FABCOT PTY LTD

REPORT ON THE TRANSPORT ASPECTS OF PROPOSED RETAIL DEVELOPMENT, WARNERVALE TOWN CENTRE

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1. INTRODUCTION

1.1. Colston Budd Hunt & Kafes Pty Ltd has been retained by Fabcot Pty Ltd to prepare a report on transport aspects of the proposed retail development within the new Warnervale Town Centre. The site is located on the eastern side of the main northern railway, to the north of Sparkes Road, as shown on Figure 1.

1.2. Development within Warnervale Town Centre is guided by the Warnervale Town Centre Development Control Plan (2008). The DCP envisages a mix of residential, retail, commercial and recreational activities with a new railway station. The proposed development forms part of the Town Centre Civic Precinct which is located on the western part of the centre, adjacent to the railway line. Opposite the proposed development a new rail station has been approved (the existing Warnervale Station will be relocated to the new town centre). As part of the town centre, a bus interchange is proposed adjacent to the new station.

1.3. The Warnervale Town Centre Development Control Plan (2008) sets out the road hierarchy and road geometry for the town centre. In January 2007, Wyong Council completed a Traffic Impact Assessment of the proposed Warnervale Town Centre. This assessment found that the road hierarchy, intersection layouts and road widths (which are similar to that adopted in DCP 2008) will adequately cater for the development of the town centre.

1.4. As the proposed development will form the first stage of development within Warnervale Town Centre, this transport assessment has considered the effects of the proposed development prior to the area being fully developed with access to the area being a single connection to Sparkes Road.

1.5. This report assesses the implications of the proposed development through the following chapters:-

- Chapter 2 - Describing the existing situation; and
- Chapter 3 - Assessing the implications of the proposed development.

2. EXISTING CONDITIONS

Site Location

2.1. The site is located within the western part of the area covered by Warnervale Town Centre DCP, on the eastern side of the main northern railway, to the north of Sparkes Road, as shown on Figure 1. The site is currently used for rural purposes. To the south (between the subject site and Sparkes Road), Landcom are proposing residential development. To the east there are existing residential development and a school.

Road Network

2.2. The road network in the vicinity of the site includes Sparkes Road, Virginia Road, Minnesota Road and Hiawatha Road. Sparkes Road is an arterial road connecting the Pacific Highway to the east (at Lakehaven) with the F3 Freeway to the west. It is located to the south of the site and provides the southern boundary of the Warnervale Town Centre. In the vicinity of the site, it generally provides one traffic lane in each direction with additional lanes at intersections.

2.3. Virginia Road connects to Sparkes Road to the south of the site at a priority controlled T-intersection with Sparkes Road the major road. Separate left and right turn bays are provided on Sparkes Road to facilitate turning movements into Virginia Road. Virginia Road provides access to the existing Warnervale Village and railway station.

2.4. Minnesota Road is located to the south east of the site and connects to Sparkes Road at a traffic signal controlled four way intersection. Minnesota Road is the southern leg of the intersection with the northern leg providing access to the

Mackillop Catholic College. Minnesota Road connects Sparkes Road to the Pacific Highway in the south.

2.5. Hiawatha Road is located to the east of the site and provides the eastern boundary of the town centre. It connects to Sparkes Road at a priority controlled seagull intersection. Hiawatha Road provides access to existing residential development located to the east of the Warnervale Town Centre.

2.6. Figure 3.1 of Warnervale Town Centre DCP 2008 shows the proposed road hierarchy of the town centre. When fully developed, the town centre will have connections to Sparkes Road at two locations (western access between Virginia Road and Minnesota Road) and eastern access connecting via the existing intersection of Sparkes Road and Minnesota Road. A number of connections are also proposed to Hiawatha Road. Figure 3.14 shows proposed bus, cycle and pedestrian routes within the town centre. Figures 3.1 and 3.14 of DCP 2008 are provided as Figures 2 and 3 to this report.

Traffic Volumes

2.7. In order to establish existing traffic conditions, counts were undertaken during Friday morning (7.00am to 10am) and afternoon (2.30pm to 6.30pm) peak periods in early June 2010 at the following intersections:

- Sparkes Road/Virginia Road;
- Sparkes Road/Minnesota Road/School Access; and
- Sparkes Road/Hiawatha Road.

2.8. The surveyed peak flows are summarised in Table 2.1.

Table 2.1 : Existing Two-Way Peak Hour Traffic Flows		
	Vehicles Per Hour (Two-Way)	
Location	**Friday Morning**	**Friday Afternoon**
Sparkes Road		
– east of Hiawatha Road	1660	1570
– east of Minnesota Road	1955	1860
– east of Virginia Road	1580	1575
– west of Virginia Road	1895	1810
Hiawatha Road		
- north of Sparkes Road	500	435
Minnesota Road		
- north of Sparkes Road	1035	545
- south of Sparkes Road	620	515
Virginia Road		
- south of Sparkes Road	455	345

2.9. The results in Table 2.1 reveal that:-

- Sparkes Road carried some 1575 to 1955 vehicles per hour (two-way) during the peak periods;

- Hiawatha Road carried some 435 to 500 vehicles per hour (two-way) during the peak periods;

- Minnesota Road (south of Sparkes Road) carried some 515 to 620 vehicles per hour (two-way) during the peak periods. North of Sparkes Road, the access to the school carried some 545 to 1035 vehicles per hour (two-way) during the peak periods; and

- Virginia Road carried some 345 to 455 vehicles per hour (two-way) during the peak periods.

2.10. As the proposed development will not be developed for a number of years, it is considered appropriate to assess 2021 traffic conditions along Sparkes Road as a base case. For other projects in the region, 10 year traffic projections were

agreed with the RTA as the appropriate time horizon with a background traffic growth (through traffic on Sparkes Road) of 2% per year.

Intersection Operations

2.11. The capacity of the road network is generally determined by the capacity of its intersections to cater for peak period traffic flows. The surveyed intersections have been analysed using the SIDRA program. SIDRA is designed to analyse isolated signal controlled intersections, roundabouts and priority intersections.

2.12. Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):-

- For Traffic Signals, the average delay per vehicle in seconds is calculated as Delay/(All Vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:-

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity
29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Satisfactory but operating near capacity
57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode.
>70	=	"F"	Unsatisfactory and requires additional capacity

- For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to following LOS:-

0 to 14	=	“A”	Good
15 to 28	=	“B”	Acceptable delays and spare capacity
29 to 42	=	“C”	Satisfactory but accident study required
43 to 56	=	“D”	Near capacity and accident study required
57 to 70	=	“E”	At capacity and requires other control mode.
>70	=	"F"	unsatisfactory and requires other control Mode

2.13. It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

2.14. The SIDRA analysis found that in 2021:

- the intersection Sparkes Road and Hiawatha Road would operate at capacity with average delays per vehicle for the movement with the highest average delay (right turn out of Hiawatha Road), greater than 70 seconds for both peak periods;

- the intersection Sparkes Road and Minnesota Road would operate with average delays per vehicle of less than 30 seconds for both peak periods. This represents level of service C, a satisfactory level of intersection operation; and

- the intersection Sparkes Road and Virginia Road would operate at capacity with average delays per vehicle for the movement with the highest average delay (right turn out of Hiawatha Road) greater than 70 seconds for both peak periods

2.15. The above analysis has found that by 2021 the unsignalised intersections of Sparkes Road with Hiawatha Road and Virginia Road would require alternative intersection controls (traffic signals or roundabout) along with upgrading of Sparkes Road to two through lanes some 200 metres in each direction either side of the intersections. The distance between Virginia Road and Hiawatha Road intersections on Sparkes Road is some 1.15 kilometres, with Minnesota Road located some 300 metres west of Hiawatha Road. Given the proximity of the intersections (and the existing widening at Minnesota Road) it would be appropriate to widen Sparkes Road to two through lanes in each direction from 200 metres east of Hiawatha Road to 200 metres west of Virginia Road. The intersections of Sparkes Road with Hiawatha Road and Virginia Road would be upgraded to traffic signal control.

2.16. The intersections of Sparkes Road with Hiawatha Road and Virginia Road under traffic signal control were reanalysed using SIDRA with 2021 traffic flows. The analysis found that:

- the intersection of Sparkes Road and Hiawatha Road would operate with average delays per vehicle of less than 15 seconds for both peak periods. This represents level of service A/B a good level of intersection operation with spare capacity; and

- the intersection of Sparkes Road and Virginia Road would operate with average delays per vehicle of less than 20 seconds for both peak periods. This represents level of service B, a good level of intersection operation with spare capacity

2.17. Indicative intersection layouts of the upgraded intersections (extracted from SIDRA) are attached to this report.

Public Transport

2.18. The site currently has limited access to public transport services with Coastal Lines operating the Route 11 service along Sparkes Road past the site. This is a seven day a week service that connects Lake Haven with Warnervale/Wyong/Westfield Tuggerah. As noted previously, Warnervale railway station will be relocated from its existing location to the new town centre. As part of the town centre/station relocation, a new bus interchange will be provided. Thus, in the future the site will have good access to public transport services.

3. IMPLICATIONS OF PROPOSED DEVELOPMENT

The Proposed Development

3.1. The proposed development is for a staged retail development with ancillary commercial and leisure components as shown on the architectural plans prepared by BN (Drawing SK-20 Issue P2). The proposed development comprises the following elements:

- Big W Discount Department Store (DDS) – 8,500m^2;
- Woolworths Supermarket – 4,807m^2;
- Supermarket 2 – 1,480m^2;
- Mini Major – 5,636m^2;
- Specialty Retail – 7,782m^2;
- Leisure/Entertainment – 6,938m^2
- Gym – 2,046m^2
- Commercial – 8,846m^2;
- New access roads and associated infrastructure;
- Some 1,879 car spaces;
- Separate service areas for each component of the development; and
- Petrol station to the north of the main retail area.

3.2. The total floor area is some 46,035m^2.

3.3. This chapter examines the implications of the proposed development through the following sections:-

- transport policy documents;
- public transport;
- pedestrians and cyclists;

- work travel plan;
- parking provision;
- access and internal layout;
- servicing;
- traffic effects;
- response to matters raised by Council; and
- summary.

Transport Policy Documents

3.4 The Metropolitan Transport Plan 2036, State Plan 2010, Integrated Land Use and Transport Policy Package and Planning Guidelines for Walking and Cycling are relevant transport documents. The four documents are discussed below.

Metropolitan Transport Plan

3.5 The Metropolitan Transport Plan – Connecting the City of Cities has four key policy objectives:

- commuting to work easily and quickly;
- transport and services accessible to all members of the community;
- an efficient, integrated and customer focused public transport system; and
- revitalised neighbourhoods with improved transport hubs.

3.6 It includes a target of 28 per cent of trips to work in the Sydney Metropolitan Region to be undertaken by public transport by 2016, compared to some 22 per cent in 2006.

3.7 To help achieve these objectives, it identifies, in conjunction with the metropolitan strategy, key areas of future housing and employment growth in Sydney to 2020

and 2036. Additionally, it outlines a 10 year funding program to 2020 for the following transport projects:

- rail line extensions for more platforms at CBD stations;
- rail lines to north west and south west Sydney;
- light rail in the CBD and further extension to the Inner West;
- more air conditioned train carriages;
- 1,000 additional buses;
- completion of the 43 strategic bus corridors across Sydney;
- completion of the highest priority missing links in the Sydney Strategic Cycleway Network.

State Plan 2010

3.8 Chapter 1 of the NSW State Plan 2010 (Better Transport and Liveable Cities) sets targets to increase the proportion of commuter trips made by public transport for various areas within Sydney by 2016, including:

- 80 per cent in the Sydney CBD;
- 50 per cent in the Parramatta CBD;
- 20 per cent in the Liverpool CBD; and
- 25 per cent in the Penrith CBD.

3.9 It also has targets to:

- improve road safety and reduce fatalities to 4.9 per 100,000 population by 2016;
- increase the mode share of bicycle trips made in the metropolitan area to five per cent by 2016;
- increase the proportion of the population living within 30 minutes by public transport of a city or major centre in the metropolitan area; and

- provide capacity for 640,000 new dwellings between 2004 and 2031, including 445,000 in existing urban areas.

Integrated Land Use and Transport Policy Package (ILUT)

3.10 ILUT aims to ensure that urban structure, building forms, land use locations, development designs, subdivision locations and street layouts help achieve the following planning objectives:

(a) improve accessibility to housing, employment and services by walking, cycling, and public transport;
(b) improve the choice of transport and reducing dependence solely on cars for travel purposes;

(c) moderate growth in the demand for travel and the distances travelled, especially by car; and

(d) support the efficient and viable operation of public transport services.

Planning Guidelines for Walking and Cycling

3.11 These guidelines aim to assist land-use planners and related professionals to improve consideration of walking and cycling in their work. Planning has an important role to play, particularly as it influences urban form, which sets the scene for walkability and cycleability for decades to come. It is anticipated that improving practice in planning for walking and cycling will create more opportunities for people to live in places with easy walking and cycling access to urban services and public transport. This will help reduce car use and create healthier neighbourhoods and cities.

3.12 The guidelines set down the benefits of a walkable and cycleable city as follows:

Equity: Give young people, older people and others without a car better access to employment, education and other urban services;

Livability: Reduce the stress, noise, air pollution and visual blight impacts of excessive car use on our neighbourhoods and give people more opportunities for interaction recreation and access to open space;

Cost-effectiveness: To make better use of public land, road systems and public transport infrastructure and to reduce household transport costs.

Health: Promote physical activity to lower the incidence of obesity, depression and other illnesses related to sedentary lifestyles;

Environment: Reduce greenhouse emissions, prevent loss of bushland to sprawling development and improve stormwater quality and flow by reducing the extent of paved surfaces and polluted road run-off;

Safety: Getting people out of cars onto public transport. Walking and cycling are an effective means of reducing the road toll. Crime can be reduced by providing opportunities for passive surveillance.

3.13 The following sections discuss public transport, pedestrians and cyclists, work travel plan, and parking provision in the context of the objectives set down in the transport policy documents.

Public Transport

3.14 As noted in Chapter 2, the site is located adjacent to the future relocated Warnervale rail station and bus interchange. The location and layout of the new bus interchange has been agreed to by the key stakeholders (bus operators, NSW Department of Transport and Council) with a concept layout prepared by Mott McDonald (Drawing No 10S183C-SK117 Rev B). A copy of the plan is attached to this report.

3.15 The site is therefore well located to the new railway station and bus interchange to provide opportunities for staff and customers with a choice of modes for travel to the site.

3.16 The proposed development is therefore consistent with government policy and the planning principles of:

(a) improving accessibility to employment and services by walking, cycling, and public transport;

(b) improving the choice of transport and reducing dependence solely on cars for travel purposes;

(c) moderating growth in the demand for travel and the distances travelled, especially by car; and

(d) supporting the efficient and viable operation of public transport services.

3.17 To facilitate pedestrian access between the station/bus interchange and the town centre, traffic signals will be provided at the intersection of Main Street and the main access road with pedestrian facilities provided on all approaches. As the

town centre develops (subject to approval from the RTA), consideration could be given to providing a separate pedestrian scramble phase at the intersection.

Pedestrians and Cyclists

3.18 The Warnervale Town Centre DCP (2008) sets out the pedestrian and cyclist network for the town centre. The proposed development supports this network with appropriate new roads to be constructed incorporating the DCP requirements. New development will include bicycle parking for employees and visitors at appropriate locations within the development (including change facilities and secure bicycle parking).

Work Travel Plan

3.19 A work place travel plan will be prepared to optimise travel to the site by means other the private car and maximise the sites good accessibility to public transport services. The preparation of a work place travel plan could be included as a condition of approval. The plan would include the following principles:

- encourage the use of public transport by employees and customers through the provision of information, maps and timetables;
- provide appropriate pedestrian facilities which improve accessibility to the town centre and public transport services;
- raise awareness of health benefits of walking (including maps showing safe walking routes);
- encourage cycling by providing safe and secure bicycle parking, including the provision of lockers and change facilities;

- provide appropriate on-site parking provision.

3.20 The work place travel plan will assist in delivering sustainable transport objectives by considering the means available for reducing dependence solely on cars for travel purposes, encouraging the use of public transport and supporting the efficient and viable operation of public transport services.

Parking Provision

3.21 The Warnervale Town Centre DCP (2008) sets out parking requirements for development within the town centre. For the proposed development the DCP suggests the following rates:

- retail premises – 5.6 spaces per 100m^2; and
- commercial - 1 space per 30m^2 GFA.

3.22 The rate of 5.6 spaces per 100m^2 for retail development is the same as the RTA rate for shopping centres between 10,000m^2 and 20,000m^2. The proposed development comprises some 28,000m^2 of retail development (excluding the ancillary entertainment and commercial components). For shopping centres over between 20,000m^2 and 30,000m^2, RTA Guidelines suggest provision of 4.1 spaces per 100m^2. For commercial development RTA Guidelines suggest provision of 1 space per 40m^2 GFA.

3.23 Given the size of the proposed development and sites location within the town centre and new public transport interchange, the RTA rates are considered more appropriate for estimating parking requirements than the DCP 2002 rates. Using the RTA rates of 4.3 spaces per 100m^2 for the retail and 1 space per 40m^2 for the

ancillary commercial and entertainment components, the proposed development would require some 1,660 parking spaces.

3.24 The proposed development provides some 1,880 spaces. The 220 spaces above that required (as set out above) would be commuter parking spaces within a designated area of the main car park.

3.25 DCP 2008 suggests that one per cent of parking spaces be allocated as disabled parking. Appropriate bicycle and motor cycle parking will be provided in accordance with Council requirements.

Access and Internal Layout

3.26 A number of roads identified in DCP 2008 will be constructed as part of the proposed development. These include Main Street and roads to the north and south that will provide access to the site. The design of these roads is consistent with the intent of the DCP. Concept plans of the proposed roads have been prepared by Matt McDonald with detail on the engineering aspects provided in the Engineering Statement prepared by Matt McDonald.

3.27 A concept design of the main access road (Road 1) linking Main Street to Sparkes Road has been prepared by GHD. The design of this road has been agreed between the key Stakeholders (Landcom, Fabcot and Council).

3.28 Key features of the proposed roads are:

- all roads provide for two way traffic;
- no direct vehicular access to development from Main Street;
- traffic signals at the intersection of the main access road (Road 1) and Main Street with no right turn into Main Street;

- roundabout at the intersection of Road 1 and the future connection over the railway (for long term traffic capacity and to allow buses to undertake u-turns); and
- all other intersections to be priority controlled with no right turns from Road 22 (southern service road) on Road 1 (due to sight line constraints).

3.29 As shown on the BN concept plans, car parking will generally be provided in basement parking levels (with a small at grade car park on the north eastern block). The majority of parking will be located below the main shopping centre located on the southern side of Main Street. Access to this car park will be from Roads 1 and 22. Each access will connect to different levels of the car park with internal connections linking the various car parking levels. Access to the basement car park of development on the north eastern corner of Main Street/Road 1 will be from Road 1. This car park will share a common car parking area (Level 2) which will extend underneath Main Street.

3.30 The parking layout is set out in a simple and clear manner. Parking spaces, aisles, ramps etc. will be designed in accordance with appropriate standards. Parking bays will generally be a minimum of 2.7 metres wide by 5.4 metres long with 6.2 metre wide aisles. These dimensions are consistent with the requirements of As2890.1-2004. Overall, subject to satisfactory detailed design, it is considered that the access arrangements and layout of parking areas are appropriate.

Servicing

3.31 Each component of the proposed development will have separate service areas. Development on the southern side of Main Street will be serviced by two major loading docks located with access from Road 22. The docks have been designed to allow large (19 metre articulated trucks) to enter and depart the site in a forward direction. Development on the two blocks located on the northern side

of Main Street will be serviced from loading docks with access to rear service lane. Generally trucks will enter and depart these docks in a forward direction, however large truck making infrequent deliveries may need to reverse into the dock from the service lane.

3.32 The service areas and loading docks will be designed to comply with the requirements of AS2890.2-2002.

Traffic Effects

3.33 The traffic generated by the proposed development will have its largest effects during the weekday afternoon peak period. The weekday morning peak period has also been assessed.

3.34 As the future land use and road network for the Warnervale Town Centre has not been finalised, the traffic assessment has considered the traffic effects on the external road network prior to the area being fully developed. With regard to the internal road network it was noted in Chapter 1 that Wyong Council completed a Traffic Impact Assessment of the proposed Warnervale Town Centre. This found that the road hierarchy, intersection layouts and road widths (which are similar to that adopted in DCP 2008) will adequately cater for the development of the town centre.

3.35 Estimates of traffic generation of the proposed development have been made using RTA Guidelines. For shopping centres greater than 30,000m^2 the RTA Guidelines suggest a peak weekday afternoon generation rate of 4.6 vehicles per 100m^2. In the morning a generation rate of 1.2 vehicles per 100m^2 has been adopted.

3.36 For commercial development, RTA Guidelines suggest a generation rate of 2 vehicles per 100m^2.

3.37 In addition to the proposed development, the traffic effects of some 250 residential lots being completed on Landcom land (located between the proposed development and Sparkes Road) and the traffic generated by commuter parking has been included. Estimates of traffic generation are set out in Table 3.1.

Table 3.1:	**Summary of Traffic Generation**				
Component	Size	Rate		Traffic Generation	
		AM	PM	AM	PM
Retail	37,379m^2	1.2/100m^2	4.6/100m^2	446	1720
Commercial	8,846m^2	2/100m^2	2/100m^2	177	177
Residential	250 lots	0.85/lot	0.85/lot	212	212
Commuter	220 spaces	0.8/space	0.8/space	176	176
Total				1011	2285

3.38 Examination of Table 3.1 reveals that a total traffic generation of some 1000 vehicles per hour (two way) in the morning peak period and some 2,300 vehicles per hour (two way) in the afternoon peak period. However the above estimate does not take into account a reduction in retail trips that would occur from linked trips between the retail development and the other development. Retail trips have been reduced by 15% (some 65 to 260 trips) to allow for linked trips between the various components.

3.39 In addition a proportion of the traffic will be passing trade, which are vehicles that are already in the existing traffic stream passing the centre. Some 15% to 25% of retail trips (based on surveys undertaken by the RTA) would be passing trade and multi purpose trips. For centres greater than 30,000m^2 the RTA guide suggests a rate of 15%.

3.40 Traffic from the proposed development was assigned based on the existing road network as shown on Figures 2 and 3, and summarised in Table 3.2. Retail traffic was split 50/50 in/out for both peak periods. Commercial traffic was split 80/20

in/out for the morning peak period and the reverse in the afternoon peak period. Residential traffic was split 30/70 in/out for the morning peak period and the reverse in the afternoon peak period. Commuter traffic was 100% in for the morning and 100% out for the afternoon.

Table 3.2 : Existing Plus Development Two-Way Peak Hour Traffic Flows

	Vehicles Per Hour (Two-Way)			
Location	**Friday Morning**		**Friday Afternoon**	
	Existing	**With Dev**	**Existing**	**With Dev**
Sparkes Road				
– east of Hiawatha Road	1660	+345	1570	+725
– east of Minnesota Road	1955	+430	1860	+905
– east of Site Access	1580	+505	1575	+1280
– east of Virginia Road	1580	+390	1575	+745
– west of Virginia Road	1895	+370	1810	+705
Hiawatha Road				
- north of Sparkes Road	500	+85	435	+180
Minnesota Road				
- north of Sparkes Road	1035	+0	545	+0
- south of Sparkes Road	620	+75	515	+155
Virginia Road				
- south of Sparkes Road	455	+20	345	+20
Site Access	n/a	+945	n/a	+2025

3.41 Examination of Table 3.2 reveals that:

- traffic flows on Sparkes Road would increase by some 345 to 505 vehicles per hour (two-way) in the morning peak period. In the afternoon peak period the increase in traffic would be higher at some 705 to 1280 vehicles per hour (two-way);
- traffic flows on Hiawatha Road and Minnesota Road would increase by some 75 to 180 vehicles per hour (two-way) in the peak periods; and

- traffic flows on the Virginia Road would increase be some 20 to 40 vehicles per hour (two-way) in the peak periods.

3.42 The intersections along Sparkes Road (including the new site access) have been analysed with development traffic added to 2021 base traffic flows and the upgrades identified in Chapter 2 in place, using SIDRA. Traffic signals are proposed at the intersection of the site access and Sparkes Road. An indicative layout of the proposed intersection (extracted from SIDRA) is attached to this report.

3.43 The upgrade of this intersection is subject to Government funding and discussions in this regard are running in parallel to this Application. The Warnervale Town Centre, Sparkes Road upgrade and intersection allowing access to the town centre is an essential piece of infrastructure to kick start the WTC project, in particular to enable construction of the main access road into the main residential, retail and community facilities precincts of the development to commence. This significant piece of infrastructure has been identified in the Central Coast Regional Strategy 2006-2031, NSW Department of Planning North Wyong Shire Structure Plan, the Central Coast Transport Action Plan and Building Better roads. Council has made applications to the Regional Development Australia and State Government for the full funding of this intersection.

3.44 The analysis found that:-

- traffic signals at the intersection of Hiawatha Road and Sparkes Road would operate with average delays per vehicle of less than 15 seconds for both peak periods. This represents level of service A/B, a good level of intersection operation with spare capacity;

- traffic signals at the intersection of Virginia Road and Sparkes Road would operate with average delays per vehicle of less than 20 seconds for both peak periods. This represents level of service B, a good level of intersection operation with spare capacity;

- traffic signals at the intersection of the site access and Sparkes Road would operate with average delays per vehicle of less than 28 seconds for both peak periods. This represents level of service B, a good level of intersection operation with spare capacity; and

- the existing traffic signals at the intersection of Sparkes Road and Minnesota Road would with average delays per vehicle of less than 40 seconds for both peak periods. This represents level of service C, a satisfactory level of intersection operation.

3.45 Thus with Sparkes Road upgraded to cater for background traffic growth to 2021, the adjacent intersections would operate at satisfactory or better levels of service in the peak periods when development traffic is added.

Response to Director General Requirements (DGR's)

3.46 Our Response to the Director General Requirements (DGR's) is set out below.

(a) Identify all relevant vehicular traffic routes and intersections (existing and proposed) required for access and egress. Specific reference is to be made to service and delivery vehicle routes including along existing local roads from the F1 freeway in the west the Pacific Highway in the east for short, medium and long term timeframes.

3.47 This traffic report has assessed the traffic effects of the proposed development with access provided from Sparkes Road. As the town centre is developed there will be changes in the road network with additional connections to the surrounding road network (as per the DCP). With regard to delivery routes, service vehicles would access the site via Sparkes Road, the main spine road (Road 1) and then use the service roads to access the various loading docks.

(b) Identify the extent of any road improvements, including intersection upgrades, required on existing and proposed road network to cater for the largest anticipated service and delivery vehicles in the short, medium and long term.

3.48 This report has identified that Sparkes Road and the intersections with Virginia Road and Hiawatha Road require upgrading to cater for background traffic growth (without development traffic). The upgrades involve traffic signals at the two intersections and duplication of Sparkes Road to two through lanes in each direction. To provide access to the proposed development a new traffic signal controlled intersection on Sparkes Road (between Virginia Road and Minnesota Road) is proposed. As part of the proposed development a number of roads identified in DCP 2008 will be constructed.

(c) Current traffic counts for all existing traffic routes and intersections and the anticipated vehicular traffic generated from the proposal.

3.49 These are provided in Chapter 2 (traffic counts) and Chapter 3 (traffic generation) of this report.

(d) Consideration of the traffic impact on the existing and future intersections and the capacity of the local and regional road network to safely and efficiently cater for the additional vehicular traffic generated.

3.50 The traffic impacts of the proposed development are set out in Chapter 3 of this report.

(e) Consider and assess any staging options for improvement works to the Sparks Road intersection based on the traffic generation of the development.

3.51 The concept layout of the proposed site access on Sparkes Road has been identified to cater for traffic from the proposed development. The layout is compatible with a future upgrade of Sparkes Road if required.

(f) Demonstrate a minimalist approach to the provision of on-site car parking for the proposed development having regard to the site's potential increased accessibility to public transport, future walkability, local planning controls and the RTA's Guide to Traffic Generating Developments.

3.52 Proposed parking provision is lower than the DCP 2008 requirements and is consistent with parking rates identified by the RTA for large retail developments in town centre locations with good access to public transport. The ability to maximise trips by means other than car is achieved by co-locating complementary land uses adjacent to the train station and bus interchange.

(g) Access, loading dock and car parking arrangements for all proposed use.

3.53 As described in Chapter 3 of this report, access, loading docks and parking arrangements will be designed to comply with AS2890.1-2004 and AS2890.2-2002.

(h) Provide an analysis of public transport provision, walking and cycling connections within the vicinity of the site. Address the potential for improving accessibility to and from the site and connections to the wider region via sustainable transport modes. Identify measures to manage travel demand, increase the use of public and non-car

transport modes and assist in achieving the objectives and targets set out within the NSW State Plan 2010

3.54 The proposed development is located within the future Warnervale Town Centre which will include a new railway station and bus interchange (adjacent to the subject site). The sites location within the town centre provides the ability to maximise trips by means other than car by co-locating complementary land uses (retail, residential, commercial and recreational uses adjacent to a train station and bus interchange). Pedestrian and cycling connections will be provided as per DCP 2008.

(i) Demonstrate (following consultation with Transport NSW) that interchange facilities can be incorporated into the design of the town centre along with the of full access to the proposed North Warnervale Station.

3.55 It is understood that the concept layout prepared by Mott McDonald for the proposed bus interchange has been agreed between the various stakeholders (bus operators, Transport NSW and Council).

j) The location and number of commuter car parking spaces to be provided within the site and the operational, safety and access arrangements (to and from the station) outside operating hours of the proposed retail centre.

3.56 Some 220 commuter parking spaces will be provided within the basement car parking area on the southern part of the site. Access to this parking area will be unrestricted and available 24 hours a day.

(k) Address the potential for implementing a location specific sustainable travel plan, such as a Workplace Travel Plan (WTP) for workers and a Travel Access Guide (TAG) for future visitors and users of the site.

3.57 A work place travel plan will be prepared to optimise travel to the site by means other the private car and maximise the sites good accessibility to public transport services. The preparation of a work place travel plan could be included as a condition of approval. The plan would include the following principles:

- encourage the use of public transport by employees and customers through the provision of information, maps and timetables;
- provide appropriate pedestrian facilities which improve accessibility to the town centre and public transport services;
- raise awareness of health benefits of walking (including maps showing safe walking routes);
- encourage cycling by providing safe and secure bicycle parking, including the provision of lockers and change facilities;
- provide appropriate on-site parking provision.

3.58 The work place travel plan will assist in delivering sustainable transport objectives by considering the means available for reducing dependence solely on cars for travel purposes, encouraging the use of public transport and supporting the efficient and viable operation of public transport services.

Summary

3.59 In summary, the main points relating to the proposed development are:-

(i) the proposed development is located within the future Warnervale Town Centre. The Warnervale Town Centre DCP (2008) has identified a future land use plan and road network. The proposed development is consistent with the DCP. Some of the future roads will be constructed as part of the proposed development;

(ii) the traffic effects of the overall development of Warnervale town centre have been considered in the 2007 Traffic Impact Assessment prepared by Wyong Council;

(iii) our report has assessed the traffic effects of the proposed development prior to full development of the town centre;

(iv) the proposed development will strengthen demand for future public transport services with a new train station and bus interchange proposed adjacent to the site;

(v) the parking provision for the proposed development is considered appropriate (consistent with RTA Guidelines);

(vi) the proposed development is consistent with the state government policy of co-locating complementary developments;

(vii) access arrangements and parking layout, subject to detailed design, are considered satisfactory;

(viii) the traffic assessment has found that to cater for background traffic growth to 2021, Sparkes Road in vicinity of the site will require duplication with traffic signals at the intersections of Sparkes Road with Hiawatha Road and Virginia Road;

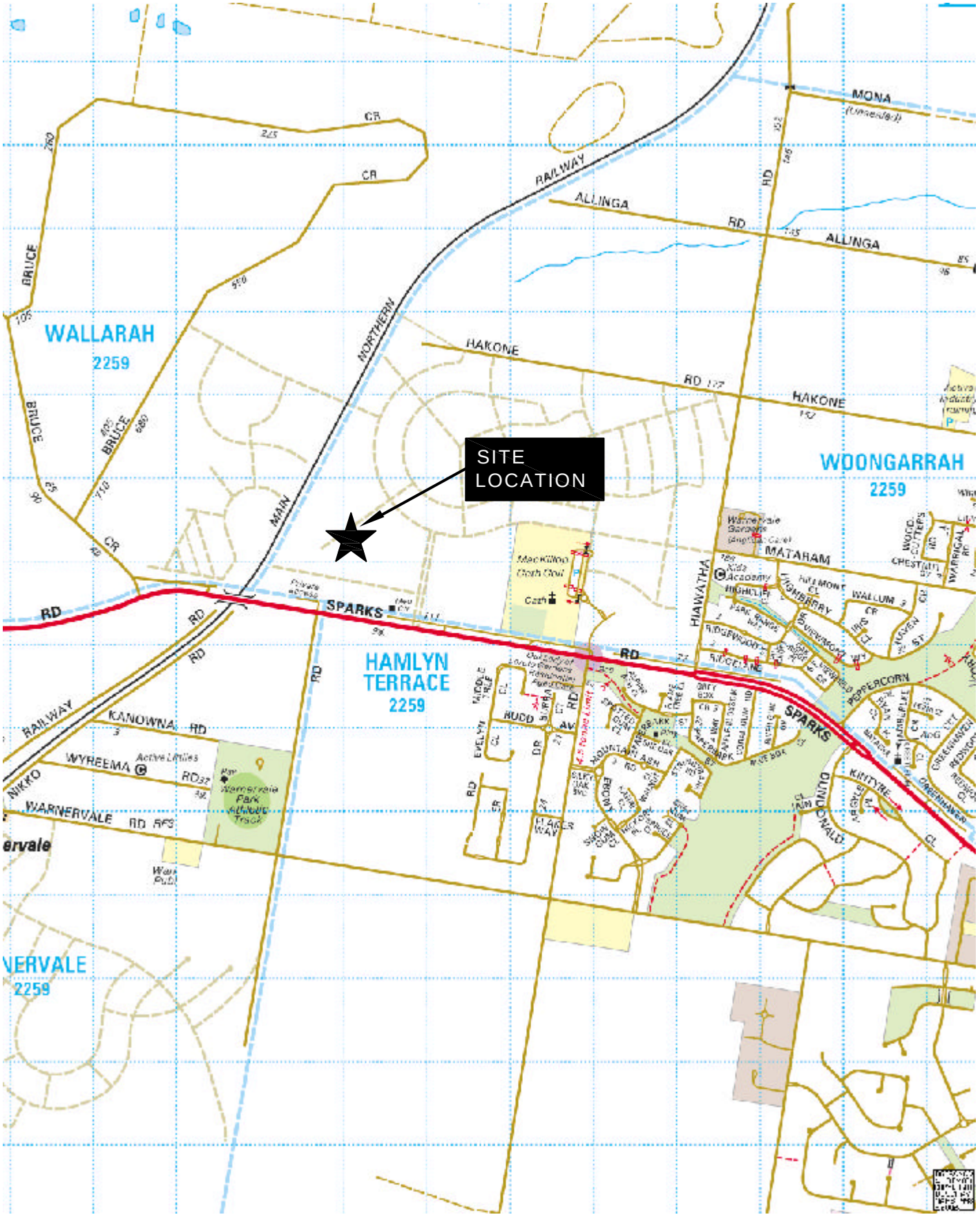
(ix) a new traffic signal controlled intersection is proposed on Sparkes Road for access to the proposed development (between Virginia Road and Minnesota Road);

(x) the upgrade of this intersection is subject to Government funding and discussions in this regard are running in parallel to this Application. The Warnervale Town Centre, Sparkes Road upgrade and intersection allowing access to the town centre is an essential piece of infrastructure to kick start the WTC project, in particular to enable construction of the main access road into the main residential, retail and community facilities precincts of the development to commence;

(xi) this significant piece of infrastructure has been identified in the Central Coast Regional Strategy 2006-2031, NSW Department of Planning North Wyong Shire Structure Plan, the Central Coast Transport Action Plan and Building Better roads. Council has made applications to the Regional Development Australia and State Government for the full funding of this intersection;

(xii) with Sparkes Road upgraded to cater for background traffic growth to 2021, the adjacent intersections would operate at satisfactory or better levels of service in the peak periods when development traffic is added; and

(xiii) the DGR's requirements have been addressed.



Location Plan

Colston Budd Hunt & Kafes Pty Ltd

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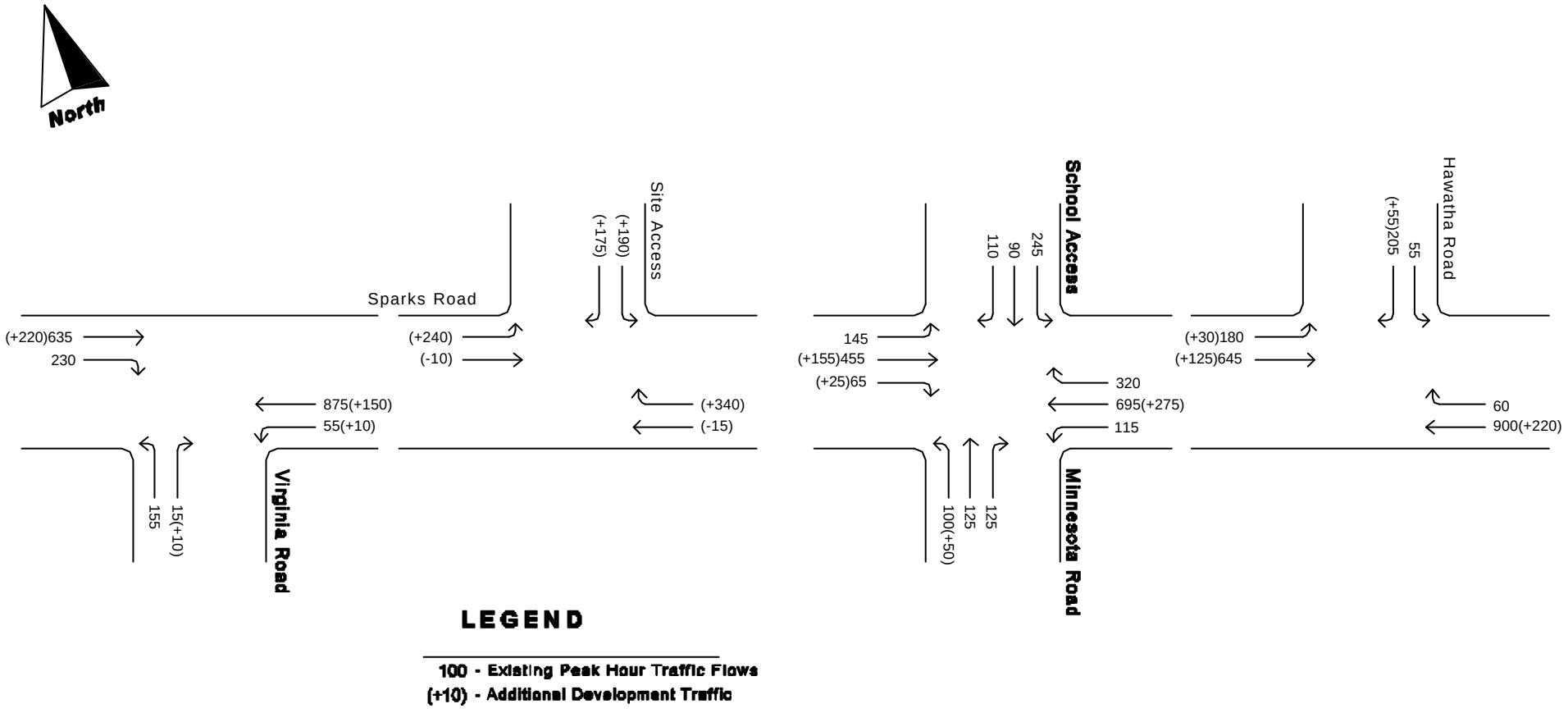
Figure 1



Existing Friday morning peak hour traffic flows plus development traffic

Colston Budd Hunt & Kafes Pty Ltd

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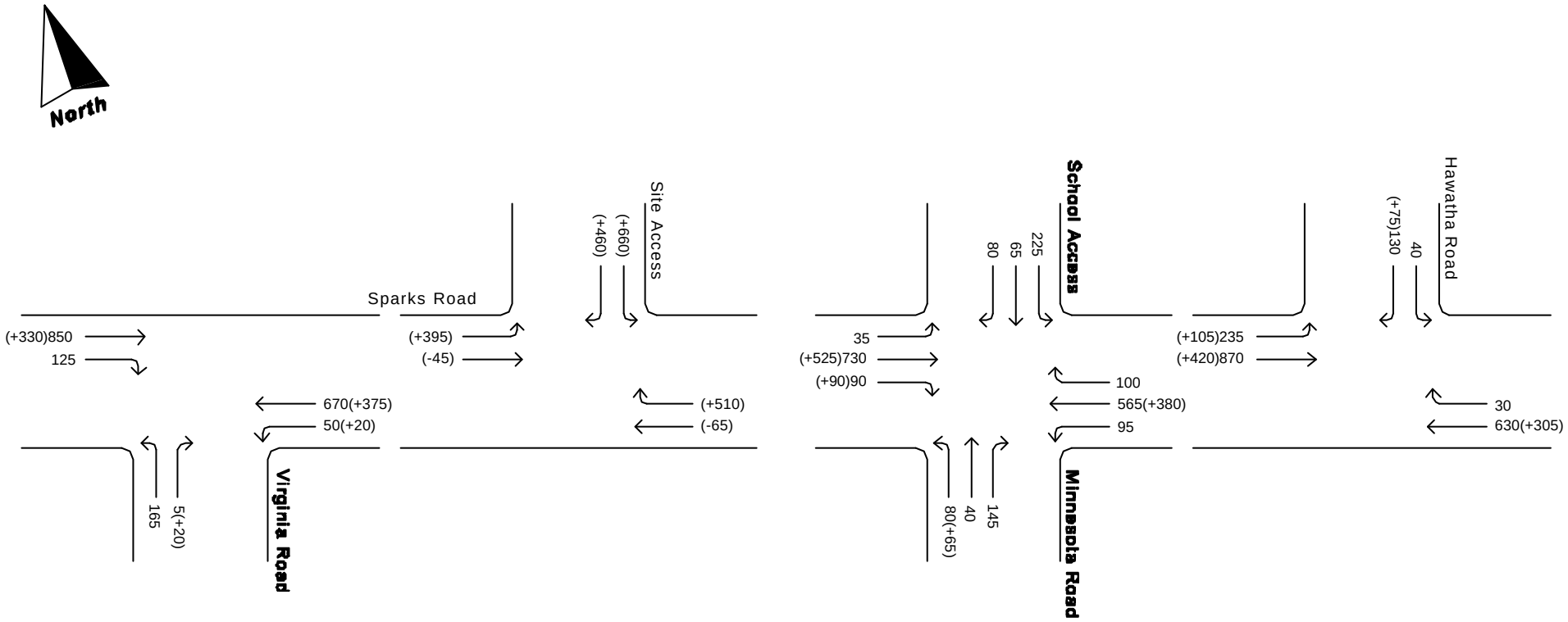
Figure 2



Existing Friday afternoon peak hour traffic flows plus development traffic

Colston Budd Hunt & Kafes Pty Ltd

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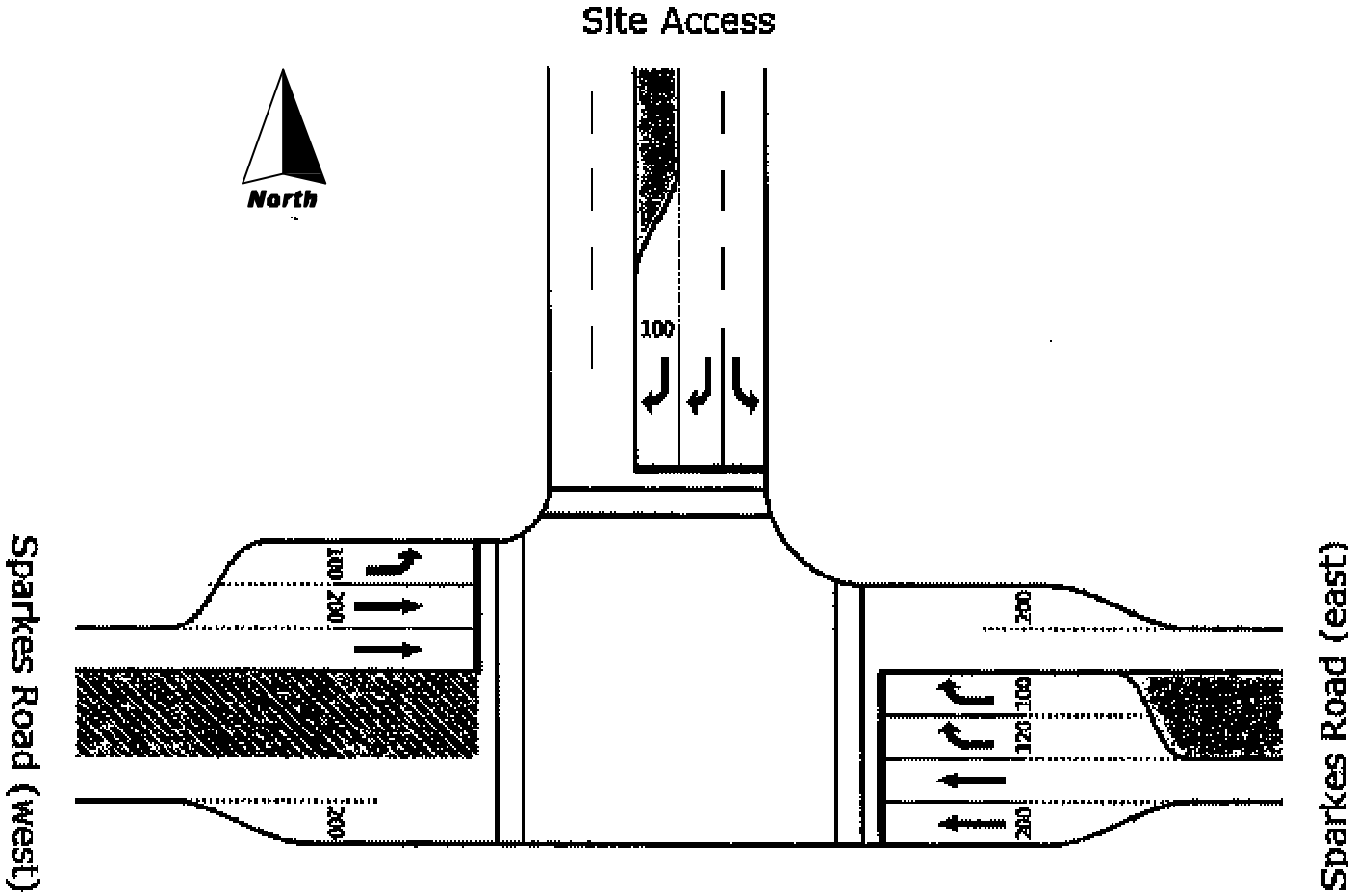
Figure 3



Induction layout for intersection of Sparks Road and Site Access

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Figure 4