYS (SHEET 6 OF 7)

Curtis Traffic Surveys

Job:	141006mcl(2014_306)			N	Peak Hour Volumes		0	875
Day, date	29/10/14					23		
Location:	Pacific H'y & Hughes St					0		
Weather:	Fine			*Median prevents right turns*			46	1697
Client:	McLaren Traffic Engineering							
	From Pacific H'y north		From Hughes St		From Pacific H'y south			
Time Period	Through	Right	Left	Right	Left	Through	Total vehicle movements	
07:30 to 07:45	151		1		8	393	553	
07:45 to 08:00	172		2		12	475	661	
08:00 to 08:15	136		5		12	448	601	
08:15 to 08:30	125		4		11	459	599	
08:30 to 08:45	149		5		15	466	635	
08:45 to 09:00	239		6		13	449	707	Peak
09:00 to 09:15	255		8		8	410	681	
09:15 to 09:30	232		4		10	372	618	
Hourly Summary	1459		35		89	3472		
07:30 to 08:30	584		12		43	1775	2414	
07:45 to 08:45	582		16		50	1848	2496	
08:00 to 09:00	649		20		51	1822	2542	
08:15 to 09:15	768		23		47	1784	2622	
08:30 to 09:30	875		23		46	1697	2641	Peak hour

ANNEXURE D:TRAFFIC SURVEYS (SHEET 7 OF 7)

Curtis Traffic Surveys

Job:	141006mcl(2014_306)	N	Peak Hour Volumes
Day, date	29/10/14		
Location:	Pacific H'y & Hughes St		
Weather:	Fine	Median prevents right turns	
Client:	McLaren Traffic Engineering		

Peak Hour Volumes:

	0	1708
52		
0		
	23	1507

Time Period	From Pacific H'y north Through	From Pacific H'y north Right	From Hughes St Left	From Hughes St Right	From Pacific H'y south Left	From Pacific H'y south Through	Total vehicle movements	
14:00 to 14:15	227		5		6	161	399	
14:15 to 14:30	252		4		8	192	456	
14:30 to 14:45	356		4		11	313	684	
14:45 to 15:00	371		5		13	325	714	
15:00 to 15:15	370		15		8	367	760	
15:15 to 15:30	441		13		6	321	781	
15:30 to 15:45	424		16		4	425	869	
15:45 to 16:00	473		8		5	394	880	Peak
Hourly Summary	2914		70		61	2498		
14:00 to 15:00	1206		18		38	991	2253	
14:15 to 15:15	1349		28		40	1197	2614	
14:30 to 15:30	1538		37		38	1326	2939	
14:45 to 15:45	1606		49		31	1438	3124	
15:00 to 16:00	1708		52		23	1507	3290	Peak hour

ANNEXURE E: PARKING SURVEYS (SHEET 1 OF 2)

Curtis Traffic Surveys

Note zone "W2" was added in when students were seen parking there

Job:	141006mcl(2014_306)
Client:	McLaren Traffic Engineering
Day, date	29/10/14
Location:	Hunter Sports High
Weather:	Fine
Surveyor	MC

							Parking round commencing				
Zone	Street	From	To	Side of Street	Capacity	Restriction	7:30	8:00	8:30	9:00	9:30
a	On site				38	Staff only, deli	6	18	30	65	70
b	Pacific H'y		50m	west		ns	0	0	0	0	0
c	Pacific H'y	50m	100m	west		ns	0	0	0	0	0
d	Pacific H'y	100m	150m	west	8	1/4p2	0	0	3	3	3
e	Pacific H'y	150m	200m	west	6	1/4p2	0	0	0	2	1
f	Pacific H'y	200m	150m	east	4	u	0	0	0	0	0
g	Pacific H'y	150m	100m	east		ns	0	0	0	0	0
h	Cres (south	Pacific H'y	50m	north	5	u	0	0	0	0	0
I	Cres (south	50m	No 6	north	6	u	0	0	1	1	1
j	Cres (south	No 9	No 7	south	5	u	2	2	3	2	1
k	Cres (south	No 5	Pacific H'y	south	5	u	0	0	0	0	0
l	Pacific H'y	Crescent	Macquarie	east		bz	0	0	0	0	0
m	Macquarie	Pacific H'y	No 4	north	4	u	0	3	5	5	4
n	Macquarie	No 6	No 10	north	6	u	2	4	5	5	6
o	Macquarie	No 10	Schroder	north	1	u	1	1	1	1	0
p	Macquarie	Schroder A	Op 10	south	6	u	2	2	1	1	2
q	Macquarie	Op 10	Op 6	south	1	1/2p1	0	0	0	1	0
r	Macquarie	Op 4	Pacific H'y	south	5	1/2p1	1	1	2	2	3
s	Pacific H'y	Macquarie	Peugeot	east	6	p3	0	0	0	3	2
t	Pacific H'y	Peugeot	Repco	east	5	p4	0	1	4	4	3
u	Pacific H'y	Tyres	Manheim	east	5	p4	0	0	2	4	7
v	Pacific H'y	Manheim	blue build	east	7	u	1	1	1	2	4
w	Pacific H'y	ped gate	op Manhe	west	9	p5	0	2	6	6	6
x	Pacific H'y	op Manheir	op Tyres	west	5	p5	0	0	3	4	0
y	Pacific H'y	op Repco	op Peuge	west		bz	0	0	0	0	0
w2	Pacific H'y	ped gate	"U" turn	west	30	u	not survey		3	16	18

ANNEXURE E: PARKING SURVEYS (SHEET 2 OF 2)

Curtis Traffic Surveys

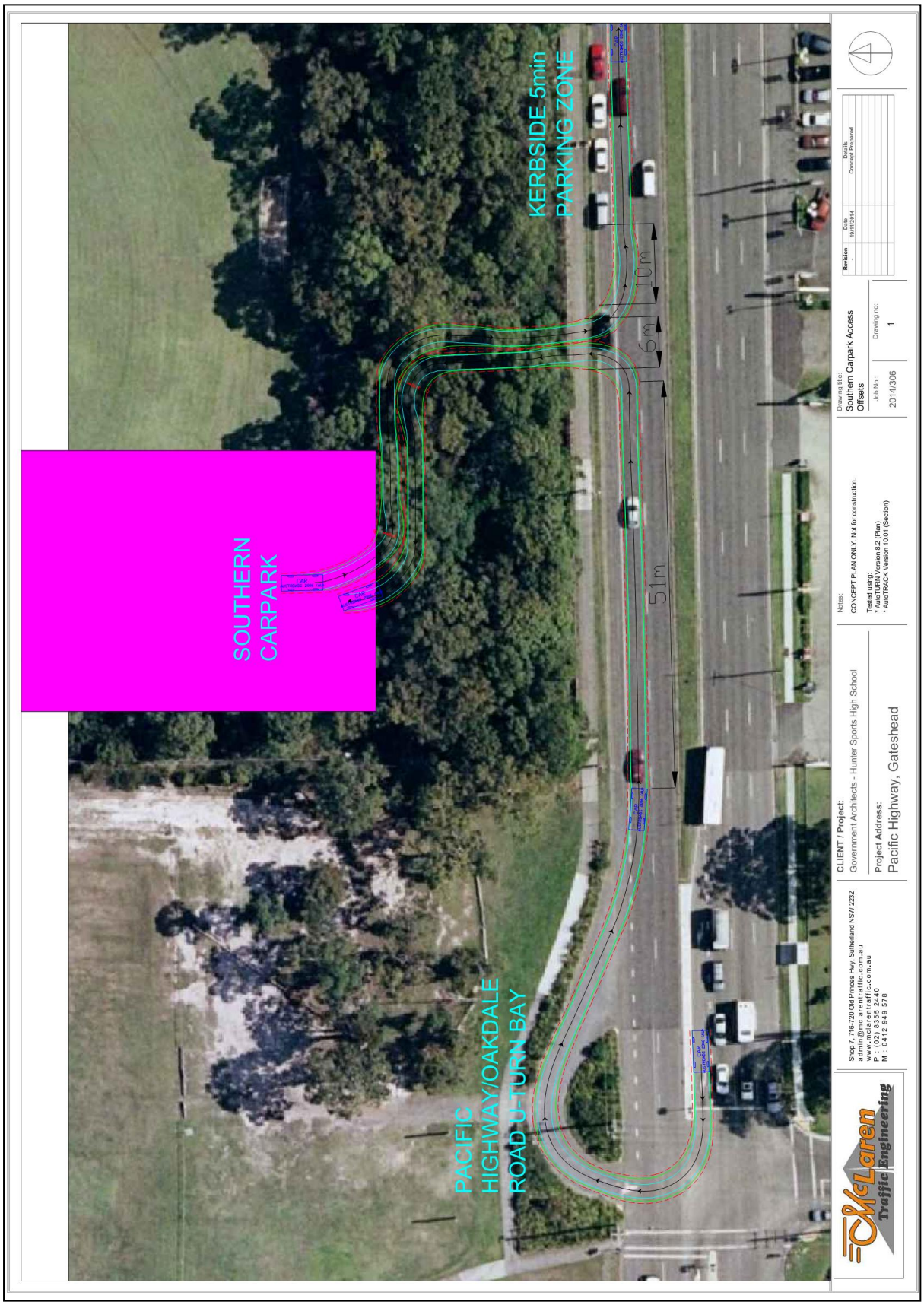
Note zone "W2" was added in when students were seen parking there

Job:	141006mcl(2014_306)
Client:	McLaren Traffic Engineering
Day, date	31/10/14
Location:	Hunter Sports High
Weather:	Fine
Surveyor	MC

Parking round commencing…

Zone	Street	From	To	Side of Street	Capacity	Restriction	14:00	14:30	15:00	15:30	16:00
a	On site				38	Staff only, deli	53	55	57	27	19
b	Pacific H'y		50m	west		ns	0	0	0	0	0
c	Pacific H'y	50m	100m	west		ns	0	4	0	0	0
d	Pacific H'y	100m	150m	west	8	1/4p2	5	7	8	0	0
e	Pacific H'y	150m	200m	west	6	1/4p2	2	4	5	2	1
f	Pacific H'y	200m	150m	east	4	u	0	0	0	0	0
g	Pacific H'y	150m	100m	east		ns	0	0	0	0	0
h	Cres (south	Pacific H'y	50m	north	5	u	0	0	0	0	0
I	Cres (south	50m	No 6	north	6	u	0	0	0	0	0
j	Cres (south	No 9	No 7	south	5	u	1	1	1	2	2
k	Cres (south	No 5	Pacific H'y	south	5	u	0	1	1	1	1
l	Pacific H'y	Crescent	Macquarie	east		bz	0	0	0	0	0
m	Macquarie	Pacific H'y	No 4	north	4	u	2	3	3	3	3
n	Macquarie	No 6	No 10	north	6	u	4	3	3	3	2
o	Macquarie	No 10	Schroder	north	1	u	1	1	1	0	0
p	Macquarie	Schroder A	Op 10	south	6	u	1	1	1	1	2
q	Macquarie	Op 10	Op 6	south	1	1/2p1	0	2	1	0	0
r	Macquarie	Op 4	Pacific H'y	south	5	1/2p1	2	3	3	1	1
s	Pacific H'y	Macquarie	Peugeot	east	6	p3	0	3	4	1	1
t	Pacific H'y	Peugeot	Repco	east	5	p4	1	3	3	0	0
u	Pacific H'y	Tyres	Manheim	east	5	p4	1	1	1	0	0
v	Pacific H'y	Manheim	blue build	east	7	u	2	2	1	0	1
w	Pacific H'y	ped gate	op Manhe	west	9	p5	4	4	4	0	0
x	Pacific H'y	op Manheir	op Tyres	west	5	p5	0	7	7	1	0
y	Pacific H'y	op Repco	op Peuge	west		bz	0	1	0	0	0
w2	Pacific H'y	ped gate	"U" turn	west	30	u	1	1	1	0	0

ANNEXURE F: CONCEPT SOUTHERN CARPARK ACCESS



ANNEXURE G: SIDRA RESULTS (SHEET 1 OF 5)

MOVEMENT SUMMARY

Site: Pacific Hwy / Sydney St / The Cresent AM

Pacific Hwy / Sydney St / The Cresent
Signals - Fixed Time Cycle Time = 70 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
1	L	67	0.0	0.054	4.1	LOS A	0.2	1.6	0.20	0.48	36.8
2	T	1629	0.0	0.812	18.9	LOS B	25.8	180.9	0.90	0.88	28.0
3	R	24	0.0	0.081	16.8	LOS B	0.5	3.4	0.60	0.66	29.9
Approach		1720	0.0	0.812	18.3	LOS B	25.8	180.9	0.87	0.87	28.3
East: The Cresent											
4	L	1	0.0	0.025	23.6	LOS B	0.3	2.2	0.71	0.69	29.0
5	T	6	0.0	0.025	17.9	LOS B	0.3	2.2	0.71	0.50	28.3
6	R	6	0.0	0.025	22.1	LOS B	0.3	2.2	0.71	0.66	27.9
Approach		13	0.0	0.025	20.3	LOS B	0.3	2.2	0.71	0.59	28.2
North: Pacific Hwy N											
7	L	6	0.0	0.269	17.5	LOS B	5.2	36.2	0.60	0.95	41.0
8	T	803	0.0	0.269	10.3	LOS A	5.2	36.3	0.60	0.51	44.7
9	R	76	0.0	0.585	40.0	LOS C	2.7	19.0	0.97	0.83	27.0
Approach		885	0.0	0.585	12.9	LOS A	5.2	36.3	0.63	0.54	42.5
West: Sydney St											
10	L	27	0.0	0.066	22.6	LOS B	0.9	6.6	0.73	0.70	27.6
11	T	12	0.0	0.066	18.1	LOS B	0.9	6.6	0.73	0.55	28.1
12	R	71	0.0	0.147	24.5	LOS B	1.8	12.4	0.75	0.73	28.5
Approach		110	0.0	0.147	23.3	LOS B	1.8	12.4	0.74	0.70	28.3
All Vehicles		2728	0.0	0.812	16.7	LOS B	25.8	180.9	0.79	0.75	32.0

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

ANNEXURE G: SIDRA RESULTS (SHEET 2 OF 5)

MOVEMENT SUMMARY

Site: Pacific Hwy / Sydney St / The Cresent PM

Pacific Hwy / Sydney St / The Cresent
Signals - Fixed Time Cycle Time = 60 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
1	L	75	0.0	0.060	4.1	LOS A	0.2	1.6	0.22	0.49	36.7
2	T	1474	0.0	0.872	26.3	LOS B	25.3	176.8	0.98	1.10	25.3
3	R	10	0.0	0.061	26.0	LOS B	0.2	1.7	0.82	0.67	26.3
Approach		1559	0.0	0.872	25.3	LOS B	25.3	176.8	0.94	1.07	25.7
East: The Cresent											
4	L	8	0.0	0.044	19.0	LOS B	0.5	3.5	0.67	0.70	30.8
5	T	7	0.0	0.044	13.3	LOS A	0.5	3.5	0.67	0.49	30.3
6	R	11	0.0	0.044	17.4	LOS B	0.5	3.5	0.67	0.66	29.7
Approach		26	0.0	0.044	16.8	LOS B	0.5	3.5	0.67	0.63	30.2
North: Pacific Hwy N											
7	L	7	0.0	0.640	21.8	LOS B	12.6	88.3	0.84	0.91	38.4
8	T	1615	0.0	0.640	14.6	LOS B	12.6	88.3	0.84	0.74	40.5
9	R	60	0.0	0.430	37.5	LOS C	1.8	12.8	0.98	0.76	27.9
Approach		1682	0.0	0.640	15.4	LOS B	12.6	88.3	0.84	0.74	39.9
West: Sydney St											
10	L	41	0.0	0.084	17.9	LOS B	1.1	7.8	0.68	0.70	29.6
11	T	17	0.0	0.084	13.4	LOS A	1.1	7.8	0.68	0.52	30.2
12	R	85	0.0	0.153	19.6	LOS B	1.7	11.9	0.70	0.72	30.5
Approach		143	0.0	0.153	18.4	LOS B	1.7	11.9	0.70	0.69	30.2
All Vehicles		3410	0.0	0.872	20.1	LOS B	25.3	176.8	0.88	0.89	31.7

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

MOVEMENT SUMMARY

Site: Pacific Hwy / Hughes St AM

Pacific Hwy / Hughes St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
1	L	46	0.0	0.298	4.5	LOS A	0.0	0.0	0.00	0.68	36.7
2	T	1697	0.0	0.298	0.0	LOS A	0.0	0.0	0.00	0.00	40.0
Approach		1743	0.0	0.298	0.1	NA	0.0	0.0	0.00	0.02	39.9
North: Pacific Hwy N											
8	T	875	0.0	0.150	0.0	LOS A	0.0	0.0	0.00	0.00	40.0
Approach		875	0.0	0.150	0.0	NA	0.0	0.0	0.00	0.00	40.0
West: Hughes St											
10	L	23	0.0	0.098	33.7	LOS C	0.3	2.0	0.91	0.96	23.8
Approach		23	0.0	0.098	33.7	LOS C	0.3	2.0	0.91	0.96	23.8
All Vehicles		2641	0.0	0.298	0.4	NA	0.3	2.0	0.01	0.02	39.7

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

MOVEMENT SUMMARY

Site: Pacific Hwy / Hughes St PM

Pacific Hwy / Hughes St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
1	L	23	0.0	0.262	4.5	LOS A	0.0	0.0	0.00	0.69	36.7
2	T	1507	0.0	0.262	0.0	LOS A	0.0	0.0	0.00	0.00	40.0
Approach		1530	0.0	0.262	0.1	NA	0.0	0.0	0.00	0.01	39.9
North: Pacific Hwy N											
8	T	1708	0.0	0.292	0.0	LOS A	0.0	0.0	0.00	0.00	40.0
Approach		1708	0.0	0.292	0.0	NA	0.0	0.0	0.00	0.00	40.0
West: Hughes St											
10	L	52	0.0	0.156	25.5	LOS B	0.5	3.3	0.88	0.94	26.4
Approach		52	0.0	0.156	25.5	LOS B	0.5	3.3	0.88	0.94	26.4
All Vehicles		3290	0.0	0.292	0.4	NA	0.5	3.3	0.01	0.02	39.6

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

ANNEXURE G: SIDRA RESULTS (SHEET 4 OF 5)

MOVEMENT SUMMARY

Site: Pacific Hwy / Macquarie Ave AM

Pacific Hwy / Macquarie Ave
Signals - Fixed Time Cycle Time = 80 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
2	T	1821	0.0	0.812	17.0	LOS B	30.3	212.2	0.86	0.83	28.8
3	R	24	0.0	0.081	15.0	LOS B	0.5	3.4	0.53	0.64	30.7
Approach		1845	0.0	0.812	17.0	LOS B	30.3	212.2	0.86	0.83	28.8
East: Macquarie Ave											
4	L	19	0.0	0.125	27.3	LOS B	0.5	3.8	0.76	0.66	25.8
6	R	10	0.0	0.020	26.9	LOS B	0.3	2.0	0.75	0.64	26.0
Approach		29	0.0	0.125	27.2	LOS B	0.5	3.8	0.76	0.65	25.9
North: Pacific Hwy N											
7	L	7	0.0	0.231	13.4	LOS A	4.9	34.4	0.52	0.78	32.0
8	T	771	0.0	0.231	8.9	LOS A	4.9	34.4	0.52	0.44	33.2
Approach		778	0.0	0.231	8.9	LOS A	4.9	34.4	0.52	0.45	33.2
All Vehicles		2652	0.0	0.812	14.8	LOS B	30.3	212.2	0.76	0.71	29.9

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

MOVEMENT SUMMARY

Site: Pacific Hwy / Macquarie Ave PM

Pacific Hwy / Macquarie Ave
Signals - Fixed Time Cycle Time = 60 seconds (Practical Cycle Time)

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
2	T	1478	0.0	0.875	26.7	LOS B	25.5	178.6	0.98	1.10	25.2
3	R	28	0.0	0.181	27.8	LOS B	0.7	5.2	0.86	0.72	25.7
Approach		1506	0.0	0.875	26.7	LOS B	25.5	178.6	0.98	1.10	25.2
East: Macquarie Ave											
4	L	35	0.0	0.158	17.7	LOS B	0.7	4.6	0.67	0.66	29.5
6	R	27	0.0	0.040	17.4	LOS B	0.5	3.6	0.67	0.66	29.6
Approach		62	0.0	0.158	17.6	LOS B	0.7	4.6	0.67	0.66	29.5
North: Pacific Hwy N											
7	L	7	0.0	0.692	19.7	LOS B	14.2	99.3	0.87	0.87	29.3
8	T	1746	0.0	0.692	15.3	LOS B	14.2	99.4	0.87	0.77	29.6
Approach		1753	0.0	0.692	15.3	LOS B	14.2	99.4	0.87	0.77	29.6
All Vehicles		3321	0.0	0.875	20.5	LOS B	25.5	178.6	0.91	0.92	27.4

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

ANNEXURE G: SIDRA RESULTS (SHEET 5 OF 5)

MOVEMENT SUMMARY

Site: Pacific Hwy / Oakdale Rd AM

Pacific Hwy / Oakdale Rd
Signals - Fixed Time Cycle Time = 110 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
2	T	1618	0.0	0.861	32.9	LOS C	42.3	296.2	0.96	0.94	30.0
3	R	501	0.0	0.868	35.6	LOS C	18.5	129.2	0.88	0.95	30.3
Approach		2119	0.0	0.868	33.6	LOS C	42.3	296.2	0.94	0.94	30.1
East: Oakdale Rd											
4	L	375	0.0	0.494	34.0	LOS C	14.8	103.8	0.79	0.83	31.0
6	R	163	0.0	0.420	49.0	LOS D	7.7	53.8	0.91	0.80	25.6
Approach		538	0.0	0.494	38.5	LOS C	14.8	103.8	0.83	0.82	29.1
North: Pacific Hwy N											
7	L	92	0.0	0.277	26.3	LOS B	8.1	56.6	0.64	0.86	35.8
8	T	683	0.0	0.277	18.1	LOS B	8.2	57.5	0.64	0.54	38.3
9	R	45	0.0	0.282	55.1	LOS D	2.2	15.1	0.91	0.74	23.9
Approach		820	0.0	0.282	21.0	LOS B	8.2	57.5	0.65	0.59	36.8
All Vehicles		3477	0.0	0.868	31.4	LOS C	42.3	296.2	0.85	0.84	31.3

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

MOVEMENT SUMMARY

Site: Pacific Hwy / Oakdale Rd PM

Pacific Hwy / Oakdale Rd
Signals - Fixed Time Cycle Time = 110 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
2	T	1358	0.0	0.803	30.5	LOS C	32.7	228.7	0.94	0.87	30.9
3	R	450	0.0	1.000[3]	62.2	LOS E	23.3	163.2	1.00	1.05	22.1
Approach		1808	0.0	1.000	38.4	LOS C	32.7	228.7	0.95	0.91	28.1
East: Oakdale Rd											
4	L	528	0.0	0.625	32.6	LOS C	21.5	150.2	0.82	0.85	31.6
6	R	252	0.0	0.649	51.5	LOS D	12.6	88.1	0.97	0.83	24.9
Approach		780	0.0	0.649	38.7	LOS C	21.5	150.2	0.87	0.84	29.1
North: Pacific Hwy N											
7	L	202	0.0	0.249	29.1	LOS C	6.8	47.5	0.67	0.78	33.3
8	T	1514	0.0	0.890	41.5	LOS C	43.9	307.4	1.00	1.03	26.8
9	R	19	0.0	0.111	49.1	LOS D	0.8	5.8	0.85	0.71	25.6
Approach		1735	0.0	0.890	40.1	LOS C	43.9	307.4	0.96	1.00	27.4
All Vehicles		4323	0.0	1.000	39.1	LOS C	43.9	307.4	0.94	0.93	28.0

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

MOVEMENT SUMMARY

Site: Pacific Hwy / Oakdale Rd
FUTURE PM

Pacific Hwy / Oakdale Rd
Signals - Fixed Time Cycle Time = 110 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
							Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Pacific Hwy S											
2	T	1358	0.0	0.803	30.5	LOS C	32.7	228.7	0.94	0.87	30.9
3	R	450	0.0	1.000 [3]	62.2	LOS E	23.3	163.2	1.00	1.05	22.1
Approach		1808	0.0	1.000	38.4	LOS C	32.7	228.7	0.95	0.91	28.1
East: Oakdale Rd											
4	L	528	0.0	0.625	32.6	LOS C	21.5	150.2	0.82	0.85	31.6
6	R	252	0.0	0.649	51.5	LOS D	12.6	88.1	0.97	0.83	24.9
Approach		780	0.0	0.649	38.7	LOS C	21.5	150.2	0.87	0.84	29.1
North: Pacific Hwy N											
7	L	202	0.0	0.249	29.1	LOS C	6.8	47.5	0.67	0.78	33.3
8	T	1514	0.0	0.890	41.5	LOS C	43.9	307.4	1.00	1.03	26.8
9	R	38	0.0	0.224	49.8	LOS D	1.7	11.9	0.86	0.74	25.4
Approach		1754	0.0	0.890	40.3	LOS C	43.9	307.4	0.96	0.99	27.4
All Vehicles		4342	0.0	1.000	39.2	LOS C	43.9	307.4	0.94	0.93	28.0

Level of Service (LOS) Method: Delay (RTA NSW).
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 used.

3 x = 1.00 due to short lane. Refer to the Lane Summary report for information about excess flow and related conditions.

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SIDRA INTERSECTION 5.1.13.2093

SIDRA INTERSECTION

Project: Z:\Jobs\2014\14306\MTE SIDRA\Hunter Sports HS.sip
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