WINTEN PROPERTY GROUP

TRAFFIC AND ACCESSIBILITY IMPACT STUDY FOR PROPOSED COMMERCIAL DEVELOPMENT, CHRISTIE STREET & LITHGOW STREET, ST LEONARDS

MAY 2010

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1. INTRODUCTION

1.1 Colston Budd Hunt and Kafes Pty Ltd has been commissioned by Winten Property Group to prepare a report on the transport implications of a proposed commercial development at 88 Christie Street and 75-79 Lithgow Street, St Leonards. The site is located at the northern end of a block bounded by Christie Street, Lithgow Street and Christie Lane, as shown in Figure 1.

1.2 The site is currently occupied by commercial development of some 5,195m^2, with vehicular access from Christie Street, Christie Lane and Lithgow Street.

1.3 It is proposed to demolish the existing buildings on the site and construct a new commercial building comprising some 36,650m^2, with vehicular access from Lithgow Street.

1.4 The Director-General's requirements for the project include:

5. Transport & Accessibility (Construction and Operational)

- *The EA shall address the following matters:*
  - *the provision of appropriate on-site car parking for the proposal having regard to local planning controls, RTA guidelines, and the high public transport accessibility of the site (**Note**: the Department supports reduced car parking rates in areas well-served by public transport).*
  - *An estimate of the trips generated by the proposed development and consider how the demand for travel to and from the development is to be managed;*
  - *provide a Traffic and Accessibility Impact Study prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering traffic generation, service vehicle generation and movements, any required road/intersection*

upgrades, access, loading dock(s), car parking arrangements, and measures to promote public transport usage and pedestrian and bicycle linkages; particularly between the site and St Leonards train station and the nearest bus stops. The key intersections which are required to be modelled are detailed on Page 2 of the correspondence from the RTA dated 26 February 2010;

- *provide an assessment of the implications of the proposed development for non-car travel modes (including public transport, walking and cycling).*

1.5 This report has been prepared with reference to the RTA's "Guide to Traffic Generating Developments", and assesses the transport implications of the proposed development through the following chapters:

- Chapter 2 - describing the existing conditions; and
- Chapter 3 - assessing the transport implications of the proposed development.

2. EXISTING CONDITIONS

Site Location and Road Network

2.1 The site of the proposed development is on the northern part of a block bounded by Christie Lane to the north, Oxley Street to the south, Christie Street to the east and Lithgow Street to the west, as shown in Figure 1. The site is currently occupied by commercial buildings at 88 Christie Street and 75-79 Lithgow Street. These buildings provide some 5,195m^2 commercial space and 110 parking spaces. Vehicular access to these buildings is provided from Christie Street, Lithgow Street and Christie Lane.

2.2 Surrounding land use is mainly commercial and retail development in St Leonards. St Leonards railway station is north of the site, on the northern side of Pacific Highway. The railway line runs along the western side of Lithgow Street. There is residential development south of the site on Lithgow Street.

2.3 The road network in the vicinity of the site includes Pacific Highway, Herbert Street, Christie Street, Lithgow Street, Albany Street, Nicholson Street, Oxley Street and Christie Lane. The Pacific Highway is a major link in Sydney's arterial road network, connecting Sydney's harbour crossings with the north shore. It generally provides a four to six lane divided carriageway with two or three traffic lanes in each direction. Major intersections are signalised with additional lanes for turning traffic. Clearways operate during peak periods in the direction of peak traffic flow. In the vicinity of the site, Pacific Highway provides access through St Leonards to Artarmon and Chatswood in the north and Crows Nest and North Sydney in the south. There are bus stops on both sides of Pacific Highway close to the site.

2.4 Herbert Street runs north from the Pacific Highway at a signalised intersection. There are twin right turn lanes on the highway for turns into Herbert Street. It forms part of a route connecting St Leonards with Artarmon. It provides access to commercial and residential development and provides for one traffic lane and one parking lane in each direction, clear of intersections.

2.5 Christie Street intersects the Pacific Highway at a signalised intersection. The section of Christie Street south of the highway is one-way southbound from the highway. South of Christie Lane, Christie Street provides for one traffic lane and one parking lane in each direction, clear of intersections. On-street parking is time-restricted and metered. Christie Street provides access to commercial development. South of Nicholson Street, Christie Street has been closed.

2.6 Lithgow Street has an unsignalised t-intersection with Pacific Highway, north of the site. Turns at the intersection are limited to left in/left out by the median in Pacific Highway. Traffic turning from Pacific Highway into Lithgow Street must then turn left into Christie Lane. South of Christie Lane, Lithgow Street is one-way northbound, before reverting to two-way in the residential section north of Oxley Street. On-street parking is a mix of parallel and angle parking and is time restricted and metered. There is a taxi rank on the western side of Lithgow Street at Pacific Highway. Lithgow Street provides access to residential and commercial properties. South of Oxley Street, Lithgow Street is closed.

2.7 Albany Street intersects Pacific Highway between Christie Street and Oxley Street at a signalised intersection. It forms part of a route through St Leonards and Crows Nest. It provides for one traffic lane and one parking lane in each direction, clear of intersections, and provides access to commercial and residential development.

2.8 Nicholson Street connects Oxley Street with Christie Street. It provides for one traffic lane and one parking lane in each direction, clear of intersections. On street parking is time restricted and metered. Nicholson Street provides access to commercial development. The intersections of Nicholson Street with Christie Street and Oxley Street are unsignalised t-intersections.

2.9 Oxley Street connects to the Pacific Highway at a signalised intersection, south of the site. Right turns from the highway into Oxley Street are not permitted. The western part of Oxley Street provides access to commercial and residential development. It provides for one traffic lane and one parking lane in each direction, clear of intersections. On street parking is a mix of angle and parallel parking. The intersection of Oxley Street with Lithgow Street is an unsignalised t-intersection, with Lithgow Street having priority.

2.10 Christie Lane connects Lithgow Street with Christie Street on the northern side of the site. It is one-way eastbound and provides for one traffic lane, with no stopping on the northern side and no parking on the southern side. The intersections of Christie Lane with Lithgow Street and Christie Street are unsignalised t-intersections, with Christie Lane the minor road.

2.11 The traffic arrangements in this precinct, including one-way southbound traffic in Christie Street at Pacific Highway, one way northbound traffic in the commercial section of Lithgow Street and all traffic left from Lithgow Street southbound into Christie Lane, means that most commercial traffic exiting the commercial precinct on the southern side of Pacific Highway must use Nicholson Street and Oxley Street. Vehicles entering the commercial part of Lithgow Street must also use Oxley Street.

2.12 Council's planning for the area identifies a new laneway connecting Lithgow Street with Christie Street, south of the site. The existing Christie Lane would become a pedestrian connection only. The northern section of Lithgow Street, between the Pacific Highway and the new laneway, would become a shared zone.

Traffic Flows

2.13 In order to gauge traffic conditions, counts were undertaken during weekday morning and afternoon peak periods at the following intersections:

- Pacific Highway/Herbert Street;
- Pacific Highway/Lithgow Street;
- Pacific Highway/Christie Street;
- Pacific Highway/Albany Street;
- Pacific Highway/Oxley Street;
- Oxley Street/Nicholson Street;
- Oxley Street/Lithgow Street;
- Christie Street/Nicholson Street;
- Christie Street/Christie Lane; and
- Lithgow Street/Christie Lane.

2.14 The above intersections include those identified by the RTA in its correspondence referenced in the director-general's requirements.

2.15 The results of the surveys are shown in Figures 2 and 3, and summarised in Table 2.1.

Table 2.1: Existing two – way (sum of both directions) peak hour traffic flows			
Road	**Location**	**Morning peak hour**	**Afternoon peak hour**
Pacific Highway	West of Herbert Street	3,395	3,535
	West of Lithgow Street	4,040	4,375
	West of Christie Street	4,025	4,250
	North of Albany Street	3,445	3,450
	North of Oxley Street	2,560	2,545
	South of Oxley Street	2,715	2,630
Herbert Street	North of Pacific Highway	1,275	1,470
Lithgow Street	South of Pacific Highway	45	135
	South of Christie Lane	45	145
	North of Oxley Street	110	165
	South of Oxley Street	30	25
Christie Street	North of Pacific Highway	825	990
	South of Pacific Highway	195	90
	South of Christie Lane	190	200
	South of Nicholson Street	310	270
Albany Street	East of Pacific Highway	1,125	1,245
Oxley Street	East of Pacific Highway	460	475
	West of Pacific Highway	595	740
	West of Nicholson Street	185	285
	East of Lithgow Street	130	180
Nicholson Street	South of Christie Street	265	355
	North of Oxley Street	455	590

2.16 Table 2.1 shows that the Pacific Highway carried some 2,500 to 4,000 vehicles per hour two-way during the morning and afternoon peak hours. Herbert Street, Albany Street, and the northern part of Christie Street carried lower flows of some 800 to 1,500 vehicles per hour two-way.

2.17 Nicholson Street, Oxley Street (close to Pacific Highway) and the southern part of Christie Street generally carried some 200 to 750 vehicles per hour two-way. Lithgow Street and the western part of Oxley Street generally carried some 100 to 300 vehicles per hour two-way during the morning and afternoon peak periods.

Intersection Operations

2.18 The capacity of the road network is largely determined by the capacity of its intersections to cater for peak period traffic flows. The surveyed intersections shown in Figures 2 and 3 have been analysed using the SIDRA program.

2.19 SIDRA program simulates the operations of intersections to provide a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. 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

2.20 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.

2.21 The SIDRA analysis found that the signalised intersections of the Pacific Highway with Herbert Street, Christie Street, Albany Street and Oxley Street are operating with average delays of some 40 seconds per vehicle or less during morning and afternoon peak periods. This represents levels of service C, a satisfactory level of intersection operation.

2.22 The unsignalised intersections of Oxley Street with Nicholson Street and Lithgow Street, of Christie Street with Nicholson Street and Christie Lane, and of Lithgow Street with Christie Lane and Pacific Highway, are operating with average delays for the highest delayed movements of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of intersection operation.

Public Transport

2.23 The site is some 200 metres from St Leonards railway station. St Leonards is on the North Shore Line (Berowra – Parramatta via the City).

2.24 Services on the North Shore Line through St Leonards operate on a five to 10 minute headway in each direction. During weekday peak periods, services are more frequent.

2.25 Local bus services are provided by Sydney Buses. These services link St Leonards with surrounding areas. There are major bus stops on the Pacific Highway just north of the site, as St Leonards station, as well as other stops on the highway. Bus services provide links to all surrounding areas, including the city, North Shore and areas to the west.

2.26 There are good pedestrian links between the site and surrounding areas, including St Leonards railway station, bus stops on Pacific Highway and other commercial and retail development in St Leonards. All of the surveyed signalised intersections include signalised pedestrian crossings. There is a pedestrian connection under the Pacific Highway at Lithgow Street to connect to the railway station.

2.27 As previously discussed, there is a taxi rank on Lithgow Street south of the Pacific Highway, just north of the site.

2.28 Overall, the site has good access to regular public transport services.

3. IMPLICATIONS OF PROPOSED DEVELOPMENT

3.1 It is proposed to demolish the existing buildings on the site and construct a new commercial building comprising some 36,650m^2. Car parking will be provided within a basement car park, with vehicular access from Lithgow Street. This chapter assesses the transport implications of the proposed development through the following sections:

- public transport, walking and cycling;
- work place travel plan;
- parking provision;
- access arrangements and servicing;
- internal circulation and layout;
- traffic generation and effects;
- principles of construction traffic management;
- director-general's requirements; and
- summary.

Public Transport, Walking and Cycling

3.2 As previously discussed, the site is close to St Leonards railway station. Services through St Leonards operate on the North Shore on five to 10 minute headways. Bus services also provide a link between St Leonards and surrounding areas. The site is therefore accessible by existing rail and bus services.

3.3 There is a taxi rank on the western side of Lithgow Street, just south of Pacific Highway. There are good pedestrians links to and from the site provided by:

- pedestrian footpaths on both sides of Pacific Highway, Christie Street and Lithgow Street;
- signalised pedestrian crossings at the intersections of Pacific Highway/Herbert Street and Pacific Highway/Christie Street; and
- the pedestrian connection under the Pacific Highway at Lithgow Street.

3.4 The proposed development would increase employment densities close to existing public transport services.

3.5 Government policy 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) improving accessibility to housing, 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.

3.6 The proposed development satisfies these aims as follows:

- the site is located in the St Leonards commercial area and is highly accessible to public transport services, which offer viable alternatives to travel by car. To support accessibility for cyclists, appropriate parking will be provided for bicycles. The site is also readily accessible for pedestrians, being close to residential areas, public transport nodes and existing pedestrian connections and footpaths around the site. These will be further improved when Christie Lane is made pedestrian only and a shared zone is implemented in the northern part of Lithgow Street;

- the location of the site within St Leonards and an appropriate level of on site parking will improve the choice of transport mode and reduce the use of cars for travel purposes;

- the opportunity to moderate demand for travel and distance travelled will be provided by the development being close to existing residential populations and hence providing employment opportunities within a short distance; and

- greater employment densities within St Leonards will provide more potential customers for the existing public transport services and hence support their efficient and viable operation.

Work Place Travel Plan

3.7 To encourage travel modes other than private vehicle, it is proposed to adopt a travel demand management approach, through a work place travel plan to meet the specific needs of the site, future tenants and employees. The specific requirements and needs of the future tenants, including number of employees, hours of work, shift times, etc., will be incorporated in the work place travel plan to support the objectives of encouraging the use of public transport.

3.8 The principles of the work place travel plan, to be developed by the future tenants in consultation with Council, RTA and other stakeholders, will include the following:

- encourage the use of public transport, including rail services through St Leonards and bus services along Pacific Highway;
- work with public transport providers to improve services;
- encourage public transport by employees through the provision of information, maps and timetables;
- raise awareness of health benefits of walking (including maps showing 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, consistent with Council's controls and the government's objective of reducing traffic generation.

3.9 The travel plan may take a variety of forms including a green transport plan or company travel plan. 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

3.10 Part D1 of the Lane Cove Development Control Plan indicates that commercial development in St Leonards should provide a maximum of one parking space per 110m^2 for sites within 800 metres of St Leonards railway station.

3.11 Council's parking rate for commercial development is a comparatively low rate and is intended to limit traffic generation of commercial developments in CBD areas.

3.12 Application of this rate results in a maximum allowable provision of some 333 parking spaces for the proposed development. The proposed provision of some 330 parking spaces is therefore in accordance with this requirement, and is considered appropriate.

3.13 14 motorcycle spaces will be provided (one space per 25 car spaces) in accordance with the Lane Cove DCP.

3.14 The DCP also indicates that commercial development should provide one bicycle space per 600m^2 in lockers plus one bicycle space per 2,500m^2 in rails/racks. On this basis 61 bicycle lockers and 15 bicycle racks would be required.

3.15 Bicycle parking is proposed to be provided in accordance with these requirements.

Access Arrangements and Servicing

3.16 Access to the proposed development will be provided via a combined entry and exit driveway at the southern end of the site on Lithgow Street. The proposed access driveway is generally in the same location as one of the existing driveways to the site. The design will provide for vehicles to enter and exit the site in a forward direction.

3.17 The proposed access arrangements are considered appropriate and will be provided to cater for the swept paths of cars and service vehicles in accordance with the Australian Standard for parking facilities (Part 1: Off-street car parking and Part 2: Off-street commercial vehicle facilities), AS 2890.1:2004 and AS 2890.2 –2002.

3.18 Within the upper basement level, a loading dock is proposed. The loading dock will provide for a range of service vehicles, including vans and courier-sized vehicles, as well as small and medium rigid trucks. Five bays will be provided for trucks and five bays for vans and courier sized vehicles. The proposed access, circulation and manoeuvring areas for service vehicles will be provided in accordance with AS 2890.2 – 2002.

Internal Circulation and Layout

3.19 Car parking will be provided for 330 vehicles within seven levels of basement parking. Parking bay dimensions will be provided at least 2.5 metres wide by 5.4 metres long, with an additional 0.3 metres width for spaces located adjacent to structure. Access to car parking spaces will be provided from a 5.8 metre wide circulation aisle. Disabled parking spaces will be 2.4 metres wide, with an

additional 2.4 metres adjacent to the space, by 5.4 metres long. Height clearance of 2.5 metres will be provided above disabled parking spaces, with 2.3 metres between disabled spaces and the car park entry/exit. These dimensions are considered appropriate, being in accordance with AS 2890.1:2004 and AS 2890.6 – 2009.

3.20 Access between the parking levels will be provided by two-way ramps. Ramp grades, transitions, and height clearance will be provided in accordance with AS 2890.1:2004.

Traffic Generation and Effects

3.21 Traffic generated by the proposed development will have its greatest effects during morning and afternoon peak periods when it combines with commuter traffic. Based on surveys of the traffic generation of similar commercial buildings, parking spaces within the development would generate some 0.25 to 0.4 vehicles per hour per space (two-way) during peak periods.

3.22 We understand that at the time our traffic counts were undertaken, some 51 of the 110 spaces on the site were being used. Based on an effective increase of some 280 parking spaces, the increase in traffic generation of the proposed development would be some 70 to 110 vehicles per hour two-way during peak hours. We have assessed an additional generation of 110 vehicles per hour to be conservative.

3.23 The additional traffic has been assigned to the road network. Existing traffic flows plus the additional traffic from the proposed development are shown in Figures 2 and 3, and summarised in Table 3.1.

Table 3.1: Existing two – way peak hour traffic flows plus development traffic					
Road	**Location**	**Morning peak hour**		**Afternoon peak hour**	
		Existing	Plus development	Existing	Plus development
Pacific Highway	West of Herbert Street	3,395	+30	3,535	+45
	West of Lithgow Street	4,040	+30	4,375	+45
	West of Christie Street	4,025	+20	4,250	+10
	North of Albany Street	3,445	-	3,450	-
	North of Oxley Street	2,560	-	2,545	-
	South of Oxley Street	2,715	+35	2,630	+35
Herbert Street	North of Pacific Highway	1,275	-	1,470	-
Lithgow Street	South of Pacific Highway	45	+10	135	+35
	South of Christie Lane	45	+20	145	+90
	North of Oxley Street	110	+90	165	+20
	South of Oxley Street	30	-	25	-
Christie Street	North of Pacific Highway	825	+55	990	+20
	South of Pacific Highway	195	+35	90	+10
	South of Christie Lane	190	+45	200	+65
	South of Nicholson Street	310	-	270	-
Albany Street	East of Pacific Highway	1,125	-	1,245	-
Oxley Street	East of Pacific Highway	460	+30	475	+30
	West of Pacific Highway	595	+65	740	+65
	West of Nicholson Street	185	+90	285	+20
	East of Lithgow Street	130	+90	180	+20
Nicholson Street	South of Christie Street	265	+45	355	+65
	North of Oxley Street	455	+45	590	+65

3.24 Table 3.1 shows that traffic increases on Pacific Highway, Lithgow Street, Christie Street, Oxley Street and Nicholson Street would be some 10 to 90 vehicles per hour two-way during morning and afternoon peak hours.

3.25 The intersections previously analysed in Chapter 2 have been re-analysed using SIDRA for the additional development traffic flows shown in Figures 2 and 3. The analysis found that the signalised intersections of the Pacific Highway with Herbert Street, Christie Street, Albany Street and Oxley Street would continue to operate with average delays of some 40 seconds per vehicle or less during morning and afternoon peak periods. This represents levels of service C, a satisfactory level of intersection operation.

3.26 The unsignalised intersections of Oxley Street with Nicholson Street and Lithgow Street, of Christie Street with Nicholson Street and Christie Lane, and of Lithgow Street with Christie Lane and Pacific Highway, would continue to operate with average delays for the highest delayed movements of less than 15 seconds per vehicle during peak periods. This represents level of service A/B, a good level of intersection operation.

3.27 Therefore, the road network will be able to cater for the additional traffic from the proposed development.

Principles of Construction Traffic Management

3.28 At this stage the overall construction methodology, process and staging has not been defined. The builder will be responsible for the preparation of a traffic management plan, which will be prepared prior to the commencement of work, taking into account relevant consent conditions.

3.29 Construction of the development will commence with site preparation works and demolition of the existing building. Construction access will be provided to/from Christie Street and/or Lithgow Street. It is anticipated that works zones will be required along the site frontages on Christie Street and Lithgow Street.

3.30 Pedestrian footpaths adjacent to the site will be maintained during the construction period. Class A construction fencing will be erected around the perimeter of the building, with overhead protection where required.

3.31 Openings in the construction fencing and at the construction access driveways will be managed and controlled by traffic controllers. The movement of trucks entering and exiting the site will be managed and controlled by traffic controllers.

3.32 The overall principles for traffic management during construction are:

- provide a convenient and appropriate environment for pedestrians;
- minimise effects on pedestrian movements and amenity;
- provide appropriate safety fencing/hoardings around the perimeter of the construction site;
- manage and control vehicular movements to and from the site;
- provide works zones on Christie Street and/or Lithgow Street, next to the site;
- maintain other existing on-street parking in the vicinity of the site;

- restrict construction vehicle activity to designated truck routes through the area (to be identified by the appointed builder);

- construction vehicles to enter and exit the site in a forward direction;

- construction activity to be carried out in accordance with the approved hours of construction;

- maintain safety for workers; and

- the preparation of the construction traffic management plan, signage detail, control of pedestrians and control and management of construction vehicles in the vicinity of the site will be the responsibility of the appointed builder.

Director-General's Requirements

- *the provision of appropriate on-site car parking for the proposal having regard to local planning controls, RTA guidelines, and the high public transport accessibility of the site (**Note**: the Department supports reduced car parking rates in areas well-served by public transport).*

3.33 Parking provision is discussed in paragraphs 3.10 to 3.15.

- *An estimate of the trips generated by the proposed development and consider how the demand for travel to and from the development is to be managed;*

3.34 Traffic generation and its effects are discussed in paragraphs 3.21 to 3.27. Travel demand management measures are discussed in paragraphs 3.7 to 3.9.

- *provide a Traffic and Accessibility Impact Study prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering traffic generation, service vehicle generation and movements, any required road/intersection upgrades, access, loading dock(s), car parking arrangements, and measures to promote public transport usage and pedestrian and bicycle linkages; particularly between the site and St Leonards train station and the nearest bus stops. The key intersections which are required to be modelled are detailed on Page 2 of the correspondence from the RTA dated 26 February 2010;*

3.35 This report comprises that study. Traffic generation and its effects are discussed in paragraphs 3.21 to 3.27. Access, service vehicles and loading docks are discussed in paragraphs 3.16 to 3.18. Parking provision is discussed in paragraphs 3.10 to 3.15. Public transport, pedestrians and cyclists, including a work place travel plan, are discussed in paragraphs 3.2 to 3.9. The operations of the intersections identified by the RTA are discussed in paragraphs 2.21 to 2.22 and 3.25 to 3.26.

- *provide an assessment of the implications of the proposed development for non-car travel modes (including public transport, walking and cycling).*

3.36 These matters are discussed in paragraphs 3.2 to 3.9.

Summary

3.37 In summary, the main points relating to the transport implications of the proposed development are as follows:

i) the proposed commercial development will have a gross floor area of some 36,650m^2;

ii) the proposed development would increase employment densities close to good public transport services and is consistent with government policy objectives to reduce private car travel and encourage public transport use;

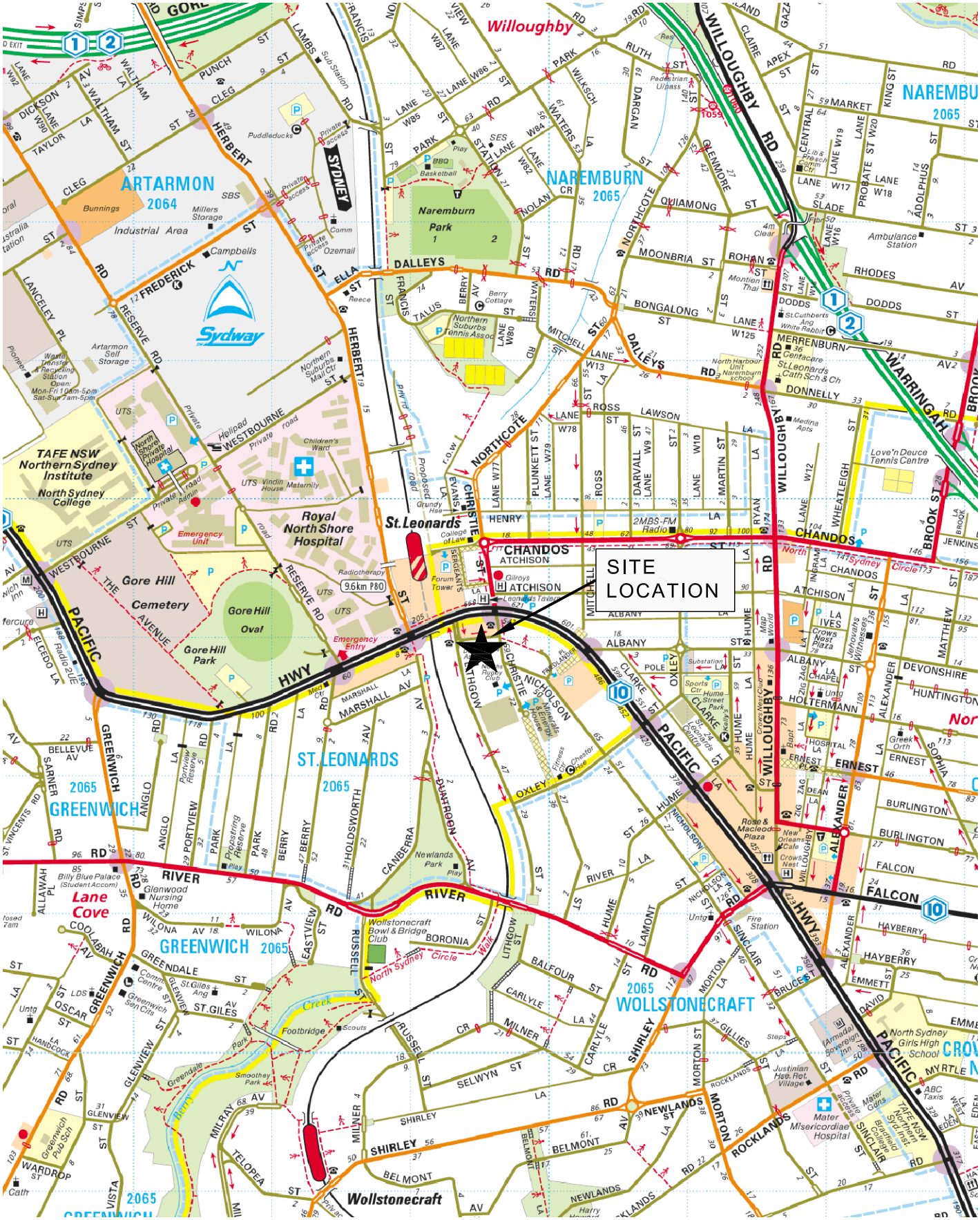
iii) a work place travel plan will be implemented for the site;

iv) the proposed parking provision is considered appropriate;

v) access, servicing and internal layout will be provided in accordance with AS 2890.1:2004 and AS 2890.2 – 2002;

vi) the road network will be able to cater for the additional traffic from the proposed development; and

vii) the director-general's requirements are discussed in paragraphs 3.33 to 3.36.



Location Plan

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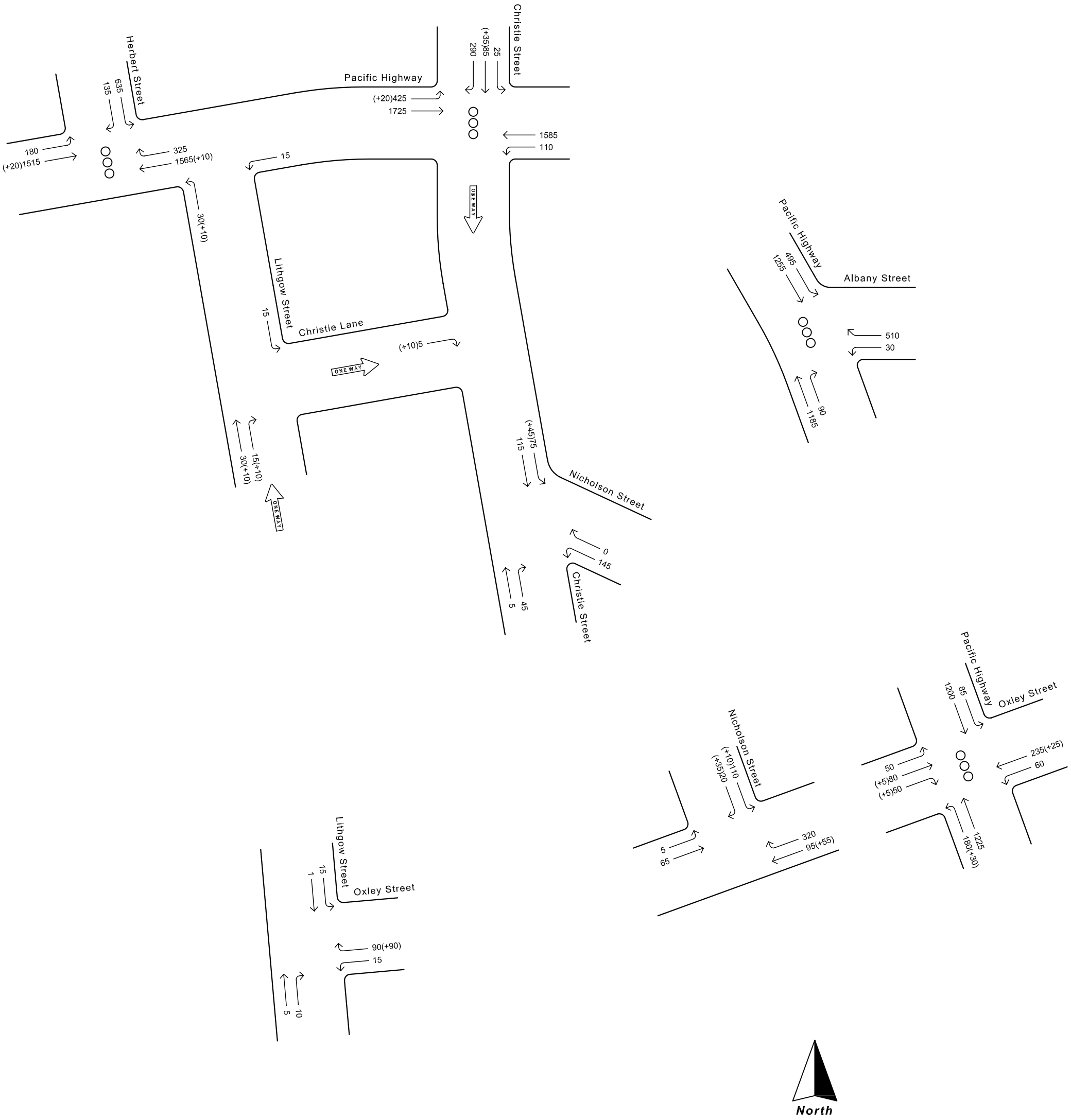
Figure 1



LEGEND

100 - Existing Peak Hour Traffic Flows
(+10) - Additional Development Traffic
- Traffic Signals

Existing morning peak hour traffic flows plus development traffic

Colston Budd Hunt & Kafes Pty Ltd

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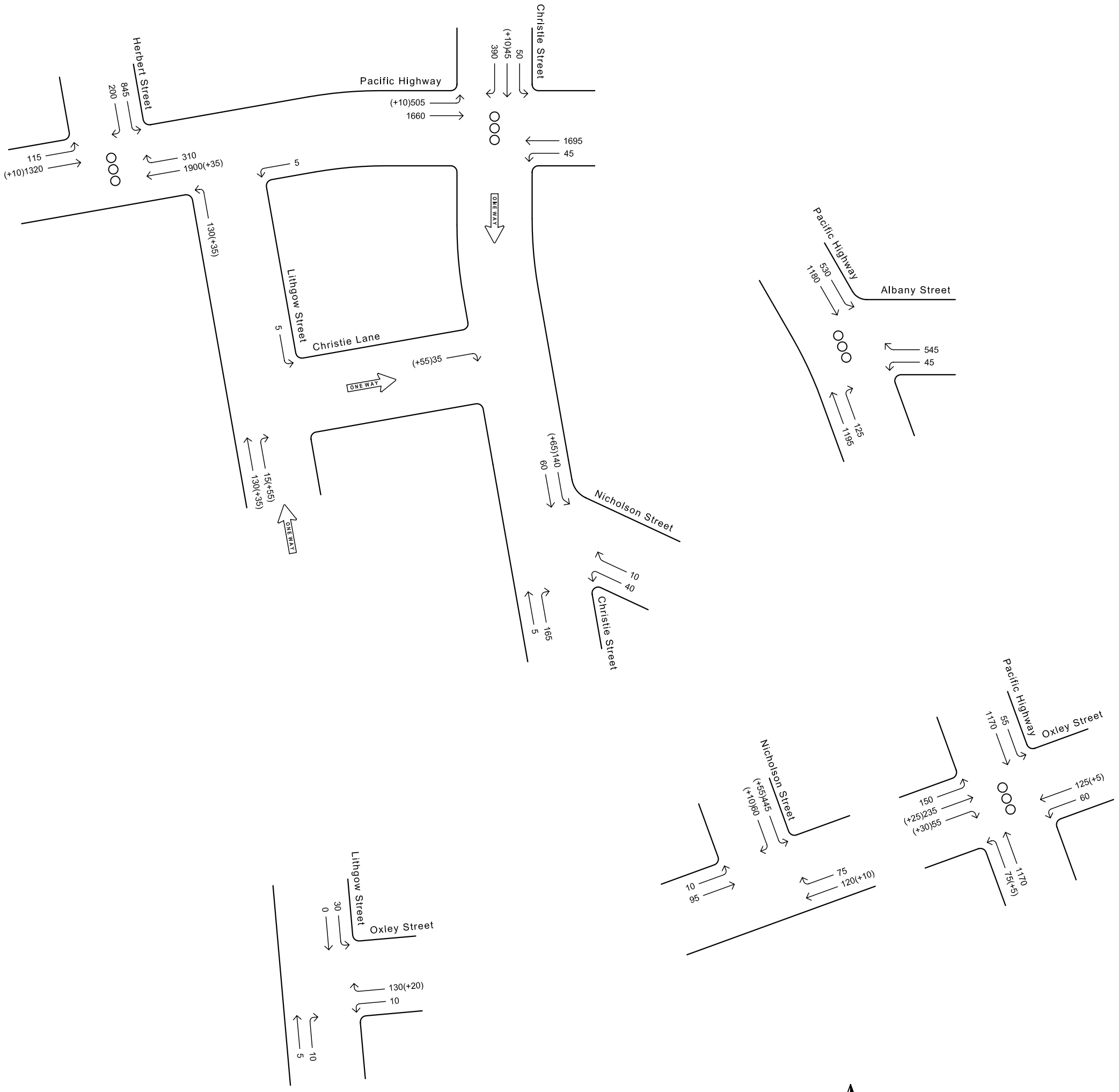
Figure 2



LEGEND

100 - Existing Peak Hour Traffic Flows
(+10) - Additional Development Traffic
- Traffic Signals

Existing afternoon peak hour traffic flows plus development traffic

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Figure 3