

Proposed Mixed Use Development Kiaora Lane,  
Double Bay

Traffic Report

19 October 2011

FINAL

Prepared for

**Woolworths Limited**

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This report has been issued and revised as follows:

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# 1 Introduction

This report presents the findings of a traffic and parking assessment of a proposed mixed use development at Kiaora Lane, Double Bay.

In 2004, Woollahra Municipal Council (WMC) granted an approval for the site to be redeveloped into a mixed use development. The previously approved scheme was for a new Woolworths supermarket with additional specialty retail area, commercial area, residential apartments and a library. It also included the redevelopment of the Golden Sheaf Hotel with additional function rooms and hotel suites.

Woolworths Limited (WoW) proposes a new scheme which excludes the residential apartments and instead provides additional retail and commercial floor areas plus a supermarket, Dan Murphys and Thomas Dux stores. The revised scheme also does not include changes to the Golden Sheaf hotel. Development consent for this revised scheme is now sought.

Halcrow has been commissioned by WoW to prepare this traffic and parking report to examine the traffic and parking implications arising from the revised scheme in the vicinity of the site. As for the previous scheme, Paramics, a micro-simulation traffic modelling program, was used to assess operational capacity of the surrounding intersections.

The remainder of the report is set out as follows:

- Chapter 2 discusses the existing road network conditions surrounding the site;
- Chapter 3 describes the proposed development;
- Chapter 4 assesses parking demand;
- Chapter 5 examines the traffic impacts; and
- Chapter 6 presents the conclusions of the investigation.

## 2 Existing Conditions

### 2.1 *Site Description*

Figure 1 shows the location of the subject site.

The site is generally known as Kiaora Place and is located within the centre of Double Bay in the local government area of Woollahra Municipal Council (WMC). It is generally bounded by New South Head Road to the north, Kiaora Road to the east, Court/Patterson Streets to the south and Manning Road to the west.

The site includes the following properties:

- the existing Woolworths site adjacent to New South Head Road;
- the existing Kiaora Lane and Anderson Street public car parks;
- a former telephone exchange at the corner of Kiaora Lane and Patterson Street known as the Goodman site;
- seven residential properties along Kiaora Road, south of Kiaora Lane; and
- four residential properties at or near the intersection of Patterson Street with Anderson Street.

### 2.2 *Road Network*

The local road network that serves the site includes:

- New South Head Road;
- Kiaora Road;
- Kiaora Lane;
- Manning Street;
- Patterson Street;
- Anderson Street; and
- Court Street.

New South Head Road is the principal east-west arterial road through the Double Bay area. It is configured as a six-lane divided road with morning and evening peak period

clearway restrictions in place in the westbound and eastbound directions respectively. It is a declared State Road under the control and maintenance of the RTA. New South Head Road has a posted speed limit of 60km/hr. Intersections along New South Head Road are generally provided as signalised intersections with some turn bans at selected intersections to improve the efficiency of traffic flows along New South Head Road.

Manning Street and Kiaora Road are collector type roads under the jurisdiction of the Council. They have the function of connecting the local roads to the arterial and sub-arterial roads system in developed area. They generally have a posted speed limit of 50km/hr.

All the other roads are two-way local roads under the jurisdiction of the Council. They provide access to properties fronting along these streets. These roads generally have on-street parking on both sides with a posted speed limit of 50km/hr.

### **2.3**     ***Traffic Flows***

Peak hour intersection turning movement flows were conducted at the following nearby intersections:

- New South Head Road-Manning Street;
- New South Head Road-Knox Street;
- New South Head Road-Kiaora Road-Bellevue Road;
- Kiaora Road-Kiaora Lane;
- Kiaora Road-Court Road;
- Manning Road-Kiaora Lane;
- Manning Road-Patterson Street;
- Manning Road-Court Road;
- Anderson Street-Kiaora Lane;
- Anderson Street-Patterson Street; and
- Anderson Street-Court Street.

The surveys were conducted on a Thursday (10 December 2009) evening peak period from 4:00pm to 6:00pm. This period was considered to be the most critical as this is when the peak traffic generation from the proposed development (both retail and commercial

uses) coincides with the evening commuter peak period occurring on the adjoining road system. Being in the lead up to Christmas it was a busy traffic period.

The midblock peak hour flows are summarised in **Table 2.1**, and intersection turning movement flows are presented in **Figure 2**.

**Table 2.1 Existing Mid Block Two-way Peak Hour Flows**

Locations	Road Type	North/ Eastbound	South/ Westbound	Two-way
Anderson St, North of Court St	Local	-	93	93
Anderson St, South of Kiaora Ln	Local	-	114	114
Bellevue Rd, South of New South Head Rd	Local	278	340	618
Court St, East of Manning Rd	Local	66	133	199
Court St, West of Kiaora Rd	Local	114	90	204
Kiaora Ln, East of Manning Rd	Laneway	220	-	220
Kiaora Ln, West of Anderson St	Laneway	204	-	204
Kiaora Ln, West of Kiaora Rd	Laneway	81	-	81
Kiaora Rd, North of Court St	Collector	315	235	550
Kiaora Rd, South of Court St	Collector	323	267	590
Kiaora Rd, South of Kiaora Ln	Collector	325	230	555
Kiaora Rd, South of New South Head Rd	Collector	405	245	650
Manning Rd, North of Court St	Collector	338	243	581
Manning Rd, South of Court St	Collector	260	232	492
Manning Rd, South of Kiaora Ln	Collector	359	258	617
Manning Rd, South of New South Head Rd	Collector	278	415	693
New South Head Rd, East of Bellevue Rd	Arterial	1370	1079	2449
New South Head Rd, East of Manning Rd	Arterial	1384	1320	2704
New South Head Rd, West of Kiaora Rd	Arterial	1314	1180	2494
New South Head Rd, West of Manning Rd	Arterial	1554	1353	2907
Patterson St, East of Manning Rd	Local	31	32	63

From **Table 2.1**, it can be seen that New South Head Road carries the most traffic in the vicinity of the site with a combined two-way peak hour flow of about 2,500 to 3,000 vehicles per hour (vph). The local streets have substantially lower flows. Kiaora Road, Bellevue Road, and Manning Road have about 500 to 700 vph, while the remaining local streets have peak hour flows of 200 vph or less.



The surveyed flows on each of the roads reflect their respective road functions, i.e. New South Head Road is an arterial road carrying predominately through traffic, while the collector roads have distribution functions and the local streets primarily provide property or car park access.

## 2.4 *Public Transport*

The subject site is served by scheduled bus services along New South Head Road to the City.

Sydney Buses operates a number of high frequency bus services along New South Head Road near the site. These are summarised in **Table 2.2**. **Figure 1** presents a map of the existing bus routes in the general vicinity of the subject site.

**Table 2.2 Bus Service Summary**

Route Number	Service	Type of Service	Frequency Inbound <sup>§</sup>	Frequency Outbound <sup>§</sup>
323	City – Dover Heights	Weekday Peak Hour	6 (0)	0 (4)
324	City/Circular Quay – Watsons Bay	Daily Full Time	9 (8)	11 (9)
L24	City/Circular Quay – Watsons Bay	Weekday Morning	2 (0)	0 (0)
325	City/Circular Quay – Watsons Bay	Daily Full Time	7 (5)	4 (7)
326	City/Circular Quay – Bondi Junction	Daily Full Time	5 (6)	5 (6)
327	City/Circular Quay – Bondi Junction	Daily Full Time	5 (6)	3 (6)

§ – numbers outside of parenthesis denote the number of services in the weekday morning peak period between the hours of 6:00am and 9:00am, and numbers inside parenthesis denote the number of services in the weekday evening peak period between the hours of 4:00pm to 7:00pm

From **Table 2.2** it will be seen that the Double Bay area is well served by buses.

Rail services are also available from Edgecliff Railway Station which is approximately 600m walking distance away from the site. It has direct services to the St James, Central and Redfern Railway Stations. At Central Station, connections are available to all other services with the CityRail Network as well as other regional services. Train frequency at Edgecliff Station is about five minutes in each direction during peak periods.

## 3 Proposed Development

### 3.1 *Previously Approved Scheme*

The previously approved scheme comprised the following components:

- new Woolworths supermarket with approximately 4,300m<sup>2</sup> of gross floor area (GFA);
- specialty retail area with approximately 1,400m<sup>2</sup> of GFA;
- commercial area with approximately 3,870m<sup>2</sup> of GFA;
- a library with approximately 2,000m<sup>2</sup> GFA;
- 134 residential apartments with the following mix:
  - 31 x 1-bedroom units;
  - 36 x 2-bedroom units;
  - 59 x 3-bedroom units;
  - 7 x 4-bedroom units;
- expansion of the Golden Sheaf Hotel:
  - additional 29 hotel rooms; and
  - new function area.

A total of 725 parking spaces was proposed. The parking was to be accommodated in two basement levels with separate private and public areas.

Access was proposed from Kiaora Lane, Kiaora Road and Patterson Street.

The loading area was proposed to be located adjacent to Kiaora Road with the service access directly off Kiaora Road.

### 3.2 *Current Scheme*

A set of the architectural plans showing the ground and roof top levels parking area of the subject proposal is contained in **Appendix A**.

The current scheme includes the followings:

- a relocated and expanded Woolworths supermarket with approximately 5,027m<sup>2</sup> GFA;
- Dan Murphy's liquor store with approximately 1,309m<sup>2</sup> GFA;
- Thomas Dux (grocer) with approximately 1,249m<sup>2</sup> GFA;
- additional specialty retail area of approximately 2,164m<sup>2</sup> GFA;
- commercial/office use with approximately 3,249m<sup>2</sup> GFA;
- a library with approximately 2,234m<sup>2</sup>.

The current scheme does not involve the Golden Sheaf Hotel, nor does it include residential apartments.

**Table 3.1** presents a schedule of the proposed floor space area for each of the proposed uses under the revised scheme and compares these to the existing use and the approved scheme.

**Table 3.1 Revised Scheme Development Schedule**

Proposed Use	Existing Use	Approved Scheme		Revised Scheme	
		Proposed Floor Area/Units	Additional Area/Units†	Proposed Floor Area	Additional Area†
Retail	2,590	5,670	3,080	9,750	7,160
Commercial	460	3,870	3,410	3,250	2,790
Library	-	2,000	2,000	2,235	2,235
Residential					
- 1-Bedroom Units	-	31	31	-	-
- 2-Bedroom Units	-	36	36	-	-
- 3-Bedroom Units	-	59	59	-	-
- 4-Bedroom Units	-	7	7	-	-

† – in additional to existing use

The current scheme contains some 4,080m<sup>2</sup> of additional retail area when compared with the previous scheme, while the commercial area would be about 600m<sup>2</sup> less the previous scheme and the library would have an additional 235m<sup>2</sup> of floor area. The additional retail area is attributable to the inclusion of the Dan Murphy and Thomas Dux stores, and a slightly larger supermarket.

Parking in the current scheme is proposed over two levels – on the ground level beneath the new supermarket and on the roof top with a total of 459 parking spaces. This represents a reduction of more 265 parking spaces compared to the previously approved scheme.

Access is proposed from Kiaora Road and Patterson Street as well as Anderson Street.

The current scheme also includes a proposed shared zone on Kiaora Lane adjacent to the site frontage (see Section 6 for more details).

### ***3.3 Service Vehicles Provisions***

Under the revised scheme, two loading areas are proposed. The main loading area would be located adjacent to Kiaora Road which would accommodate up to one articulated truck (19m long) and two 12.5m heavy rigid trucks. This loading area would be accessed directly from Kiaora Road. It would serve the Woolworths supermarket, Thomas Dux and the retail tenancies in the new arcade area adjacent to New South Head Road.

A minor loading area is also proposed to the east of the car park. This would have one loading bay for trucks up to an 8.8m medium rigid truck. Truck accessing this loading area would enter from Kiaora Lane and exit to Patterson Street.

It is proposed that all loading areas and circulation roadways be designed to comply with Australian Standard for Parking Facilities (*Part 2: Off-street Commercial Vehicle Facilities AS2890.2:2002*).

### **3.4 *Car Park and Loading Management Plan***

The Double Bay DCP requires a plan of management be developed to manage and minimise noise arising from the day to day use of the car park and the loading areas.

This is contained in **Appendix B**.

The management plan addresses matters such as:

- locations within the car park where motorcycles will be permitted to park and areas where motorcycles are to be excluded;
- car park entry and exit access hours of operation;
- operation of the loading area; and
- signage indicating the hours of operation for certain access.

It is proposed that a condition is to be included in the lease agreement stating that any retail tenants must abide by this plan.

## 4 Parking Assessment

### 4.1 *Parking Requirement*

#### 4.1.1 *Retail/Commercial*

Parking requirements for the proposed development has been assessed against the provisions set out in WMC's Double Bay Centre Development Control Plan, 2002 (Double Bay DCP). The Double Bay DCP stipulates parking for retail and commercial uses as follows:

- retail – 3.5 spaces per 100m<sup>2</sup>; and
- commercial – 2.0 spaces per 100m<sup>2</sup>.

The DCP also stipulates that the allocation of short and long stays for retail parking is to be 60 per cent for short stay and 40 per cent to long stay. Similarly for commercial uses, the DCP stipulates 15 per cent for short stay and 85 per cent for long stay.

The above parking rates are consistent with those adopted in the previously approved scheme.

Applying these rates, the retail/commercial components (proposed additional floor space area of 7,160m<sup>2</sup> and 2,790m<sup>2</sup> respectively) of the revised scheme would require approximately 305 spaces. Of these, 158 spaces would be allocated as short stay parking while 147 spaces would be allocated as long stay parking.

#### 4.1.2 *Library*

In relation to parking for the library, the DCP does not make any specific requirement for a library use. It is proposed to provide car parking spaces in accordance with the previously approved scheme i.e. 16 spaces. Of these 16 spaces, five spaces would be allocated as long stay and 11 spaces as short stay.

#### 4.1.3 *Replacement Parking*

As the proposed development involves land currently used as public car parking areas, it will be necessary to replace the existing parking (145 spaces).

**Table 4.1** presents a summary of the parking requirements for the revised scheme as discussed above.

**Table 4.1 Revised Scheme Parking Requirements**

Proposed Use	Additional Area (m <sup>2</sup> )	Parking Rate (per 100 m <sup>2</sup> )	Required Spaces		
			Short Stay	Long Stay	Total
Retail	7,160	3.5	150	100	250
Commercial	2,790	2.0	8	47	55
Library	2,235	-	11	5	16
Sub-Total (Development Requirement)			169	152	321
Existing Public Parking (To Be Replaced)			145	0	145
<b>Total Parking Requirement</b>			<b>314</b>	<b>152</b>	<b>466</b>

In summary, a total of 466 spaces would be required to satisfy parking demand arising from the additional floor area contemplated in the revised scheme and to replace the spaces that would be lost due to the redevelopment of the site.

The proposed development includes a total provision of 459 car spaces to accommodate parking demand arising from the proposed development and to replace the lost existing spaces.

It is noted that a total of about 20 on-street short stay spaces would be displaced as a result of the proposal. Subject to Council's wishes, it may be appropriate to convert some of the long stay spaces within the development to short stay, as there is currently significant spare capacity in Council's Cross Street car park on the northern part of Double Bay. This would be a matter for Council's consideration when the car park was handed over to it.

## 4.2 *Parking Layout*

Parking is proposed over two levels – on the ground floor beneath the retail level and on the roof top.

The ground floor car park would have about 174 spaces and these would be allocated as public spaces or short stay. It would have access from Kiaora Road, Patterson Street and Anderson Street. However, as Anderson Street feeds into a residential area, this access will be closed at 10:00pm each night and re-opened after 7:00am the next morning.

A pedestrian link through the centre of the ground floor parking area is proposed to feed pedestrians from Anderson Street into Kiaora Lane near the proposed library.

The roof top car park would have a total of 285 spaces. The roof top car park would contain a mix of public (short stay) and private (long stay) spaces. The area for the private spaces would in part be segregated from the rest of the roof top car park.

The roof top car park would be connected to the ground floor car park via a curved ramp located in the north-western corner of the car park.

The car park would have boom gates with ticket issuing machines at each entry point and boom gates at each exit point. It would be owned and operated by Woollahra Council as a pay car park similar to the current Kiaora Lane car park, but with a pay on foot payment option.

The public parking spaces on the ground floor and roof top are proposed to have dimensions 2.6m wide by 5.4m long with aisle width of 6.4m. The private spaces on the upper level are proposed to have minimum dimensions of 2.4m by 5.4m with an aisle width of 5.8m. Some spaces on the upper level have a width of 2.3m, these will be marked as small spaces.

The design of the car parks will be in accordance to Australian Standard for Parking Facilities (*Part 1: Off-street Car Parking AS2890.1:2004*). Other aspects of the car park layout will also be in accordance with AS2890.1.



### **4.3 *Motorcycle and Bicycle Parking Provision***

The Double Bay DCP stipulates that dedicated parking motorcycles are to be provided at a rate one motorcycle space per 25 car spaces. The DCP also requires one bicycle space per 25 car spaces.

On the basis of the 459 car spaces proposed, 18 motorcycle and 18 bicycle spaces will be required.

It is proposed to provide 19 motorcycle spaces. These would be located on the ground level and spread out around the car park. No motorcycle parking spaces are proposed on the upper parking level.

In relation to parking provision for bicycles, it is proposed to provide 32 bicycle spaces. These are spread out on the ground floor car park with some located near the public open space area.

The design of the bicycle spaces will be in accordance with the Australian Standard for Parking Facilities (*Part 3: Bicycle Parking Facilities AS2890.3:1993*).

## 5 Traffic Assessment

### 5.1 *Traffic Generation and Distribution*

The increased traffic generation of the development (above the existing traffic generation of the site) was estimated on the basis of the proposed parking provision and of the turnover of additional long and short stay spaces.

The adopted peak period turn over rates were:

- long stay – 0.6 vehicles per space per peak hour; and
- short stay – 1.9 vehicles per space per peak hour.

On this basis, the revised scheme is estimated to generate a total of 417 additional vehicle trips per hour during the Thursday evening peak hour calculated as follows:

- 169 additional short stay spaces @ 1.9 trips per hour per space = 321 vph
- 152 additional long stat spaces @ 0.6 trips per hour per space = 91 vph
- **total** = **412 vph**

The approved scheme was co-incidentally also estimated to generate about 413 vph. Therefore, the traffic generation of the revised scheme would not raise any significant new capacity issues.

This traffic was incorporated to the Paramics model traffic origin/destination trip table. The Paramics model was then use to examine the effects of the additional traffic and provide forecasts of the future traffic levels on roads serving the site.

### 5.2 *Future Traffic Flows*

Forecast future mid block peak hour flows are summarised in **Table 5.1**. The future intersection peak hour flows are presented in **Figure 3**.

**Table 5.1 Future Mid Block Two-way Peak Hour Flows**

Locations	Road Type	Existing			Future		
		NB/EB	SB/WB	Two-way	NB/EB	SB/WB	Two-way
Anderson St, North of Court St	Local	-	74	74	44	104	148
Anderson St, South of Kiaora Ln	Local	-	116	116	-	-	-
Bellevue Rd, South of New South Head Rd	Local	271	325	596	306	351	657
Court St, East of Manning Rd	Local	70	169	239	111	174	285
Court St, West of Kiaora Rd	Local	105	132	237	157	134	291
Kiaora Ln, East of Manning Rd	Laneway	178	-	178	37	-	37
Kiaora Ln, West of Anderson St	Laneway	34	-	34	14	-	14
Kiaora Ln, West of Kiaora Rd	Laneway	33	-	33	14	-	14
Kiaora Rd, North of Court St	Collector	284	242	526	338	264	602
Kiaora Rd, South of Court St	Collector	326	257	583	382	331	713
Kiaora Rd, South of Kiaora Ln	Collector	326	248	574	431	466	897
Kiaora Rd, South of New South Head Rd	Collector	354	249	603	434	466	900
Manning Rd, North of Court St	Collector	315	269	584	307	282	589
Manning Rd, South of Court St	Collector	249	302	551	273	285	558
Manning Rd, South of Kiaora Ln	Collector	357	258	615	392	344	736
Manning Rd, South of New South Head Rd	Collector	296	376	672	351	346	697
New South Head Rd, East of Bellevue Rd	Arterial	1370	1107	2477	1479	1224	2703
New South Head Rd, East of Manning Rd	Arterial	1344	1260	2604	1465	1236	2701
New South Head Rd, West of Kiaora Rd	Arterial	1309	1167	2476	1426	1147	2573
New South Head Rd, West of Manning Rd	Arterial	1535	1371	2906	1647	1423	3070
Patterson St, East of Manning Rd	Local	9	58	67	131	152	283

202 (68%) – Future Peak Hour Flows (Per Cent Change)

From **Table 5.1**, it can be seen Kiaora Road, Manning Road, Court Street and Paterson Street would experience some moderate changes to the traffic flows. This would be expected as these roads would carry the additional traffic to and from the site. It should also be noted that future traffic flows on Manning Road, south of Court Road would only experience slight increases.

RTA guidelines indicate that residential streets have a maximum environmental road capacity of 300 vph before local pedestrian amenity starts to deteriorate. From **Table 5.1**, the future flows on the local residential streets i.e. Anderson Street, Patterson Street and Court Road, would be less than the 300 vph environmental capacity. Therefore, it is not expected that the proposed development would adversely affect the amenity of these local residential streets.

Overall, the changes would be in keeping with midblock road capacities. The main traffic operational capacity effects would occur at intersections as discussed below.

### **5.3 Intersection Performance Analysis**

#### **5.3.1 Paramics Results**

The Paramics model provided the performance measures for the nearby intersections for the existing and future cases. The existing and future case results are presented in **Table 5.2** and **Table 5.3** below respectively. This is followed by a discussion of the results.

**Table 5.2 Existing Case Intersection Performance Results – Paramics**

<b>Intersection</b>	<b>Average Delay (Second)</b>	<b>Level of Service</b>
Court Rd/Anderson St	6	A
Kiaora Ln/Manning Rd	9	A
Kiaora Rd/Court Rd	8	A
Kiaora Rd/Kiaora Ln	13	A
Manning Rd/Court Rd	7	A
Manning Rd/Patterson St	7	A
New South Head Rd/Kiaora Rd	27	B
New South Head Rd/Knox St	14	A
New South Head Rd/Manning Rd	16	B

Note: Level of service A provides good intersection operation, level of service F indicates intersection is operating over capacity while level of service D is the minimum desirable long term peak period operating condition. At signalised intersections, the average intersection delay is usually reported as the volume

weighted average delay while at priority controlled intersections, the average delay for the worst movement is usually reported.

At present, all assessed intersections operate satisfactorily at level of service (LoS) B or better. The most critical intersection in the nearby road network is the five-way intersection at New South Head Road with Kiaora Road, Bellevue Street and Cross Street. Paramics indicates that this intersection currently operates at LoS B with an average delay of about 27 seconds.

**Table 5.3 Future Case Intersection Performance Results – Paramics**

Intersection	Average Delay (Second)	Level of Service
Court Rd/Anderson St	6	A
Kiaora Ln/Manning Rd	11	A
Kiaora Rd Access	8	A
Kiaora Rd/Court Rd	10	A
Kiaora Rd/Kiaora Ln	17	B
Manning Rd/Court Rd	7	A
Manning Rd/Patterson St	11	A
New South Head Rd/Kiaora Rd	28	B
New South Head Rd/Knox St	15	B
New South Head Rd/Manning Rd	17	B

Note: Level of service A provides good intersection operation, level of service F indicates intersection is operating over capacity while level of service D is the minimum desirable long term peak period operating condition. At signalised intersections, the average intersection delay is usually reported as the volume weighted average delay while at priority controlled intersections, the average delay for the worst movement is usually reported.

Under future traffic conditions i.e. with the additional development traffic, Paramics predicts the nearby intersections would continue to operate satisfactorily with LoS B, albeit some intersections would have its average delay moderately increased.

### 5.3.2 *SIDRA Analysis Results*

Site observations indicate that the Paramics results for the signalised intersection of New South Head Road with Kiaora Road to be optimistic. Additional intersection analysis was undertaken using SIDRA an intersection capacity computer program. SIDRA is known to have a more precise model to assess the operation of signalised intersections.

Therefore, as a further check SIDRA analysis of the New South Head Road intersections was also undertaken to assess the impacts of the proposed development on these intersections.

The analysis was undertaken using phase and cycle times obtained from the Paramics model.

The SIDRA results for the existing and future cases are presented in **Table 5.4**.

**Table 5.4 SIDRA Analysis Results**

Intersection	Average Delay (Second)	Level of Service
Existing Conditions		
- New South Head Rd/Kiaora Rd	38	C
- New South Head Rd/Knox St	6	A
- New South Head Rd/Manning Rd	12	A
Future Conditions		
- New South Head Rd/Kiaora Rd	50	D
- New South Head Rd/Knox St	6	A
- New South Head Rd/Manning Rd	19	B

Note: Level of service A provides good intersection operation, level of service F indicates intersection is operating over capacity while level of service D is the minimum desirable long term peak period operating condition. At signalised intersections, the average intersection delay is usually reported as the volume weighted average delay while at priority controlled intersections, the average delay for the worst movement is usually reported.

The results from the SIDRA analysis indicate that the signalised intersections along New South Head Road would continue to operate satisfactorily in the future.

#### **5.4 Construction Traffic Impacts**

At this stage, it is not possible to quantify the traffic volumes likely to be generated during construction as a builder is yet to be appointed. However, it is unlikely to present any road system capacity problems as the traffic generation arising from construction activities would not exceed that of the development when completed.

A detailed construction traffic management plan will be prepared once a builder is appointed. This will allow the construction traffic management plan (CTMP) to reflect the actual staging of development as it is proposed. The CTMP would address matters such as:

- hours of work;
- construction traffic routes;
- access to the site;
- management of loading and unloading activities;
- existing vehicle and pedestrian movements; and
- construction traffic and parking demand.

The CTMP is also likely to include a number of management strategies to address any identified issues arising from construction activities.

It would be usually be appropriate that a condition of consent be imposed requiring such a plan to be approved before the commencement of construction.

## 6 Proposed Shared Zone

As part of the proposed development, it is proposed to convert the eastern section of Kiaora Lane (along the site frontage) into a shared zone.

A shared zone is a speed control facility, and approval from the RTA is required to install a shared zone. A shared zone is a designated section of road where vehicular and pedestrian traffic share the same road space. Drivers are restricted to a speed limit of 10km/hr and must give way to pedestrians at all time.

The RTA has indicated the following requirements for a shared zone:

- a shared zone is to be less than 250m in length;
- a shared zone road environment is to be significantly changed from a normal road environment;
- a shared road environment should be a self enforceable 10km/h speed zone;
- the traffic volume in a shared zone is to be less than 300 vpd;
- there are no designated pedestrian facilities within a shared zone;
- a shared zone must not have a footpath;
- under the Australian Road Rules a shared zone must not have a kerb and gutter;
- speed zone signage is to be installed by the RTA in accordance with Technical Direction TD 2000/6 – Shared Zone Signs (see **Appendix C**).

In the future, the traffic model predicts that this section of Kiaora Lane would have a predicted flow of about 14 vph or approximately 140 vpd. Therefore, the predicted traffic flow would be less than the RTA's specified traffic volume for a shared zone.

Additionally, the architect Nettleton Tribe has indicated that other design and engineering aspects would comply with the RTA's requirements.

It would be appropriate that a condition of consent be included in the development approval requiring the proposed shared zone to be installed in accordance with RTA's requirements.



## 7 Conclusions

This report has examined the traffic and parking implications of a proposed mixed use development at Kiaora Lane, Double Bay. Woollahra Council, in 2004 granted an approval for a mixed development on the site which includes an expanded Woolworths supermarket, 134 residential apartments, a new library and expansion of the Golden Sheaf Hotel.

Woolworths has put forward an revised scheme which includes more retail and commercial floor areas with a new library, but does not include the expansion of the Golden Sheaf Hotel and residential apartments are not proposed in the revised scheme.

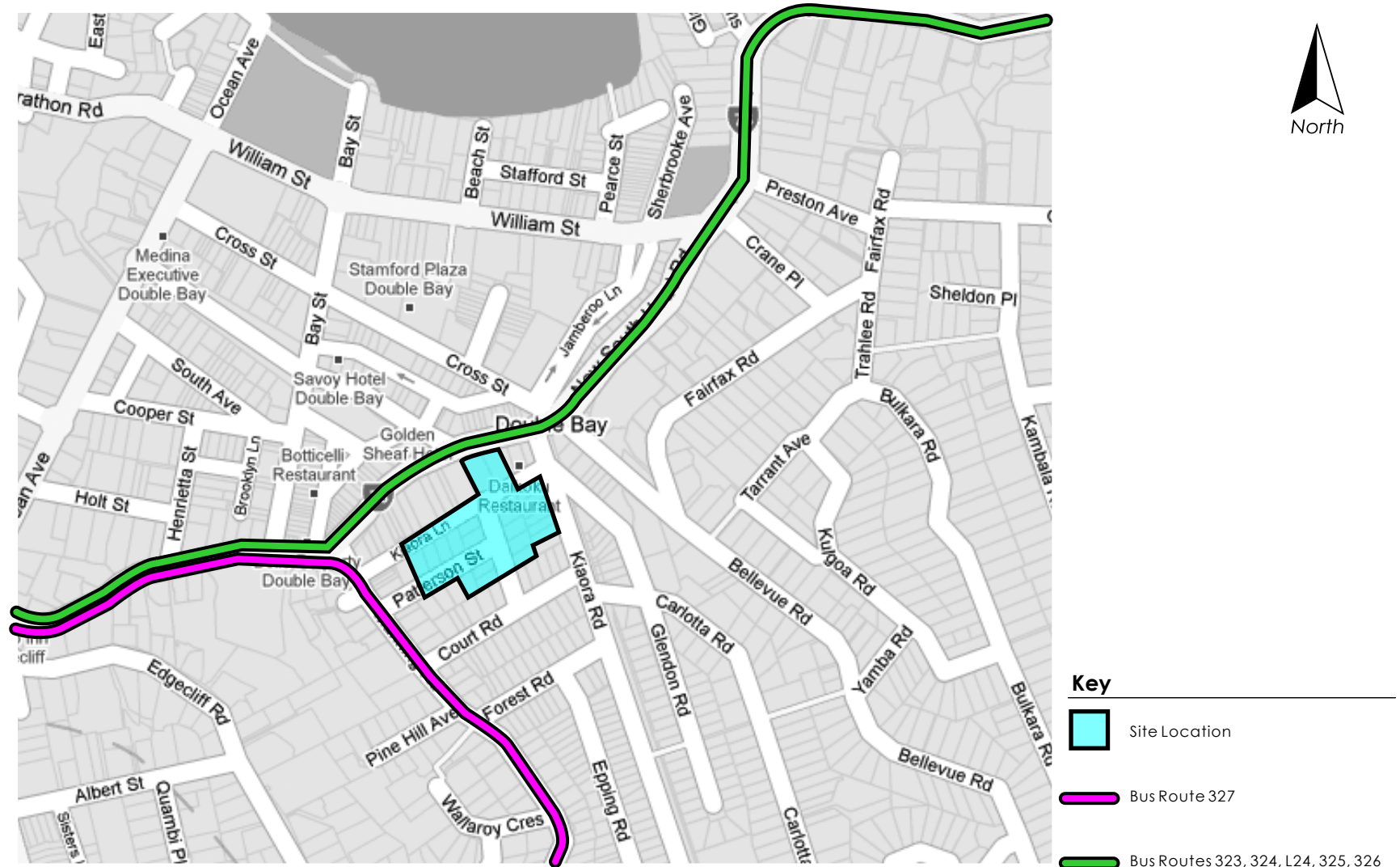
The findings of the investigation are summarised below:

- The revised development mix comprises:
  - 7,160m<sup>2</sup> of additional retail area;
  - 2,790m<sup>2</sup> of additional commercial area; and
  - a new library.
- Access is proposed from Patterson Street, Kiaora Road and Anderson Street.
- It is proposed to provide 459 parking spaces over two levels.
- The proposed on-site parking provision is considered to be satisfactory.
- It is proposed that the car park and associated elements be designed in accordance with AS2890.1:2004 and the loading areas in accordance with AS2890.2:2002.
- The revised scheme is expected to generate approximately 412 additional vehicle trips per hour during its busiest period, which is similar to the approved scheme.
- Analysis indicates that the nearby intersections would continue to operate in a manner similar to that which presently applies.

Overall, it is concluded that traffic and parking aspects of the proposed development would be satisfactory.

# LOCALITY MAP

## PROPOSED MIXED USE DEVELOPMENT - KIAORA LANE, DOUBLE BAY



# EXISTING THURSDAY AFTERNOON PEAK HOUR INTERSECTION FLOWS

## PROPOSED MIXED USE DEVELOPMENT - KIAORA LANE, DOUBLE BAY

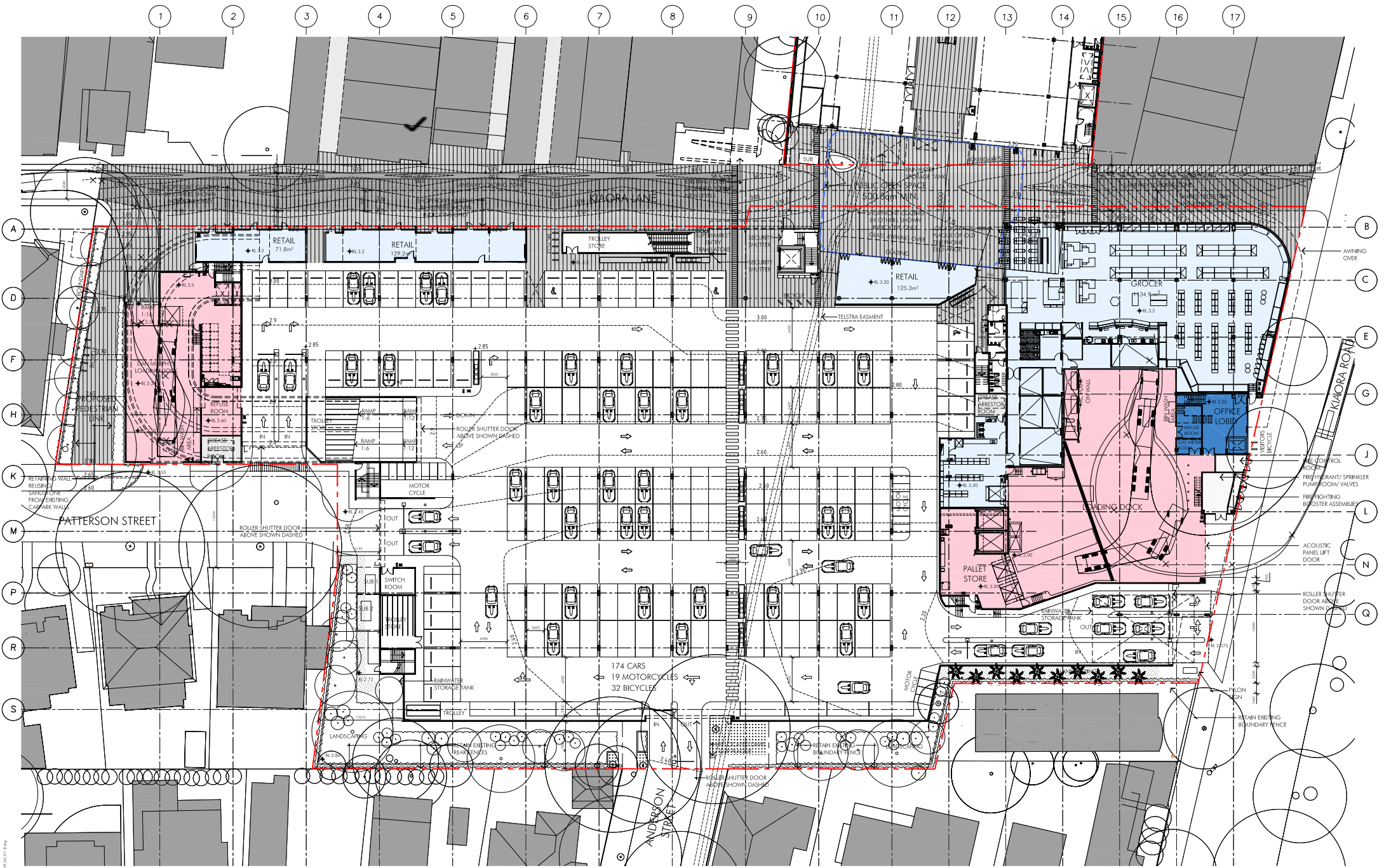


# FUTURE THURSDAY AFTERNOON PEAK HOUR INTERSECTION FLOWS

## PROPOSED MIXED USE DEVELOPMENT - KIAORA LANE, DOUBLE BAY



# Appendix A Architectural Car Park Layout Plans



Issue	Description	Date
A	DRAFT DA	12.5.11
B	ISSUED FOR DA	12.10.11



# **Appendix B Car Park and Loading Area Management Plan**



# **Kiaora Lands Redevelopment – Car Park and Loading Area Management Plan**

## **Preamble**

The proposed car park will be operated as a public car park by Woollahra Council. Within the car park a separate section will be provided for long stay spaces. The balance of the car park will be short stay or should Council wish authorized parking for longer stay parking with an access pass provided by Council.

The two loading areas will be managed by Woolworths or their successors. A condition of lease or use of the retail premises will be that they abide by this plan.

## **Provisions**

### *Car Park*

- All car, bicycle and motor cycle parking spaces and traffic controls within the car park will be marked or provided in accordance with a car park control plan to be approved and varied as appropriate from time to time by the operator.
- Card readers and boom gates will be provided at all vehicle entries and exits to control access and entrance security.
- The car park will be open during hours that meet the needs of the surrounding businesses. It will be secured when not in operation. Actual operating hours will be determined by Woollahra Council as operator and may vary from day to day.
- To prevent night time noise impacts on residents of Anderson Street and Court Road the Anderson Street driveways will be closed between the hours of 10:00pm and 7:00am.
- Signage will be provided in Court Road at its intersection with Anderson Street to indicate when the Anderson Street vehicular access is closed.
- Motorcycle parking is proposed on the ground floor.
- Initially no night time restrictions are proposed on the use of roof top car parking as the existing Kiaora Lane and Anderson Street public car parks are not heavily used after 10:00pm. With the number of spaces on the ground floor increasing over the present provision it would not generally be attractive for late night parkers to use the upper level. However it would be useful to retain the availability of the upper level for occasions when there was an event or function

in the area that required the extra parking. It would be a matter for the operator to restrict access to the upper level or in some other way mitigate any nuisance from the use of this parking should such actually arise.

- This management approach is proposed as specific restrictions on where certain types of visitors such as patrons of licensed premises could park would not be possible to enforce.
- Motorcycle parking is proposed generally on the ground floor. Signage will be provided to indicate the location of this parking.
- In the event that motorcycle use of the upper level was found to create a nuisance, signage prohibiting access to the upper level would be provided by the operator.
- A height bar would be provided at each entry to the car park indicating a maximum vehicle height of 2.2m.

#### *Loading Area*

- All entry and exit movements to the loading areas will be by way of forward movements and all manoeuvring by service vehicles will take place entirely within the loading areas.
- The loading docks will be provided with automated doors with a surface mass greater than  $3\text{kg}/\text{m}^2$  and the sides, head and thresholds of each will be designed to obviate, or minimise any desirable sound leakage.
- The loading dock doors will be designed so that their noise emission components when either opening or closing are no more than 5dB(A) above the background sound level when measured at the façade of the nearest, or any other residential property.
- The ceiling, as well as significant areas of the walls of the loading docks will be provided with an appropriately selected and effective fire resistant, sound absorbing facing (and approved acoustical spray, or modular acoustical panels/tiles) to provide an effective reduction of the reverberant characteristics of the area and ensure there is minimum possibility of the loading docks impacting on neighbours.
- No vehicles will enter, exit or load within the loading areas between the hours of 10:00pm and 7:00am.
- A dock manager will ensure that no queuing takes place on streets at such time as a loading area is full.

## Car Park and Loading Area Management Plan

- Vehicles approaching the Dan Murphy loading dock will phone ahead to advise of their arrival time so that the entry door facing Kiaora Lane can be opened.
- The doors to this dock will be closed during all loading and vehicle manoeuvring operations.
- Entry to the Dan Murphy loading area is required from Kiaora Lane because width constraints in the loading area preclude the use of a turn table large enough to accommodate the medium rigid trucks that will service this store.
- The Kiaora Road loading area gates will be left open during the hours of 7:00am to 7:00pm to avoid any traffic delays on Kiaora Road. The doors will be opened to allow access or egress but closed at other times during the period 7:00pm to 10:00pm.

# **Appendix C RTA Technical Direction for Shared Zone**



Roads and Traffic Authority

# Technical Direction

Policy – Procedure – Advice

Road Safety and Traffic Management Directorate

TOPIC:  
**SHARED ZONE SIGNS**

Number:	2000/6
Date:	3 July 2000
File:	95M3202

## Introduction

On 1 December 1999, New South Wales (NSW) adopted new road rules. These new road rules include the *Australian Road Rules* (ARR).

The authorisation of shared zones is not delegated to Councils. Shared zones are speed limits and approval to install them must be obtained from RTA prior to implementing this *technical direction*.

This *technical direction* covers the use of signs for shared zones.

## Objective

To ensure consistent application of the new road rules and associated signs throughout NSW.

## Practice

All shared zones in NSW must display a speed limit of 10 km/h. No other speed limit is allowed.

A shared zone is a network of roads in an area in which pedestrians and motor vehicles share the road space. Drivers must not exceed a speed of 10 km/h and must give way to pedestrians at all times. A SHARED ZONE (R4-4) sign, see Figure 1, in combination with a GIVE WAY TO PEDESTRIANS (R2-10) sign, see Figure 2, must be installed on each entry road into the area.

An END SHARED ZONE (R4-5) sign, see Figure 3, must be installed on each exit road from the area.

Under the ARR a driver must not stop in a shared zone unless the driver stops in accordance with a parking control sign or in a parking bay. To enable vehicles to park in a shared zone, parking control signs or a PARK IN BAYS ONLY (R5-65) sign, see Figure 4, must be displayed.

If PARK IN BAYS ONLY (R5-65) signs are used they must be installed on each entry road into the area. Where permissive parking control signs are used, they are to be installed in accordance with standard practice.

## Action

Use this *technical direction* to:

- check compliance of existing shared zones
- identify non-conformances and establish a program of remedial works
- install a GIVE WAY TO PEDESTRIANS (R2-10) sign with each SHARED ZONE (R4-4) sign
- install signs for new shared zones. over =>

<b>Supersedes:</b>	Nil		
<b>For attention of:</b>	Director Road Network Infrastructure, Director Client Services, Director Operations, Road Safety personnel, Traffic Management personnel and Councils		
<b>Enquiries:</b>	Policy	Bob O'Keefe Traffic Management Branch	<b>Telephone:</b> (02) 9218 6287 <b>Facsimile:</b> (02) 9218 6738
	Technical	Sam Swaminathan Traffic Technology Branch	<b>Telephone:</b> (02) 9662 5600 <b>Facsimile:</b> (02) 9662 5169

If specific site conditions preclude compliance with this *technical direction*, seek advice from the person named under *Enquiries* in the footer on page 1.



Figure 1 – SHARED ZONE (R4-4) sign

Note:

- white background
- red annulus
- black legend, symbols and border
- to manufacture, use dimensioned drawings.



Figure 2 – GIVE WAY TO PEDESTRIANS (R2-10) sign

Note:

- white background
- black legend and border
- dimensions 450mm x 450mm to suit R4-4
- to manufacture, use dimensioned drawings.



Figure 3 – END SHARED ZONE (R4-5) sign

Note:

- white background
- black legend, symbols and border
- to manufacture, use dimensioned drawings.



Figure 4 – PARK IN BAYS ONLY (R5-65) sign

Note:

- white background
- black legend and border
- to manufacture, use dimensioned drawings.

**Additional copies**

For a limited period, this *technical direction* can be viewed and downloaded from the RTA Internet site, [www.rta.nsw.gov.au](http://www.rta.nsw.gov.au).

Additional copies of this *technical direction* are available from Traffic Technology's Administration Manager, phone (02) 9662 5235, or by fax (02) 9662 5169.

Approved by:

Phil Margison  
General Manager  
Traffic Management

Authorised for use by:

Chris Ford  
Director  
Traffic and Transport