

TECHNICAL NOTE

Project Code: N208651

Project Name: Blacktown Health Precinct Phase 2

Date: 28 May 2021

Version No. 1

Author: Nick Buchanan

Reviewer: Chris Wilson

SUBJECT: Blacktown Health Precinct Phase 2 Scoping Report

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Introduction

GTA Consultants, now Stantec have been engaged by Blacktown City Council (BCC) to assist scoping future traffic and transport related assessments in relation to the development of the Blacktown Health Precinct Transformation Project, prior to the formal submission of a Planning Proposal.

This memo outlines previous work undertaken to date incorporating the Warrick Lane Precinct, the Blacktown CBD Precinct, and the master planning phase of the Blacktown Health Precinct.

A summary of key findings is presented from both a broader, regional network perspective and then from a more specific intersection analysis perspective relating to the Health Precinct.

Background

Warrick Lane and the Blacktown CBD

GTA was engaged by Blacktown City Council in 2018 to provide traffic and transport assessment and advice on the Warrick Lane project, and managed the delivery of a range of transport engineering output including schematic and detailed design input to the Project, Transport Impact Assessments in multiple phases, DA stage and Detailed Stage Construction Traffic and a Pedestrian Management Plan.

Blacktown Health Precinct Master Plan

GTA was also commissioned by Hames Sharley and BCC to undertake traffic modelling investigations and to provide strategic transport planning advice to assist the preparation of the Blacktown Health Precinct Transformation Project Masterplan across 2019-2020.

BCC subsequently engaged GTA to assist with complementary design works of key intersections in relation to the development of the Blacktown Health Precinct Transformation Project. These complementary works assisted a separate costing exercise on key infrastructure works, including drainage and stormwater, roadworks and recreational facilities; it is noted that the result of these works will be used as an input to the preparation of a contributions plan.

Area of Influence

Having consideration for the Blacktown Health Precinct location and extent, the three strategic development precincts have been taken into consideration for the purpose of later analysis:

- Warrick Lane Precinct^[1]
- Blacktown CBD^[2]
- Blacktown Health Precinct.

[1] GTA Warrick Lane DA2 TIA Report issued 21 November 2018;

[2] GTA Warrick Lane 75% DA Traffic and Parking Assessment Presentation dated 9 August 2018

Figure 1: Blacktown Health Precinct



Context and Existing Conditions

Strategic Context

The review of relevant strategic documents relevant to the Blacktown Health Precinct and the key policy implications are summarised in the following table.

Plan	Relevance
The Greater Sydney Region Plan, A Metropolis of Three Cities	<ul style="list-style-type: none"> • Blacktown City is situated at the boundary of the Central River City and the Western Parkland City. • Blacktown has been identified as Strategic Centre
The Central City District Plan	<ul style="list-style-type: none"> • About 19,500 jobs have been targeted by the plan for Blacktown Strategic Centre by 2036 • Blacktown CBD is identified as a Health and Education Precinct
TfNSW Future Transport 2056	<ul style="list-style-type: none"> • New Infrastructure including the North-south Rail link in Western Parkland City and infrastructure to support Rapid and Improved Bus Connections between Western Sydney Airport – Badgerys Creek Aerotropolis and Penrith, Liverpool, Blacktown and Campbelltown – MacArthur • Major Infrastructure upgrades including the M4 Smart Motorway • Sydney-wide projects/ programs including the Principal Bicycle Network to connect Mount Druiett to Blacktown, St. Marys and Leppington

Plan	Relevance
Blacktown City Local Strategic Planning Statement (LSPS)	<ul style="list-style-type: none"> The LSPS provides the framework for land use planning and decision making over the next 20 years and details some priorities and action to achieve the Vision 2040. Health and Education Precinct: Transformational Project to capitalise on State investment in Blacktown Hospital
Blacktown 2036 (Community Strategic Plan)	<ul style="list-style-type: none"> Warrick Lane development: A key location to be developed as a landmark commercial and residential hub. University campus: A major university campus of at least two faculties Health precinct: Collaboration with the NSW Government and private health sector to co-locate a private hospital facility and allied medical services.

Existing Conditions

The existing Health Precinct includes approximately 20ha of urban land bounded by the road network which has regional significance, providing vehicles with major east-west and north south connections to several key arterial and State Roads such as the M7 Motorway, M4 Motorway, Old Windsor Road and Richmond Road, in addition to major employment centres including Blacktown CBD, Norwest Business Park and Arndell Park. The traffic volumes at key intersections in the vicinity of the site is summarised in Table 1.

Table 1: Traffic Volumes around the Blacktown Health Precinct

Road	Location	AM Peak Hour		PM Peak Hour	
		Eastbound/ Northbound	Westbound/ Southbound	Eastbound/ Northbound	Westbound/ Southbound
Main Street/ Blacktown Road ^[1]	East of Sunnyholt Road	1030	1227	1237	1210
Newton Road ^[1]	South of Sunnyholt Road	874	530	829	862
Panorama Parade ^[2]	North of Lismore Street	311	255	374	246
Newton Road ^[3]	East of Walters Road	609	293	362	710
Bungarribee Road ^[4]	East of Walters Road	990	587	708	931

[1] Source: Arup (2016) on behalf of Blacktown City Council to inform the Warrick Lane Precinct Concept Masterplan Study.

[2] Source: MetroCount Traffic Executive (2018) on behalf of Blacktown City Council

[3] Source: MetroCount Traffic Executive (2017) on behalf of Blacktown City Council

[4] Source: MetroCount Traffic Executive (2018) on behalf of Blacktown City Council

Travel data for mode share by residents in the Blacktown SA3 (greater Blacktown) was obtained from the Census by the Australian Bureau of Statistics (ABS) for 2007/8, 2012/3, and 2017/8. The analysis of data indicates that car use (driver and passenger) accounted for over 70 percent of travel over the last 10 years, with only a slight reduction in car between 2007/8 and 2017/8 from 75% to 72.5%.

Public transport trips in the area are low, with only a maximum of 14% for bus and train trips in any of the three years. Walking trips have also decreased between 2007/8 and 2017/8, however had a slight increase from 2012/3 to 2017/8.

Proposed Development

Having consideration for the Blacktown Health Precinct location and study area extent, three strategic development precincts were taken into consideration for the purpose of this analysis:

- Warrick Lane Precinct
- Blacktown CBD Precinct
- Blacktown Health Precinct.

On that basis, GTA revised the available background information and documentation previously utilised to inform GTA Blacktown Health Precinct concept design project and has identified the following indicative timeline of development within the relevant precincts.

Table 2: Anticipated Development Timing

Precinct	Development Area	Immediate (0-5 years)	Short term (5-10 years)	Medium term (10-20 years)	Long term 20 year plus
		2021	2031	2041	2051
Warrick Lane	Carpark and road & access way	✓			
	ACU Stage One		✓		
	BCC offices		✓		
	ACU Stage Two			✓	
	Balance Commercial and Retail				✓
Blacktown CBD	Stage 1			✓	
	Stage 2			✓	
	Stage 3				✓
	Stage 4				✓
	Stage 5				✓
	Stage 6				✓
	Balance of development sites				✓
Blacktown Health Precinct	Sub Precinct A		✓		
	Part Sub Precinct B			✓	
	Part Sub Precinct			✓	
	Sub Precinct C			✓	
	Sub Precinct D			✓	
	Sub Precinct E			✓	

Source: Blacktown Health Precinct Master Plan – Final Urban Design Report (Hames Sharley, 2019).

As shown, the anticipated developed yield for the Health Precinct for year 2041 is approximately **110,000 square metres Gross Floor Area** based on the estimated demand by MacroPlan report which investigated a range of potential future uses in the existing Health Precinct. The potential floor space demands generated from each of the proposed uses are summarised in Table 3.

Table 3: Summary of uses and GFA demand in BHP Market Assessment

Land Use	Lower Demand (2036)	Upper Demand (2036)	Timing Sequencing
Private Hospital	5,000	20,000	Anchor use
GP & Allied Health	9,000	10,000	Anchor use or Follow up
Retail	2,000	2,500	Follow up
Commercial	4,000	5,000	Early activator or Anchor use
Student Accommodation	5,500	6,500	Early activator or Anchor use
Seniors Housing (ILUs and RACs)	26,000	48,000	Early activator
Healthcare staff accommodation	8,000	12,000	Early activator
Short term accommodation	6,500	8,500	Anchor use or Follow up
Childcare centre	2,500	3,500	Early Activator
Total	68,500	116,000	

Source: MacroPlan Dimasi 2019.

Background Growth and Trip Generation

Background Traffic Growth

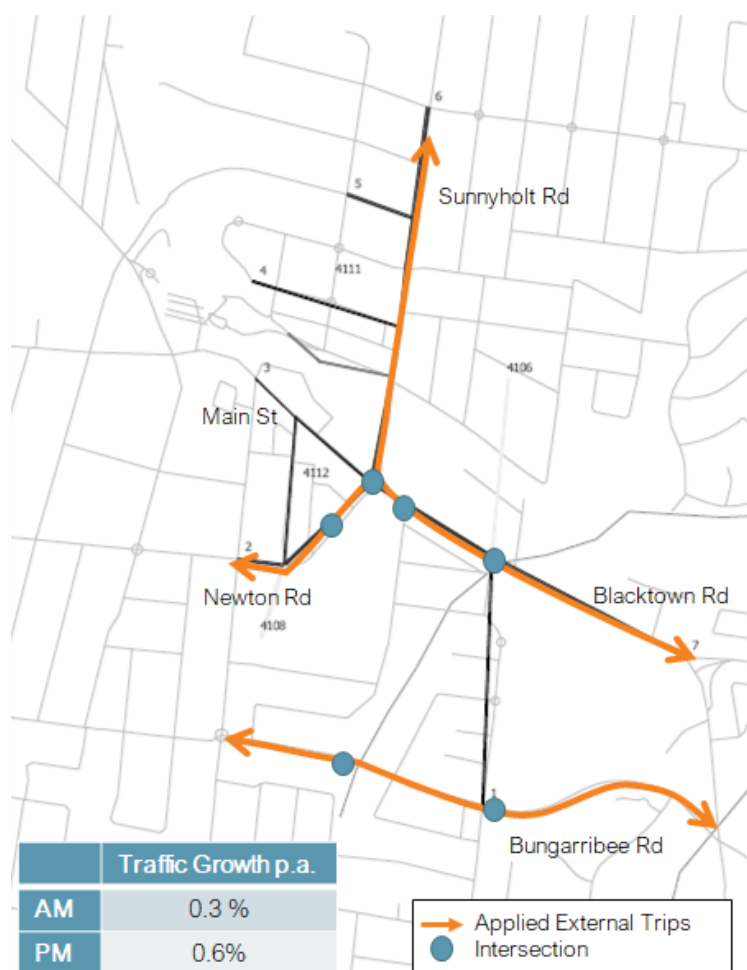
The existing conditions (2019) were developed with available traffic reports such as:

- Mount Druitt Hospital Stage 2 – Transport Accessibility Study Report (ARUP)
- Blacktown Health Precinct Project – Warrick Lane Precinct (GTA).

Future background traffic growth has been estimated based on outputs from the Sydney Strategic Traffic Forecast Model (STFM) provided by Transport for NSW (Roads and Maritime) for 2017 and 2031. The global growth rates were estimated for external to external trips as shown in Figure 2:

- Traveling from/to Sunnyholt Road to/from Newton Road
- Traveling from/to Main Street to/from Newton Road
- Traveling from/to Bungarribee Road East and West.

Figure 2: STFM Cordon Network



An annual traffic growth of 0.3 per cent and 0.6 per cent accommodates for background traffic growth for external trips. External to Internal trips are associated with the proposed development of the study area.

Trip Generation

GTA previously assumed trip generation rates and estimated traffic generation for the Health Precinct. Multiple sources were utilised for this exercise, including:

- GTA - Warrick Lane DA2 TIA Report, 21 November 2018
- GTA - Warrick Lane 75% DA Traffic and Parking Assessment Presentation dated 9 August 2018
- RMS - Guide to Traffic Generating Development, 2002
- TfNSW - TDT 2013/04a.

Based on this, the following trip rates were applied:

- Serviced apartments: 1 space per 100 m²
- Residential: 1 space per 60 m²
- Students: 1 student per 2.5 m²
- Hospital: 1 bed per 100 m²
- Allied Health: 1 bed per 55 m²
- Aged care: 1 dwelling per 80 m²
- Seniors living: 1 dwelling per 80 m²

In addition to the above, trip rates for retail facilities within the precinct were discounted by 50 per cent having consideration that businesses such as florists, chemist, grocery shop, etc. play a supportive and ancillary role to the adjacent businesses rather than generate traffic by nature. A similar assumption was also applied for childcare facilities.

Traffic Impacts

Regional Network Assessment (Health Precinct Master Plan Phase 1)

Background

Traffic modelling was undertaken for 2031 with a calibrated and validated Aimsun model. Future land use development included:

- Warrick Lane Precinct
- Blacktown CBD
- Blacktown Health Precinct.

In addition to the 2031 Future Base, the following network changes were tested in an Upgrade Case:

- Upgrades to Main Street/ Sunnyholt Road intersection
- Colo Lane access to Health Precinct with new traffic signals
- Removal of the pedestrian crossing on Main Street (between Campbell Street and Sunnyholt Road)

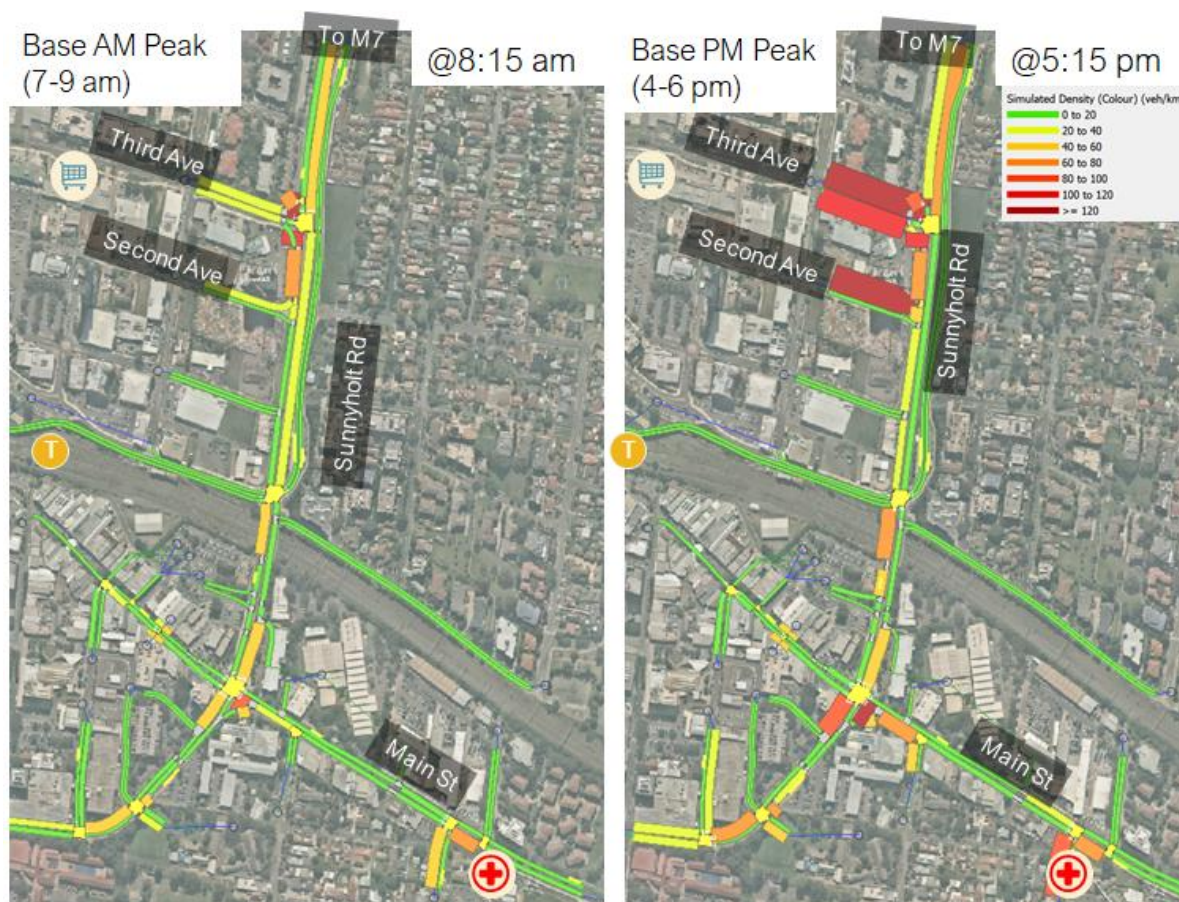
Findings

2031 Upgrade Case

The following is shown in Figure 3:

- Warrick Lane existing trips were removed and only Warrick Lane development trips were included
- Network upgrades identified above enable the network to operate at capacity and assist to cope with the expected level of growth
- Third Avenue remains under capacity stress showing significant queues and delays.

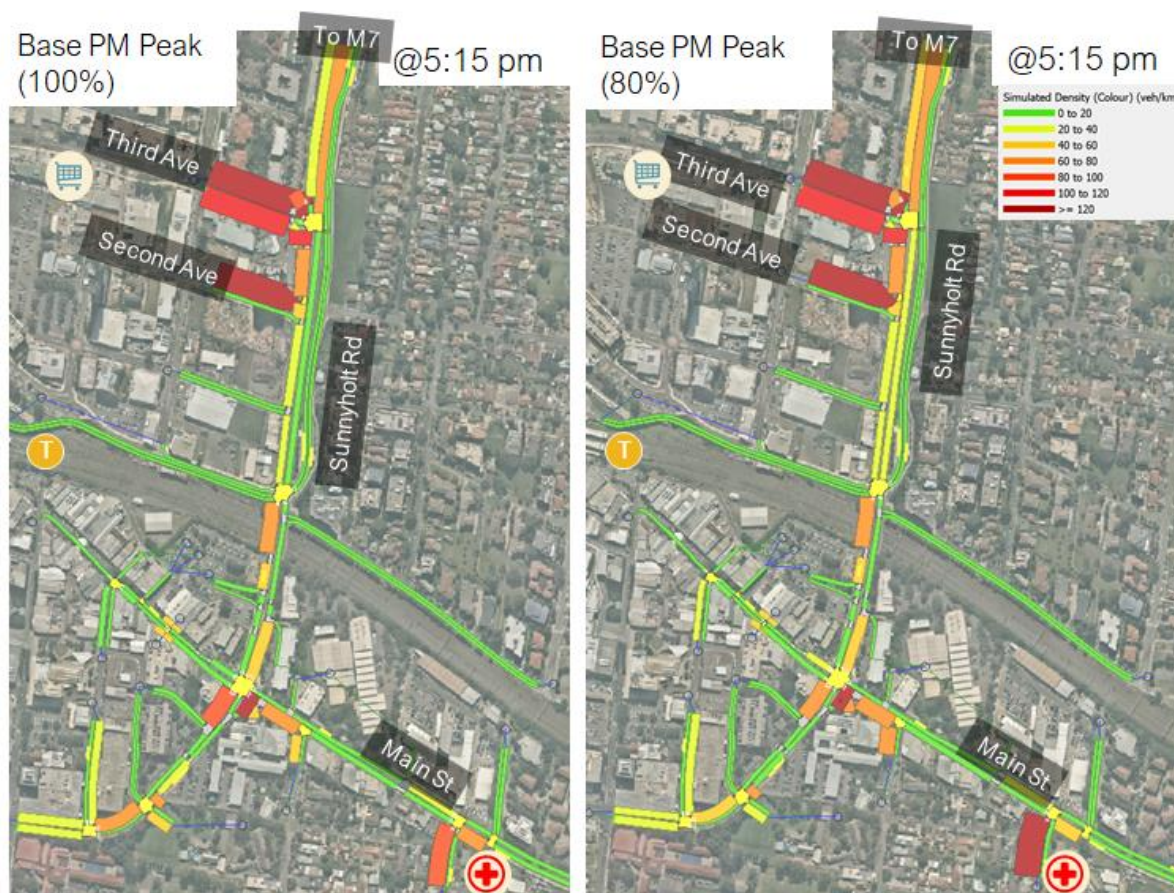
Figure 3: 2031 Upgrade Case Results



Comparison between 100% and 80% Scenario

As sensitivity test, 80% of CBD development was assessed. As shown in Figure 4, a 20% reduction in the CBD travel demand indicates marginal improvements but the network is still operating near capacity with queues and delays expected at Third Avenue.

Figure 4: 2031 Upgrade Case 100% and 80% Development Results



Summary

With the proposed upgrades:

- 2031 development can be accommodated for AM Peak conditions (additional approx. 1,000 trips)
- 2031 development cannot be fully accommodated for PM Peak conditions (additional approx. 1,080 trips)
- 2031 development can be accommodated in the PM peak with a 20% reduction in total CBD development.

Local Network Assessment (Refinement of Health Precinct Master Plan)

To subsequently assist a costing exercise on key infrastructure works for the Blacktown Health Precinct, GTA completed SIDRA Intersection modelling for 2041 when full development of the Blacktown Health Precinct is expected, to underpin the concept design of the following intersections:

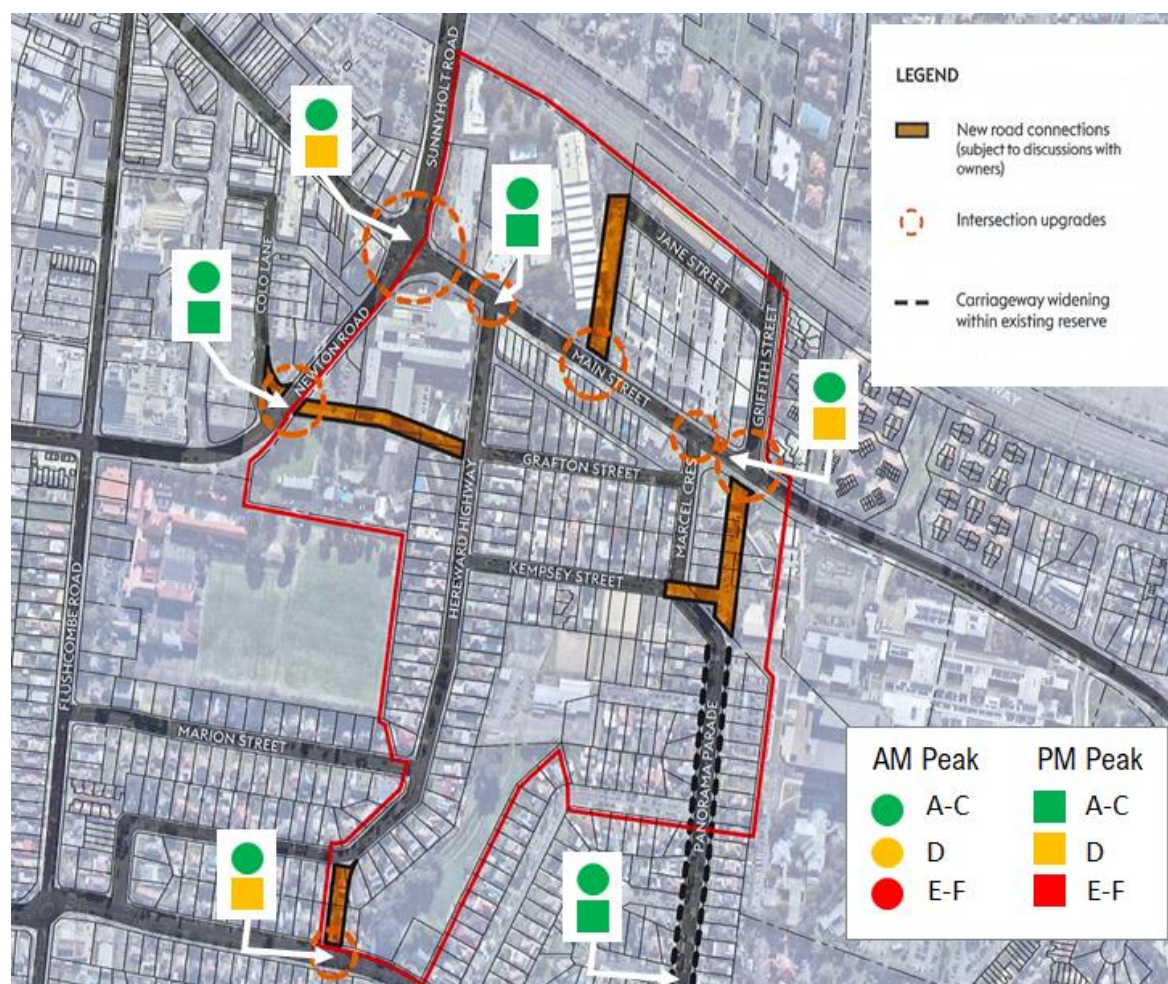
- Newton Road/ Colo Lane
- Blacktown Road/ Hereward Hwy
- Extension of Hereward Hwy to Bungarribee Road (next to Captain Cook Reserve)
- Blacktown Road/ Marcel Crescent / Griffith Street.

A summary of findings is outlined below:

- Base year (2019) traffic volumes were developed using the existing turning counts and previous traffic reports prepared by GTA and Arup
- Based on 110,000 sqm of the proposed yield, it is expected that the site would generate a total of 791 and 890 vehicle movements respectively during the AM and PM peak hours
- Future background traffic growth was estimated based on outputs from the Sydney Strategic Traffic Forecast Model (STFM)
- SIDRA Intersection results indicate that with the future traffic demand, all intersections would operate within capacity in both the 2041 AM and PM peak periods
- Intersection concept designs were undertaken and able to accommodate the anticipated peak traffic volumes.

Figure 5 summarises the operating conditions for the key intersections in 2041 weekday AM and PM peak periods, following Blacktown Health Precinct development.

Figure 5: Summary of Intersection Level of Service



Base Map Source: Blacktown City Council, adjusted by GTA

Summary

The below table summarises the extent of work undertaken for particular intersections, the software package used and whether a supporting concept design was undertaken. We provide an indicative priority or level of importance to guide future discussions.

Overall, from the work undertaken to date in both Aimsun and Sidra, all intersections in the Health Precinct operate at an acceptable level of service and do not adversely impact the Sunnyholt and Main Street intersection.

Table 4: Summary of Work Undertaken

Location	Years	Regional Impacts (Aimsun)	Local Impacts (Sidra)	Concept Design undertaken	Priority/ Importance
Colo Lane/ Newton Rd/ New access Rd	2031, 2041	✓	✓	✓	Medium
Sunnyholt Rd / Main St	2031, 2041	✓	✓	✓	High
Main St/ Hereward Hwy	2031, 2041	✓	✓	✓	Low
Blacktown Rd/ Marcel Cres/ Griffith St	2031, 2041	✓	✓	✓	High
Bungaribee Rd/ Hereward Hwy	2041		✓	✓	Low
Bungaribee Rd/ Panorama Pd	2041		✓		Low