PROPOSED
IKEA DEVELOPMENT
PRINCES HIGHWAY, TEMPE

Transport Management and Access Plan

January 2009

Reference 0778

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EXECUTIVE SUMMARY

IKEA have an existing store at Rhodes and propose to expand with 4 stores to serve the Sydney Metropolitan Area. The current application is to establish a new store with a separate administration office element on a large industrial site with frontage to the Princes Highway at Tempe.

The Director General's requirements in relation to the application included the preparation of a Transport Management and Access Plan. Application of the TMAP principles to a 'bulky goods' use presents particular challenges in that the basic activity is the purchase and 'take home' of large household items.

The mode split goals indentified in the TMAP are to:

- *constrain the staff person trips by car to 65% with 35% public transport, walking and cycling*
- *constrain the customer person trips to 85% (normally 92%).*

The earlier Draft TMAP has been revised to reflect subsequent agreement with the Roads and Traffic Authority.

The traffic impact is assessed as being acceptable and safe subject to a significant package of road and traffic management measures comprising:

- *construction of a new traffic signal controlled access intersection on the Highway at the IKEA access with road widening to provide separate right and left-turn bays*

- *upgrading of Bellevue Street including road widening.*

The proposed transport measures comprise:

- *provision of pedestrian crossings across the Highway at the Smith Street/Union Street, Bellevue Street and access intersections (traffic signal controlled)*

- *provision of bus shelters with lighting, seating and service information on both sides of the Highway at the access intersection*

- *provision of a shared pedestrian/cyclist route along the eastern side of the Highway (between Bellevue Street and Smith Street) and along formalising the existing 'nominal' local route*

- *provision of generous locker and shower facilities as well as secure storage for cyclists in the development*

- *provision for tour coaches to set-down/pick-up and park within the development*

- *undertake a review of demand for a shuttle bus to/from nearby railway stations under operational experience*

- *preparation and maintenance of Transport Access Guide for employees and for customers including the encourage of carparking*

- *constrain the provision of carparking for employees engaged in the administration office.*

The identified road/traffic management and transport measures represent very substantial provisions which would provide benefits and improvements which go beyond the needs of the proposed development and address existing unsatisfactory circumstances.

1. INTRODUCTION

IKEA propose to establish a new store on a large site extending along the eastern side of the Princes Highway at Tempe. The Director General's Requirements in relation to the proposed development scheme include the preparation of a Transport Management and Accessibility Plan (TMAP).

A TMAP is:

* a comprehensive assessment of the transport impacts (addressing both the movement of people and goods) of a major site development or redevelopment proposal

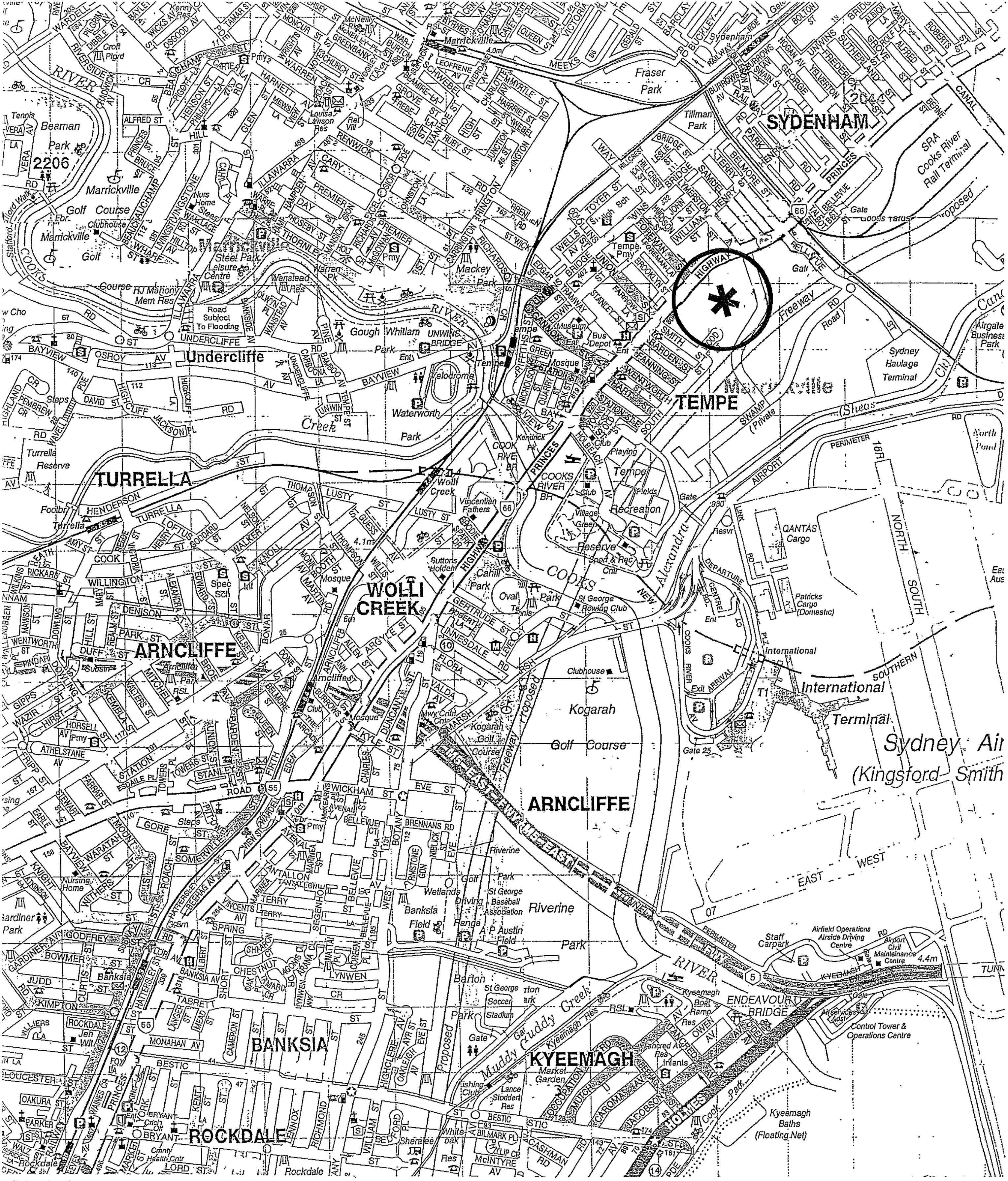
* the identification of a package of appropriate transport measures (including infrastructure, services and demand management initiatives) for the proposed development, which will help to manage the demand for travel to and from the development, and in particular, reduce the demand for travel by private car and commercial vehicle.

TMAP's have been prepared for a wide range of proposed landuse developments and TTPA have prepared TMAP documents for a number of major projects including:

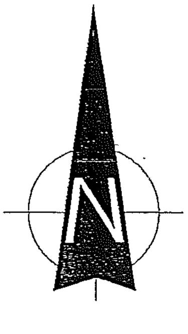
* Rhodes Peninsula – Retail, Commercial and Residential Development
* Glenmore Park Stage 2 – Residential Release Area
* Transfield Site, Seven Hill – Warehouse and Industrial Unit Precinct
* Woodward Park, Liverpool – Proposed Sporting, Entertainment, Commercial and Residential Precinct.

Application of the TMAP principles to a 'bulky goods' use presents particular challenges in that the basic activity is the purchase of large household items. As such it is difficult to encourage bulky goods customers to travel by public transport.

In addition, the principal shopping times are on weekends when public transport services are less frequent and as such the principal focus of this TMAP is necessarily on the employees engaged on the site.



LEGEND



LOCATION

2. BACKGROUND

2.1 STATE GOVERNMENT PLANNING POLICIES

NSW Government Statutory bodies, including the Roads and Traffic Authority (RTA), the Environment Protection Agency (EPA) and the Department of Infrastructure Planning and Natural Resources (DIPNR), have released plans to guide the development of cities and towns in NSW and provision of their transport infrastructure. These publications include, amongst others, Action for Transport 2010, an Integrated Transport Plan for Sydney[1], Shaping our Cities[2], Integrating Landuse and Transport: A Planning Policy[3] and Action for Air[4]. In general, these plans aim to reduce traffic congestion, integrate land and transport planning, reduce the use of private cars and improve the efficiency of the public transport system.

2.2 INTEGRATION OF LANDUSE AND TRANSPORT PLANNING

Integration of landuse and transport planning aims at reducing the amount of travel, particularly in cars. There are several ways in which this can be achieved, including:

- locating complementary landuses close to each other results in the shortening of average trip lengths

- locating high density landuses in town and city centres and in areas with good public transport accessibility

- reducing the rate of urban expansion in a city's fringe.

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1 *Action for Transport 2010 – An integrated Transport Plan for Sydney6, NSW Department of Transport and Roads and Traffic Authority, 1998*

2 *Shaping our Cities – The planning strategy for the greater metropolitan region of Sydney, Newcastle, Wollongong and the Central Coast, Department of Urban Affairs and Planning, 1998*

3 *Integrating Landuse and Transport – A Planning Policy, Department of Urban Affairs and Planning, 2001*

4 *Action for Air – The NSW Government's 25 Year Air Quality Management Plan. Environment Protection Agency, 1998*

2.3 SHIFT OF MODE CHOICE AWAY FROM PRIVATE CAR

Provision of attractive options for alternative modes of transport may result in the reduction of reliance on private cars. Availability of safe and direct pedestrian and bicycle facilities will encourage walking and cycling, particularly for shorter trips. All three strategy documents aim to provide these facilities. In addition, the RTA's Action for Bikes[5] provides for the inclusion of bicycle facilities on all new infrastructure projects.

Provision of a public transport system that is competitive with the private car in terms of travel time, cost, convenience and reliability is also a major goal for all three strategies. The goal can be achieved by improving the efficiency of bus and rail systems, improving the frequency of services and by extending the public transport network. The strategy document address these issues and, in the case of Action for Transport 2010, include specific projects aimed at improving the public transport system. These projects include the provision of bus only transitways and new rail links (such as the Hurstville to Strathfield Railway and the Airport Line, which is already operating).

Recent developments with significance to mode choice in this region include the ministerial directive for a public transport focused F6 Corridor, the reappraisal of all future expansions to the rail network, lower than expected growth in patronage on the Airport rail line, modified strategic bus corridors according to the Unsworth report and higher than expected traffic growth on the M5 East, partly at the expense of rail patronage to the south-west sector.

2.4 FREIGHT TRANSPORT

The transport of freight is an important facet of the function of the road network and its efficiency influences the economic success and growth of a region. The strategy documents acknowledge this and include goals to improve the movement of freight across NSW in general and the Sydney Metropolitan region in particular.

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5 *Action for Bikes – NSW Roads and Traffic Authority, 1999*

In recent years, a number of proposals and developments have occurred that may significantly influence freight transport patterns in close proximity of the site. These include the Port Botany Expansion proposal, the sale and proposed development of Sydney Airport lands, calls for more detailed investigations of rail freight links to new inter-modal terminals and the possibility of a freight focused tunnel connecting the Port Botany area directly to the M4 or other key western arterials.

2.5 OBJECTIVES OF THIS TRANSPORT MANAGEMENT AND ACCESS PLAN

The objectives of this plan are:

- to ensure that transport requirements for the proposed development are addressed adequately

- to provide a framework for the planning of access to the site

- to identify ways of minimising the negative impacts of the development on existing transport system

- to ensure that the planning of the development's transport arrangements comply with the framework provided by current government policies and strategies.

3. THE PROJECT

3.1 DESCRIPTION

The site to be developed for the IKEA use is identified in Appendix A and occupies an area of some 10 ha with an extensive frontage to the eastern side of Princes Highway and secondary frontages to Bellevue Street and Smith Street. The proposed development will comprise:

∗	IKEA Administration	4,460m^2 (existing building)
∗	IKEA 'Blue Box'	
	- Entry/exits	2,616m^2
	- Market hall	7,042m^2
	- Showroom	7,007m^2
	- Restaurant	1,932m^2
	- Offices	1,766m^2
	- Back of house	1,753m^2
	- Warehouse	10,716m^2
	- Loading dock	1,167m^2
	Total	**33,999m^2 GFA**

The make-up of employees will be as follows:

∗	IKEA administration	-	weekdays 69 persons
∗	IKEA store	-	weekdays 100 persons Weekends 200 persons

The vehicle access provisions will comprise:

∗ a new traffic signal controlled access intersection on the Princes Highway frontage with separate right and left-turn bays (for car access)

* connection to Bellevue Street for service vehicles and cars

* emergency vehicle access on the Princes Highway (adjacent to the Pretty Girl site) and on Smith Street.

3.2 TRIP GENERATION

The proposed development will have a complex trip generation pattern as compared to a simple residential or commercial uses. Features of this pattern are as follows:

* employees:
  - administration - Start 7.30 to 9.30, finish 3.30 to 5.30
    Approximately 60% start/finish in the same hour
  - store - Employees work a 38 hour week whereas the store is open 84 hours per week and employee numbers 'ramp up' during the day to meet the peak patron demand times. Hence, a limited number start at about 9.30am with a staged increase to midday then decreasing through the afternoon and into the evening.

  The actual number of employees travelling during the normal weekday morning and afternoon 'commuter peak periods' is relatively small.

* customers:
  - Weekday: Arrival commences just prior to store opening at 10.00am.
    Arrival and departure is fairly consistent for a peak which occurs around midday
  - Weekend: Arrival commences just prior to store opening at 10.00am.
    Patronage increases to a peak sometime after midday then rapidly decreases

Typical IKEA travel mode characteristics for sites without high levels of accessibility to frequent rail and bus services are as follows:

	Staff	**Customers**
Car (driver and passenger)	86.7%	92% (54% drivers)
Bus	4.3%	5.3%
Train	1.1%	0.1%
Walk	2.6%	1.1%
Cycle/motorcycle	3.2%	0.2%
Coach	-	1.0%
Taxi	2.1%	0.3%

3.3 ACCESS

The proposed development will have multi-modal access including rail, bus, coach and cycling as well as walking. Travel by public transport, cycling and walking will be encouraged.

3.4 CONSIDERATIONS AND ADVANTAGES

The development site and the nature of IKEA activities have a number of latent advantages in relation to the achievement of TMAP objectives, namely:

- there is access to rail services (Tempe < 800 metres, Sydenham < 1 km)
- there is direct access to STA bus services (3 routes) running past the site which also provide connections to railway stations
- there are well developed pedestrian and cyclist networks providing access to/from the site
- there will be significant 'passing trade' (ie vehicles already passing the site) due to the Highway frontage and the proliferation of other bulky goods outlets in the region

- there are very flexible approach and departure routes particularly to/from the eastern suburbs and ready access to/from the M5 and Eastern Distributor arterial routes

- Port Botany is nearby, acting to minimise the trip length of freight movements and IKEA deliveries are made at night as goods are unloaded directly into the warehouse/showroom area while the store is closed

- the loading dock location does not have any sensitive nearby landuses which would constrain the hours of operation

- 95% of customers transport their purchases with them as they leave which acts to minimise secondary freight movements

- the zoning of the site permits high tech industrial, distribution centre, warehouse and logistic uses all of which would present significant traffic generation circumstances (particularly for large vehicles) for alternative development outcomes

- the peak traffic generating activity occurs on weekends and not during the normal weekday morning and afternoon peak periods

- the arrival and departure times of staff are very diverse and avoid any particular concentration during the normal commuter peak periods.

3.5 TARGETS

The primary targets for site access will be:

- Staff – 35% of person trips by public transport, walking or cycling

- Customers – 15% of person trips by public transport, walking or cycling and 50% will be car drivers

- Freight – delivery vehicle movements will be rationalised and will largely occur at night

- Safety – access by road and by public transport, walking and cycling will be as safe and efficient as possible

- Transport Access Guide – preparation and maintenance guides for staff and for patrons will be a priority.

4. CURRENT AND PLANNED TRANSPORT CIRCUMSTANCES

4.1 ROAD NETWORK AND TRAFFIC MANAGEMENT

The development site will provide direct controlled access onto the Princes Highway without reliance on circulation on collector or local roads. Secondary controlled access will be available by the Bellevue Street industrial roadway while emergency vehicle access is also available via the highway and Smith Street.

The Princes Highway has a 6 lane divided roadway which links to the Sydney City Centre and connects with the M5 just to the south. Connections are available to the east and north via:

- Marsh Street and Airport Drive (to/from Eastern Distributor)
- M5 East and General Homes Drive (to/from Eastern Distributor)
- Canal Road and Gardeners Road (to/from the Southern Arterial Route).

Connections to the west and south-west are available via:

- Forest Road and Wollongong Road/Stoney Creek Road
- Bayview Avenue and Homer Street
- Railway Road/Marrickville Road and Edgeware Road.

The principal existing traffic management arrangements comprise the traffic signal controlled intersections along the Highway including Smith Street/Union Street, Bellevue Street, Railway Road and Canal Road. There is also a 'tidal flow' system in the section of the Highway between Railway Road and Canal Road while CLEARWAY and NO STOPPING restrictions apply along the Highway.

The existing traffic movement volumes at intersections along the Highway are provided on the diagrams in Appendix B. The prevailing operational performance of

the signal controlled intersections along the Highway has been assessed using SCATES and the results are summarised in the following:

	PM			Sat		
	LOS	**DS**	**AVD**	**LOS**	**DS**	**AVD**
Canal Road	F	1.04	73.9	B	0.68	19.5
Railway Road	C	0.89	28.1	B	0.69	19.2
Bellevue Street	D	1.02	64.9	A	0.77	13.3
Smith Street/Union Street	B	0.63	14.8	A	0.42	7.4
Gannon Street	B	0.86	23.6	B	0.63	19.1

Apart from the Canal Road and Bellevue Street intersections during the afternoon peak the operation of these intersections is satisfactory at the present time.

4.2 RAIL

Tempe Railway Station which provides for services along the Illawarra and East Hills/Airport lines is located some 800 metres to the south-west. The services available at this station are as follows:

Tempe Station Eastern Suburbs/Illawarra Line						
			№ of Services	**1st Service**	**Last Service**	**Off Peak Frequency**
From Mortdale to City	Weekday	7-9am 4-6pm	8 8	4.51am	12.39am	30 min
	Weekend			4.39am	12.39am	30 min
From City	Weekday	7-9am 4-6pm	8 8	5.33am	1.39am	30 min
	Weekend			5.54am	1.39am	30 min

Sydenham Railway Station which provides for services along the Illawarra, East Hills/Airport and Bankstown lines is located some 1.0 km to the north-west. The services available at this station are as follows:

Sydenham Station Bankstown Line						
			№ of Services	**1st Service**	**Last Service**	**Off Peak Frequency**
To City	Weekday	7-9am 4-6pm	12 8	5.02am	12.32am	15 min
	Weekend			5.32am	12.32am	30 min
From City	Weekday	7-9am 4-6pm	12 12	4.26am	1.01am	15 min
	Weekend			4.47am	1.16am	30 min

4.3 BUS

Sydney Buses operates a number of services past the site as follows:

- *Route 422* – Tempe to/from Circular Quay via Railway Square.
  Operates 7 days per week 5.00am to 11.00pm with 15 minute frequencies on weekdays, 20 minutes on Saturdays and Sundays

- *Route 425* – Rockdale to/from Dulwich Hill via Sydenham
  Operates 6 days (Monday – Saturday) 6.00am to 9.00pm with 15 minute frequencies on weekdays and 30 minute on Saturdays

- *Route 357* – Sydenham to/from Bondi Junction via Kingsford
  Operates 5 days per week (Monday – Friday) with 30 minute frequencies in peak periods.

4.4 BICYCLE AND PEDESTRIAN NETWORKS

Bicycle Network

Details of the existing/proposed network relative to the site are provided in Appendix C and features of this circumstance are as follows:

- a 'local route' running along the Princes Highway as a 'shared path' on the eastern footway. To the south this route turns to Smith Street and South Street while to the north it turns to Belmore Street and Henry Street. The section of

this route along the Highway and Smith Street is only 'nominal' as the provisions do not reflect a formal bicycle facility complying with Austroads and RTA design requirements

* nearby 'regional routes' which the local route connects to being:
  - Regional Route 12 (Botany to Homebush Bay) running around the airport and Tempe Reserve
  - Regional Route 9 (Eastern Suburbs to Sydenham) crosses the railway line at Sydenham and runs along Canal Road.

Pedestrian Network

Footways are provided along both sides of all roadways in the area and these permit fully trafficable routes to Tempe and Sydenham railway stations. There is also satisfactory street lighting along all roadways and there are controlled pedestrian crossings provided at all intersections along the highway and along Railway Road (ie on the route to/from Sydenham Station). There is a marked footcrossing at Tempe railway station and the only existing shortfall in provision for pedestrians are:

* the absence of a crossing on the northern side of the Princes Highway/Smith Street intersection

* the absence of a crossing in the section of Highway between Smith Street and Bellevue Street

* the absence of a crossing on the southern side of the Bellevue Street intersection.

4.5 FUTURE CIRCUMSTANCES

4.5.1 ROAD NETWORK AND TRAFFIC MANAGEMENT

The RTA is currently undertaking a 'Pinch Point' Study for the Princes Highway and the Tempe – Sydenham section is nominated as the highest priority. The RTA has indicated that there will be:

- short term improvements with extension of the existing tidal flow system for 3 lanes southbound in the afternoon peak (details of this scheme are provided in Appendix D)

- medium term improvements with road widening in the Highway and along Railway Road.

The envisaged future road network projects relevant to the development site include:

- The Spire Road route
  There is a road reservation corridor which runs along the eastern side of the site which will provide a parallel route to the Highway between Tempe and Alexandria. Bellevue Street will provide the local connection to this route, however the RTA has no program for its implementation.

- Duplication of the M5 East Tunnel
  There is no program for this project at the present time.

- Development of the M6 Corridor
  There is no program for this project at the present time.

- Development of the Euston Road/McEvoy Street Route
  This project which would connect with the Spire Road has no program for implementation at the present time.

4.5.2 RAIL

- Bondi Junction Turnback – the recently completed turnback resulted in increased capacity permitting 2 additional trains per hour at Sydenham Station.

- Additional tracks between Sydenham and Erskineville – this will enable the Bankstown Line to have a dedicated track which will improve the capacity and reliability of services at Sydenham Station.

* Lidcombe and Homebush Turnbacks – these will provide for improved services on the Bankstown Line through Sydenham Station.

4.5.3 BUS

The State Government's Bus Review Program is funded by the Unsworth Review (2003/2004) and Strategic Bus Corridor № 26 involves the route between Hurstville and the City via Princes Highway (past the development site). It is expected that improved express bus services will be provided along this route.

4.5.4 PEDESTRIANS AND CYCLISTS

There are no apparent plans to modify or upgrade the existing provisions for pedestrians or cyclists in the vicinity of the site. However, the bicycle road network (particularly regional routes) will continue to be developed facilitating access to/from the site from further afield.

5. TRANSPORT ASSESSMENT

Travel Mode Characteristics

The existing journey to work trips for employment in the Census Zone 393 are identified in data provided by the 2006 Census in the following:

Car driver	73.5%
Car passenger	4.8%
Train	13.9%
Bus	4.5%
Taxi	0.5%
Cycle	1.0%
Walk	1.8%

The travel mode from home to shopping in the Marrickville area is provided in the following:

	Car Driver	Car Passenger	Train	Bus	Taxi	Walk	Cycle
Weekday	40.3%	9.5%	3.0%	3.8%	0.4%	43%	-
Weekend	35.2%	17.3	1.6%	1.5%	1.2%	42.5%	0.7%

Traffic Implications

The traffic generation assessment for the development (in the absence of any RTA criteria) was derived from data collected at the existing Rhodes IKEA store. The assessment was based on 'transactions' per hour, normal number of customers per transaction, mode split and car occupancy as follows:

	Transactions	Customers (IN)
Thursday PM	106	318
Saturday	234	707

	Mode Split
Car	92%
Bus	5.3%
Train	0.1%
Walk	1.1%
Cycle	0.2%
Coach	1.0%
Taxi	0.3%

Car occupancy - 1.8 persons

	Person Trips IN/OUT	By Car	vtph
Thursday PM	636	585	326
Saturday	1,404	1,292	718

The projected directional distribution of these trips was:

- 40% north along the Highway
- 40% south along the Highway
- 10% west along Railway Road
- 10% west along Bayview Avenue.

These movements were adjusted to take account of the 'passing trade' element while additional movements were added for the IKEA administration and the identified SACL development accessed off Bellevue Street.

Details of the proposed widening of the Highway at the new access intersection are shown on the plan provided in Appendix E.

The post development traffic outcome on this basis was modelled using SCATES and the results are summarised in the following:

	Thursday PM			Saturday		
	LOS	**DS**	**AVD**	**LOS**	**DS**	**AVD**
Canal Road	E	1.03	68.0	B	0.71	19.6
Railway Road	C	0.92	29.4	B	0.63	19.4
Bellevue Street	B	0.94	11.4	A	0.66	12.3
IKEA Access	A	0.95	13.7	A	0.62	10.8
Smith Street/Union Street	C	0.99	33.2	A	0.62	7.8
Gannon Street	B	0.93	24.8	B	0.75	21.0

Transport Implications

Staff Travel:

Administration Office

There will be 69 employees in the IKEA administration office with 60% (42 persons) arriving/departing within the peak hour of which 35% (15 persons) will travel by public transport, walk or cycle (to accord with the target) during the normal weekday commuter peak hour. The public transport movements will be split between bus and rail (some using both) and some will be in the non-peak direction (eg southbound in the morning peak, counter to the commuter peak direction towards the City).

Marrickville Council's DCP specifies a parking provision for office floorspace of 1 space per 45m^2 GFA. Application of this criteria to the proposed administration office area of 4,460m^2 GFA would indicate a requirement of some 100 parking spaces.

It is only proposed to allocate 50 parking spaces for staff and visitors to the head office function. As such this will represent a 50% constraint to the normal parking provision and a suitable initiative in relation to the TMAP objectives.

Blue Box

It is not possible to establish a profile of the arrival/departure pattern of sales staff and others involved in this element of the development. There will be some 30 persons arriving in the 9.00 to 10.00am period for the store opening and a similar number departing in the afternoon period on weekdays. On weekends the numbers will be approximately double.

Accordingly, application of the 'target' would indicate that some 10 persons would travel by public transport, walk and cycle in the weekday peaks and some 20 persons in the weekend peaks. It is apparent that:

- the current and former uses on the site have involved a significant workforce many of whom would have travelled by public transport in the commuter peak periods
- due to the particular operational nature of the IKEA development there will not be a significant movement of staff in the commuter peak periods
- the available bus and rail services will be capable of accommodating the assessed demand by staff for travel by public transport
- any alternative development of the site (eg for high tech industrial) would produce a far higher demand for public transport services if TMAP objectives were applied.

Customers Travel

Details of customer purchases at the existing IKEA store at Rhodes provides the following composition:

Very large	22%
Large	28%
Medium	26%
Small	26%

Very large to medium indicated the use of a trolley for the transport of goods to the car. It is apparent therefore that only a marginal change can be effected to the travel

mode split with the most likely modes for increase being 'train' (0.1%) and 'cycle' (0.2%).

IKEA are very conscious of the desirability of constraining travel by private motor vehicle for staff and customers. IKEA have undertaken extensive surveys to establish what measures their staff and customers consider would be desirable to reduce travel by car. The following are summarises of the results of those surveys:

STAFF

Comment	***% Comments***
Better bus service	*29.0*
Provision of bus shelter outside IKEA	*14.5*
Improve bus timetable information	*10.3*
Improve frequency of public transport	*10.3*
Improve lighting on cycle paths	*4.4*
Improve pedestrian crossing points	*4.2*
Improve condition/location of bus shelters/stops	*4.2*
Earlier/later public transport services	*4.2*
Secure carpark	*2.1*
Shuttle bus between IKEA and rail station	*2.1*
Provision of cycle lockers	*2.1*
Provision of low level buses	*2.1*
Provision of shower facilities	*2.1*
Provision of cycle paths	*2.1*
Train service	*2.1*
Walking/cycling groups	*2.1*
Quicker buses	*2.1*
Total	***100.0***

CUSTOMERS

Factor	***% Respondents***
Nothing	*20.5*
If IKEA store closer to home	*16.9*
More frequent public transport	*11.7*
Cheaper home delivery service	*11.5*
Better public transport information	*11.2*
More reliable public transport	*9.4*
Quicker public transport	*8.2*
Cheaper public transport	*6.8*
Safer public transport	*1.2*
Better cycle facilities	*0.8*
Other	*0.7*
Better road safety	*0.6*
Better pedestrian footpaths/access	*0.5*
Total	***100.0***

Details of the comprehensive nature of the IKEA study process in relation to this issue are provided in the contents summary provided in Appendix F. It is not within the ability of IKEA to provide more frequent, reliable, quicker, earlier or later public transport services. However, the majority of the indicated preferences can be satisfied by what is already proposed and what can be provided additionally.

6. PROVISION OF TRANSPORT MEASURES

The potential measures which could act to encourage less reliance on travel by private motor vehicle are identified in the following:

- *Pedestrian Crossings*
  - provide a pedestrian crossing across the Princes Highway on the northern side of the Smith Street/Union Street intersection (not included in the existing traffic signal arrangement)
  - provide pedestrian crossing across the Princes Highway at the new traffic signal controlled IKEA access intersection (where bus stops are located and pedestrian crossing accidents have been recorded)
  - relocate the pedestrian crossing across the Princes Highway at the traffic signal controlled Bellevue Street intersection to the southern side for greater safety (or provide on both sides if RTA prefer)

- *Bus Shelters and Lighting* – provide bus shelters with appropriate seating, lighting and information at the bus stops located on the Princes Highway adjacent to the new access intersection (the southbound stop will be located in a new indented bay)

- *Pedestrians and Cyclists*
  - provide a formal shared pedestrian/cyclist corridor along the eastern side of the Highway between Bellevue Street and Smith Street and along Smith Street. Provide a footway along Bellevue Street between the eastern boundary and the Princes Highway
  - provide generous locker and shower facilities as well as secure storage for cyclists in the development

- *Coaches* – provide for tour coach set-down/pick-up as well as separate parking in the service vehicle area

- *Shuttle* – review the demand for a shuttle bus to/from the nearby railway stations under operational experience

- *Transport Access Guide* – prepare and maintain Transport Access Guides in accordance with the RTA Guidelines for employees and for customers. Details of the guidelines are provided in Appendix G

- *Car Pooling* – encourage car pooling. It is noted that the results of surveys of employees at IKEA stores in Great Britain indicate that with encouragement up to 5% of employee travel can result by sharing car travel with another employee (who would not otherwise be a passenger). This aspect would be incorporated in the Transport Access Guide for employees

- *Home Delivery* – IKEA will provide a home delivery service to assist customers who arrive by modes which do not provide for transport of purchased goods. The home delivery service will not be free, however the cost will only be quite modest and in line with the company's policy.

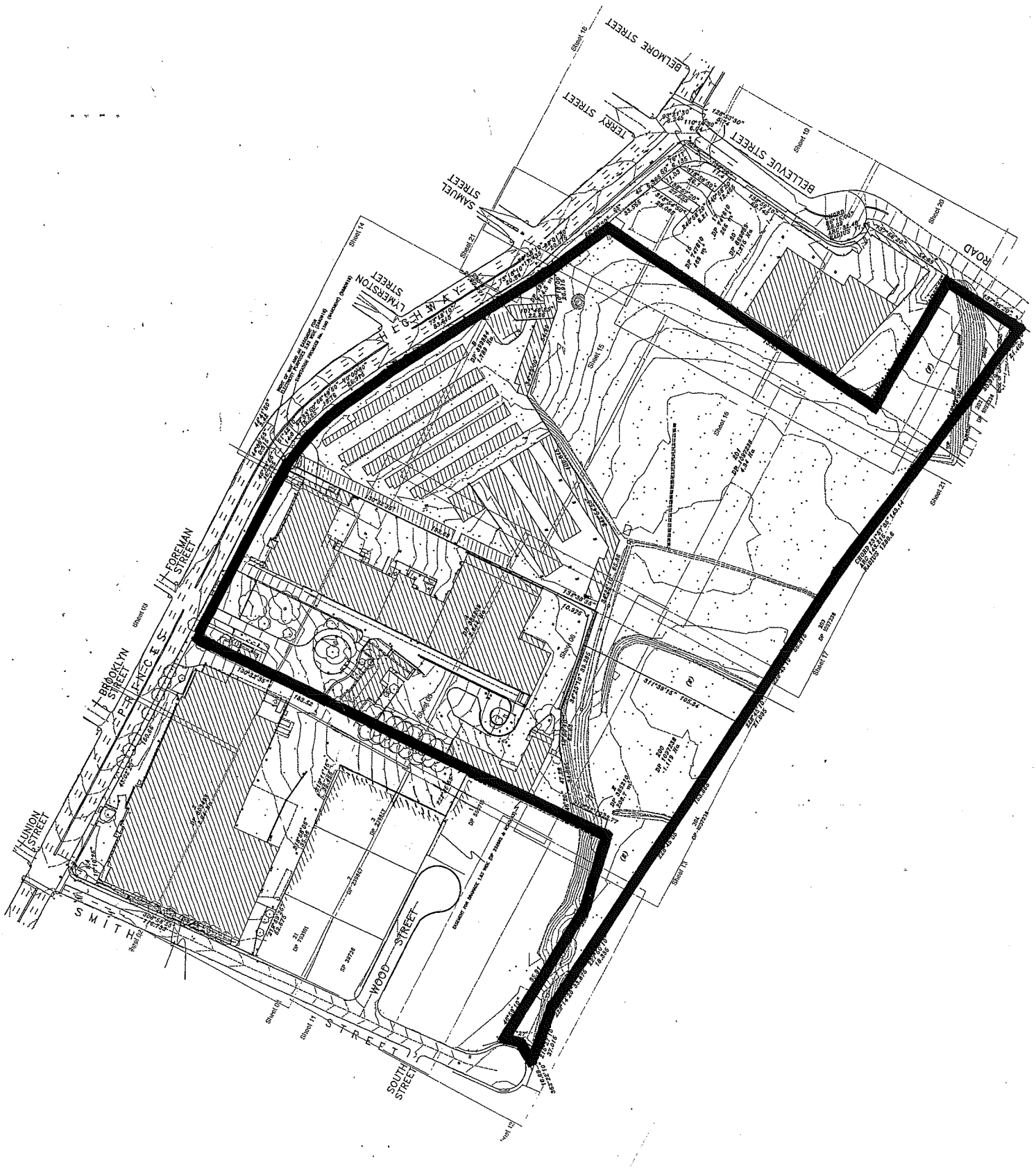
It is proposed to incorporate all of the foregoing 'transport measures' into the development proposal. In addition, the road/traffic management infrastructure improvements would comprise:

- construction of a new traffic signal controlled access intersection on the Highway including widening of the Highway to provide right and left-turn bays.

In addition, IKEA will dedicate a strip of land along the entire frontage of the Highway to the RTA to provide for a potential future road widening of 1 lane.

APPENDIX A

SITE DETAILS



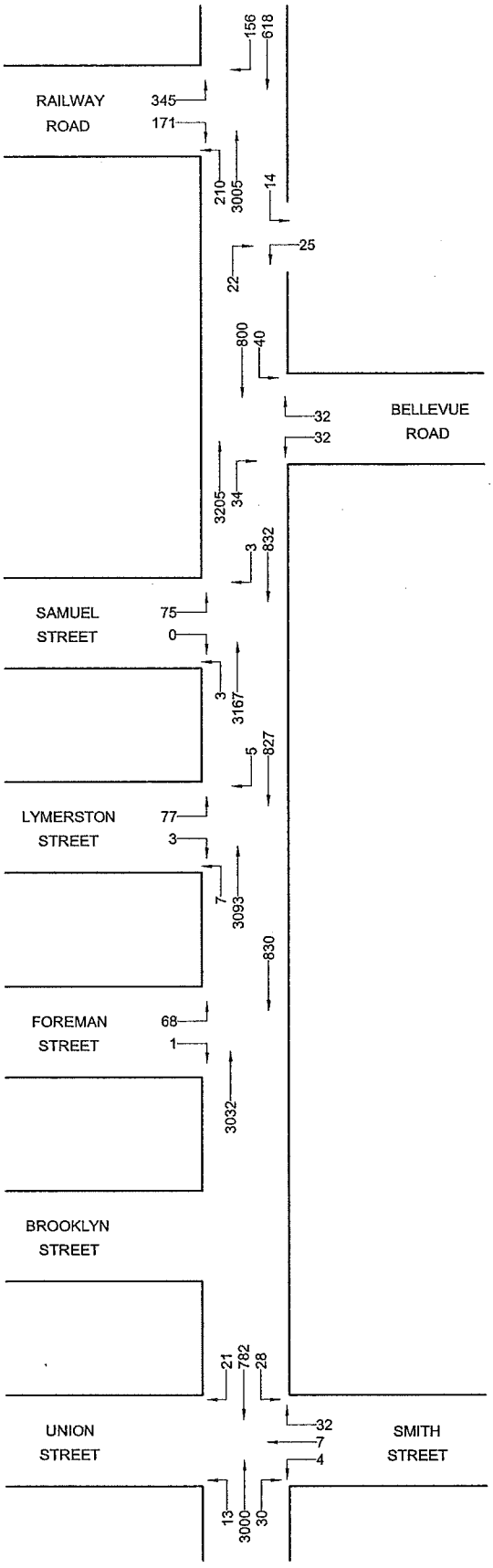
LEGEND

SITE

FIG 2

APPENDIX B

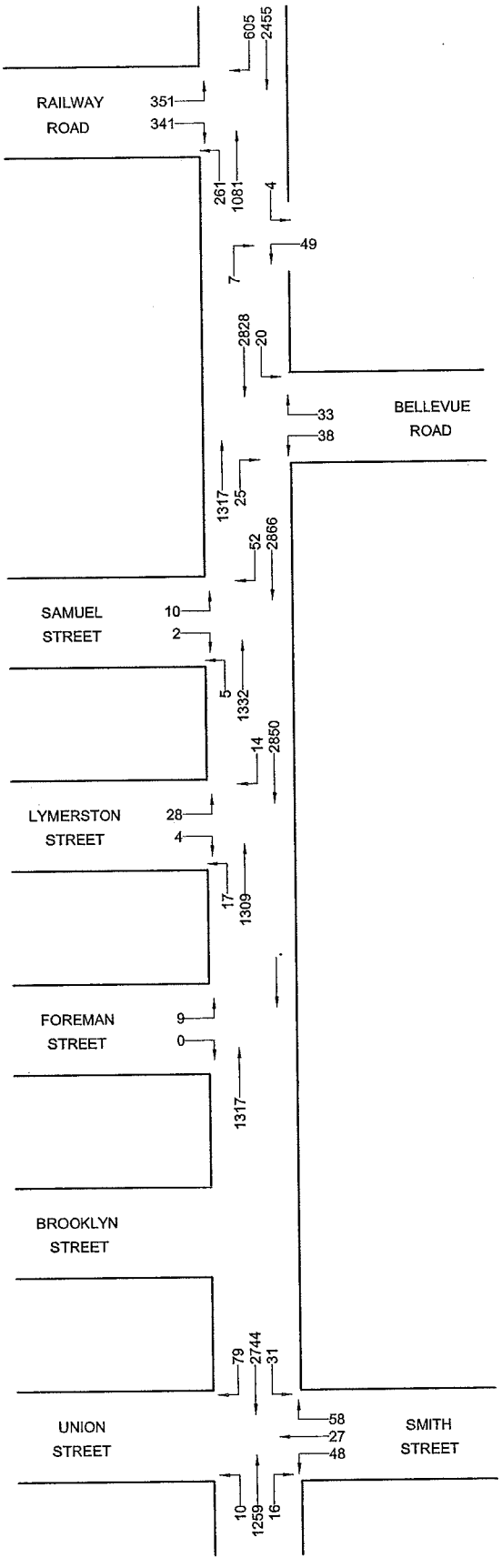
EXISTING PEAK TRAFFIC MOVEMENTS



LEGEND

EXISTING AM PEAK TRAFFIC FLOWS

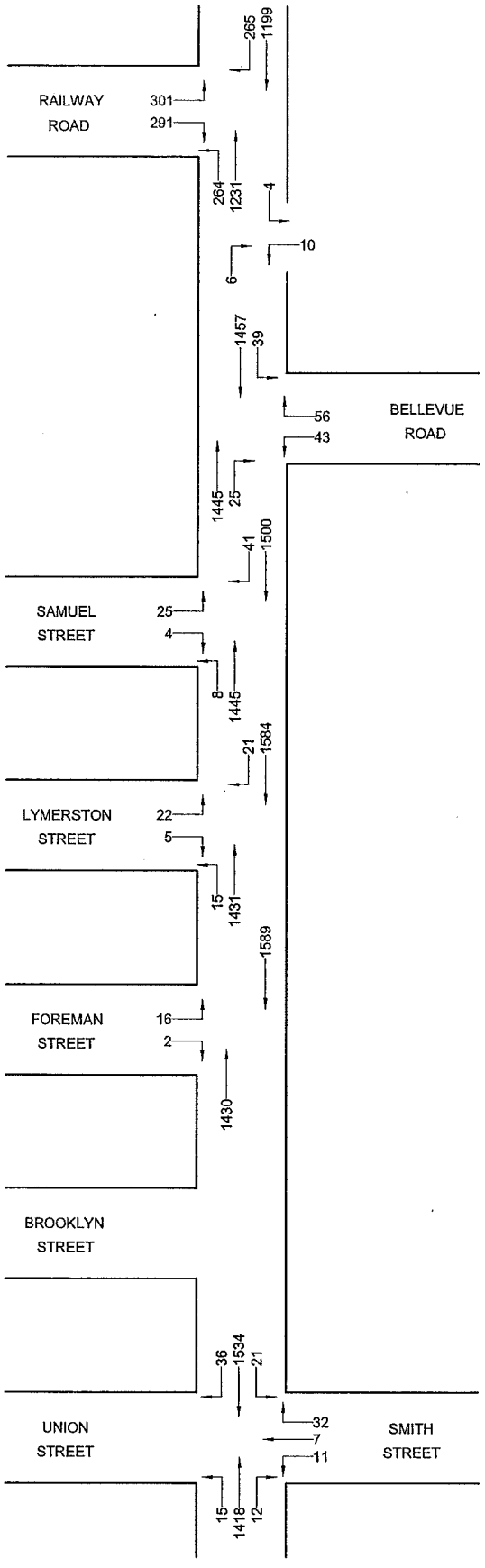
FIG 5a



LEGEND

EXISTING PM PEAK TRAFFIC FLOWS

FIG 5b



LEGEND

EXISTING SATURDAY PEAK TRAFFIC FLOWS

FIG 5c

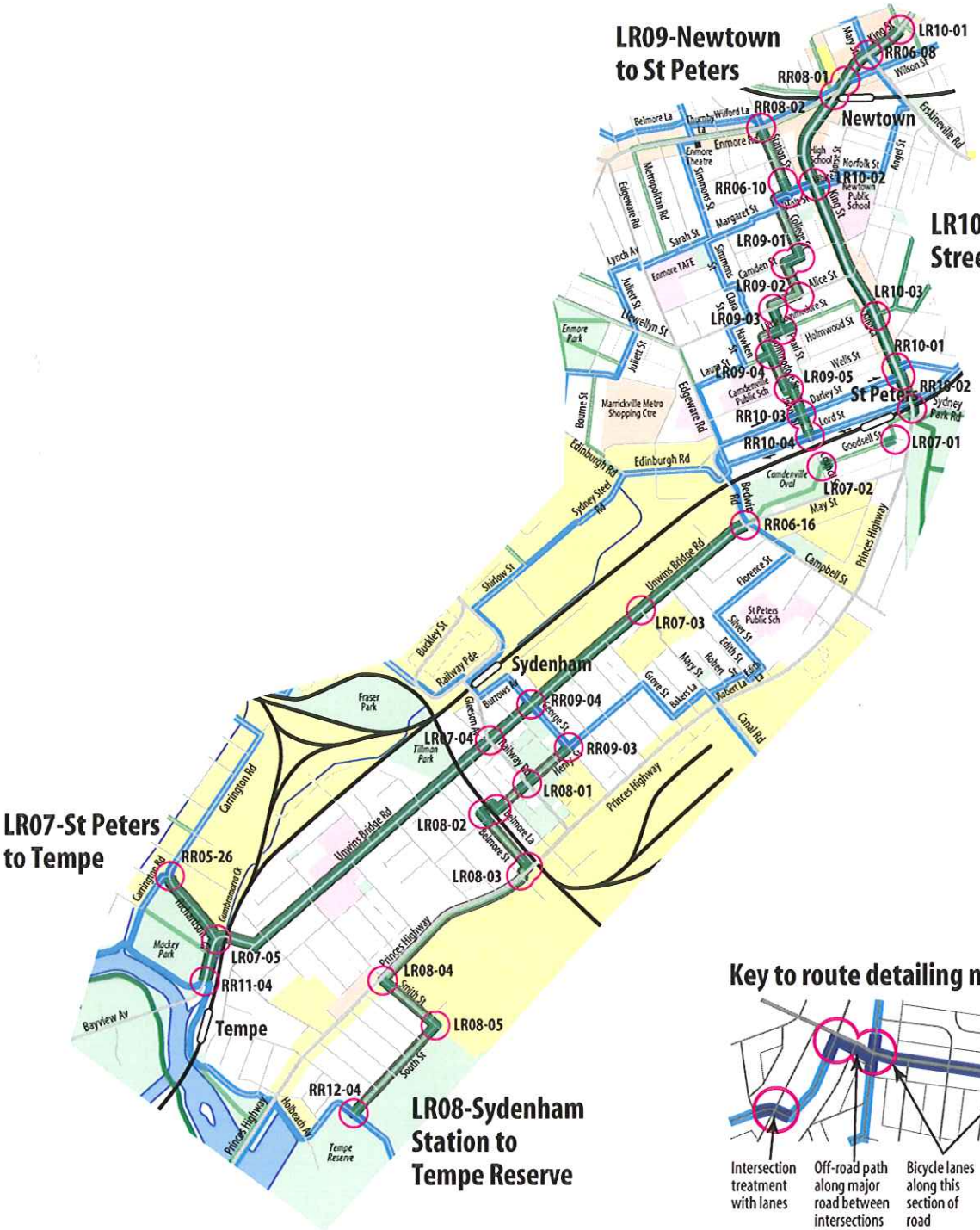
APPENDIX C

PROPOSED BICYCLE ROUTES

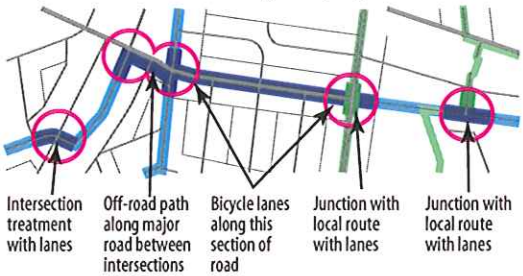
Marrickville Bikeplan 2006 Map RD08

Routes LR07-LR10 detail

MARRICKVILLE council



Key to route detailing map symbols



Regional route on-road (no linemarking)

Regional route off-road

Not near a road (park etc) — *Beside a road*

Regional route on-road with bicycle lanes

Local route on-road (no linemarking)

Local route off-road

Not near a road (park etc) — *Beside a road*

Local route on road with lanes

RR01-12 — Proposed intersection treatment with construction code

Schools, colleges and universities

Retail, cafes and entertainment

Government & public buildings

Public open space (parks etc)

Privatised open space (golf etc)

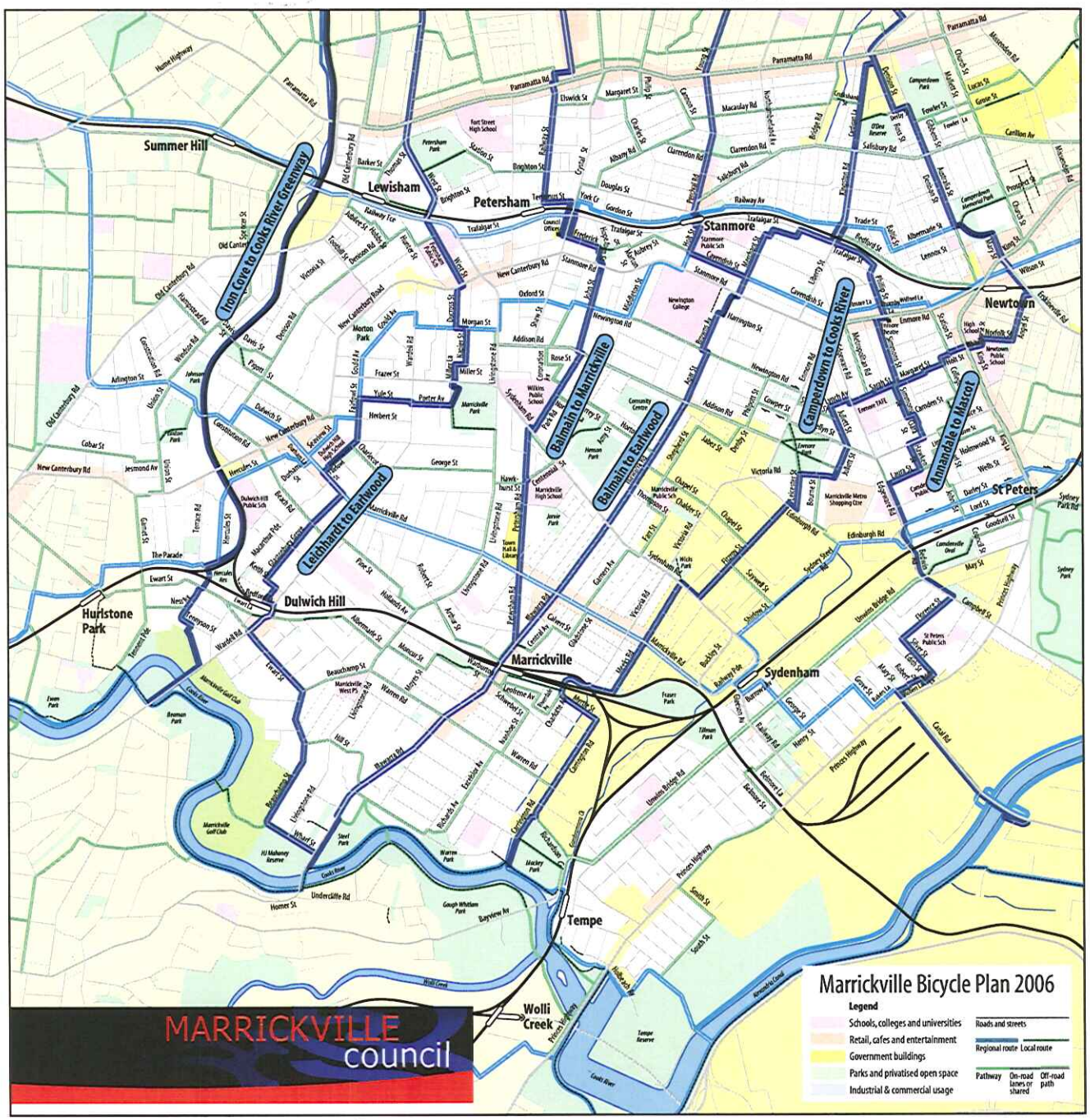
Industrial & commercial usage

STC
Sustainable Transport Consultants Pty Ltd
PO Box 1821 BONDI JUNCTION NSW 1355
Telephone 02 9386 4484 Fax 02 9389 5736

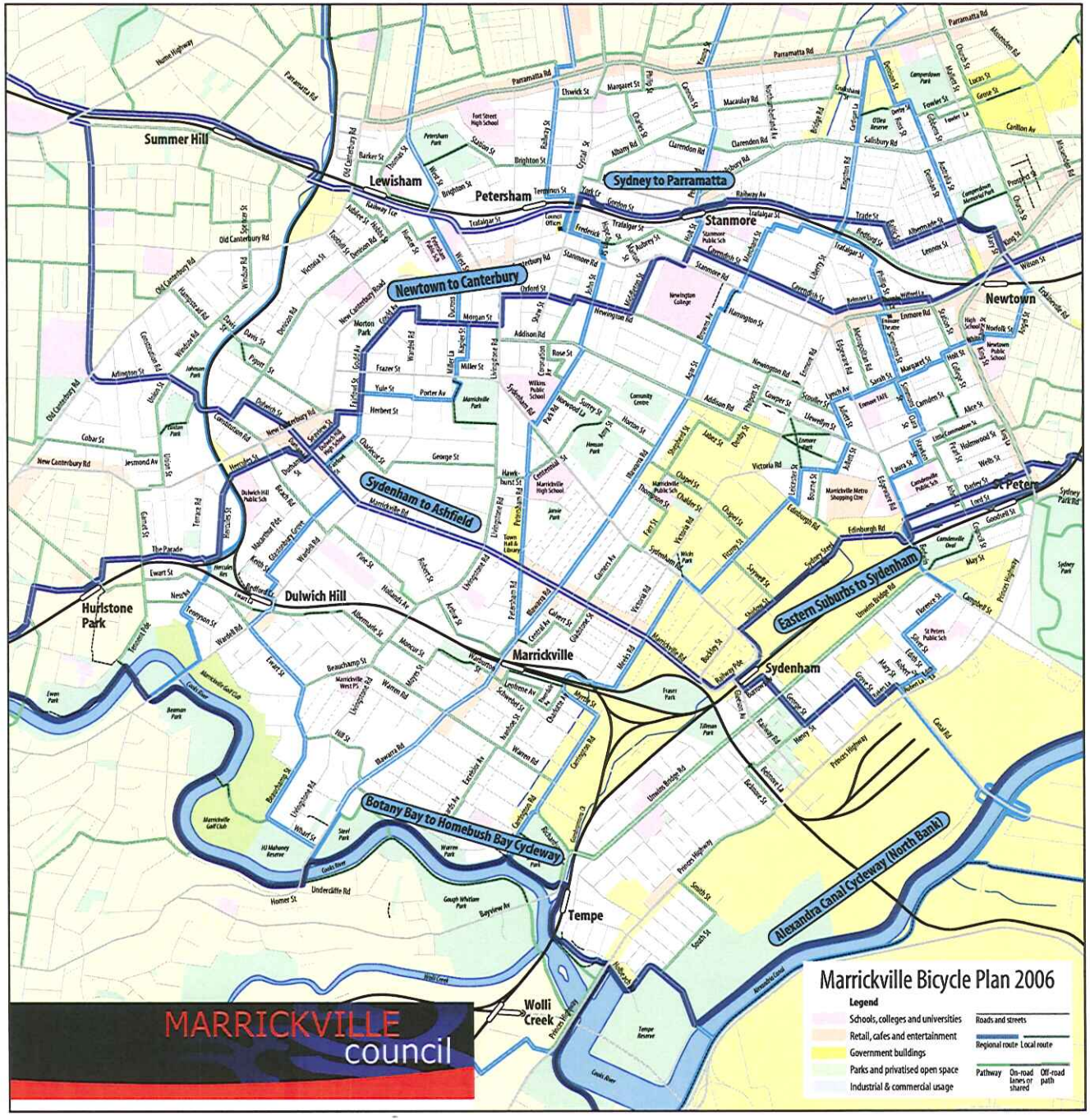
Jamieson Foley Traffic & Transport Pty Ltd

Map 3 - Existing bicycle routes

Map 6 - Regional routes (north-south)



Map 7 - Regional routes (east-west)



Map 8 - Local routes (north-south)

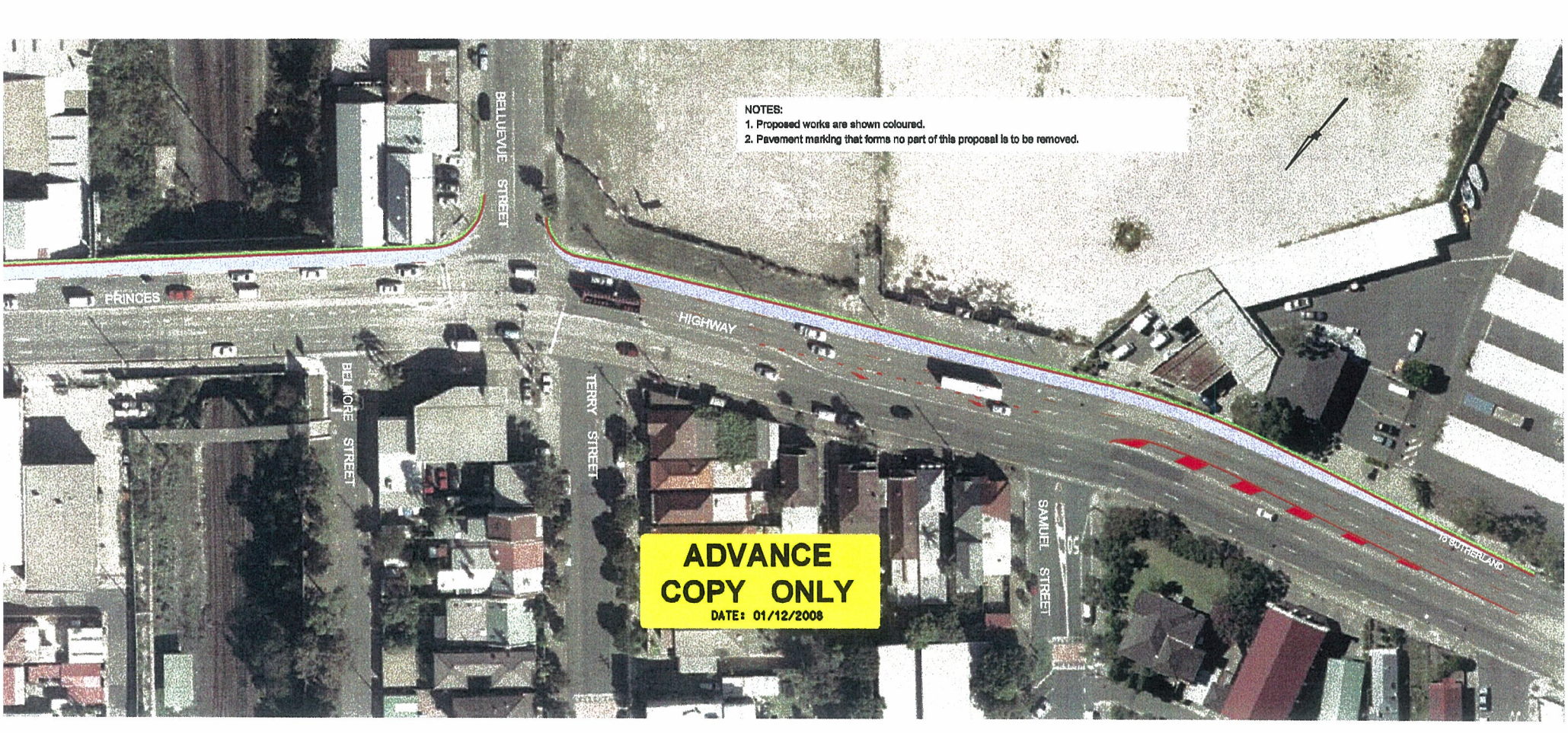
Map 9 - Local routes (east-west)

APPENDIX D

PROPOSED RTA TIDAL FLOW SCHEME


NOTES:
1. Proposed works are shown coloured.
2. Arrows shown indicate direction of traffic and are not to be interpreted as pavement marking.
3. Pavement marking that forms no part of this proposal is to be removed.
BELLUEVUE STREET
PRINCES
HIGHWAY
BELMORE STREET
TERRY STREET
SAMUEL STREET
TO SUTHERLAND
ADVANCE
COPY ONLY
DATE: 01/12/2008


NOTES:
1. Proposed works are shown coloured.
2. Arrows shown indicate direction of traffic and are not to be interpreted as pavement marking.
3. Pavement marking that forms no part of this proposal is to be removed.
BELLUEVUE STREET
PRINCES
HIGHWAY
BELMORE STREET
TERRY STREET
SAMUEL STREET
TO SUTHERLAND
ADVANCE
COPY ONLY
DATE: 01/12/2008


NOTES:
1. Proposed works are shown coloured.
2. Pavement marking that forms no part of this proposal is to be removed.
BELLUEVUE STREET
PRINCES
HIGHWAY
BELMORE STREET
TERRY STREET
SAMUEL STREET
TO SUTHERLAND
ADVANCE
COPY ONLY
DATE: 01/12/2008

APPENDIX E

ROAD NETWORK INITIATIVES


ISSUE FOR APPROVAL
KEY PLAN (not to scale)
NEW PEDESTRIAN CROSSING
UNION STREET
BROOKLYN STREET
FOREMAN STREET
SMITH STREET
PRINCES HIGHWAY
CURRENT SITE BOUNDARY
SITE BOUNDARY
RL 18.50
RL 18.70
EMERGENCY ACCESS ONLY
RAMP UP
EXISTING PRETY GIRL BUILDING
REFER TO LANDSCAPE ARCHITECTS' DWGS SHOWN HATCHED
IKEA OFFICES
RL 15.40
RL 17.05
RL 14.00
NOM. RL 11.50
EMERGENCY VEHICLE 5M WIDE LANE
EGRESS STAIR
ADJOINING FACTORY
IKEA LOADING DOCK
RL 12.90
IKEA BUILDING (UNDERCROFT PARKING)
NEW TRAFFIC SIGNAL CONTROLLED IN INTERSECTION
LYMERSTON STREET
MEDIAN ISLAND CLOSED
BUS BAY PROVIDED
RL 17.00
RL 18.70
RELOCATED BUS STOP
RL 10.10
RAMP UP FROM UNDERCROFT PARKING
RL 13.36
RL 16.00
RL 15.00
LANDSCAPE SHOWN HATCHED
DROP OFF LAY BY
SAMUEL STREET
TERRY STREET
PETROL STATION
BELLEVUE STREET

CHECK ALL DIMENSIONS ON SITE. REFER ANY DISCREPANCIES TO THE SUPERINTENDENT BEFORE PROCEEDING WITH THE WORK

REV.	DESCRIPTION	DATE
A	FOR INFORMATION ONLY	09-07-08
B	FOR APPROVAL	11-07-08
C	FOR APPROVAL	13-10-08
D	FOR APPROVAL	20-01-09

STRUCTURAL ENGINEER
CIVIL ENGINEER
TAYLOR THOMSON WHITTING (NSW)
Ph. 02 9439 7288 Fax 02 9439 3146
48 CHANDOS STREET, ST. LEONARDS NSW 2065

TRAFFIC ENGINEER
TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Ph. 02 9411 5660 Fax 02 9904 6622
Suite 603 L6 / 282 Victoria Ave., Chatswood NSW 2067

LANDSCAPE ARCHITECT
SITE IMAGE
Ph. 02 9698 2899 Fax 02 9698 2877
24 - 26 Bowden Street, Alexandria NSW 2015

CLIENT
VALAD PROPERTY GROUP
L9 / Chifley Square
Sydney NSW 2000
Telephone: 02 8257 6600
Telefax: 02 8257 6655

ARCHITECT
KRIKIS TAYLER RETAIL
LEVEL 7, 97 PACIFIC HIGHWAY
NORTH SYDNEY NSW 2060
PH 9900 6000 FAX 9900 6001
e-mail mail@krikistayler.com.au

PROJECT
TEMPE IKEA PRINCES HIGHWAY
TEMPE, SYDNEY

TITLE
PROPOSED TRAFFIC PLAN

SCALE	DATE	DRAWN	CHECK
1:500	11.07.08	AP	AM

PROJECT Nº	DWG Nº	REVISION
07C	TR-102	D

APPENDIX F

EXTRACT FROM IKEA TRAVEL STUDY

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APPENDIX G

GUIDELINES FOR TRANSPORT ACCESS GUIDE

Reducing greenhouse gas emissions from transport

Producing and using Transport Access Guides

- The transport sector, through use of fossil fuels (petrol, oil, diesel, gas), contributes **around 25% of Australia's energy-related greenhouse gas emissions.**
- The most widely used form of transport in NSW is the motor vehicle. In fact, **the number of motor vehicles in NSW is increasing at a rate higher than our population growth rate.**
- The dominance of car travel contributes to **traffic congestion** and **local air pollution** as well as greenhouse gas emissions.
- **Cars driven to work in Sydney in 1999 carried an average of 1.1 people each.** On this basis, car travel to work generates around 25 kg of CO_2 per person per 100 km. Bus travel generates around 2 kg per person per 100 km.
- Each year an estimated **3,000 adults in NSW die prematurely** due to the lack of physical activity.
- **Greenhouse gas emissions from transport are increasing**; in NSW they grew by more than 20% between 1990 and 1999.

Your organisation can help reduce greenhouse gas emissions, improve local air quality and reduce traffic congestion by encouraging the use of more 'sustainable' Energy Smart modes of transport.

Your organisation is a 'trip generator'

Everyone who comes to your premises - staff, clients, customers, couriers, visitors - has travelled there by some means of transport. Every time you call a meeting offsite, organise a conference or hold a special event, everyone must travel to the venue you choose. All organisations are 'trip generators' and some organisations could be creating more than 1000 trips per day.

Trips generate greenhouse gases

Any form of transport except walking or cycling generates greenhouse gases.

Cars are the most greenhouse-intensive and expensive method of transport, especially when they're carrying just the driver - which is usually the case.

Greenhouse gas emissions from all the trips generated by your organisation go far beyond just the emissions from your own transport operations. For example, at the University of New South Wales, university-owned vehicles contributed around 600 tonnes (CO_2 equivalent) of greenhouse gases over a year, whereas a rough estimate of emissions from commuter travel to and from the campus is about 20,000 tonnes!

Simple strategies - big impacts

Reducing the number of trips generated by your organisation - particularly the number of trips taken by car - will have a big impact on greenhouse gas emissions.

A very easy and effective way to reduce the proportion of car travel in the trips generated by your organisation is to make sure people know how to get to your premises or venue by public transport, cycling or walking.

To provide this information, you can produce a **Transport Access Guide.**

RTA
Roads and Traffic Authority
www.rta.nsw.gov.au

OUR ENVIRONMENT it's a living thing
A NSW GOVERNMENT INITIATIVE

SEDA

What is a Transport Access Guide?

A Transport Access Guide is a concise presentation of how to reach a site or venue using low-energy forms of transport - public transport, walking or cycling. **Its objective is to make Energy Smart travel choices, easy choices.**

It can take many forms - from a map printed on the back of business cards or invitations, to more comprehensive information provided, for example, to new staff as part of an induction kit.

Transport Access Guides can be produced:

- by all organisations such as hospitals, shopping centres and universities, for their own premises and for events they organise;
- by businesses such as real estate agents, developers and venue managers, for the premises they rent, sell or hire out;
- by a group of businesses, in the same or neighbouring building;
- for a whole 'locality', such as the Moore Park precinct which includes Fox Studios; and
- by major employers for job interviews and staff induction packages.

Did you know?

Research shows that people overestimate the time taken to travel by public transport, and underestimate the time taken by car, even if they are already aware of the environmental consequences of their choice.

People also forget that time spent on public transport can be used productively - for reading, work, relaxation etc, but time in a car can be stressful.

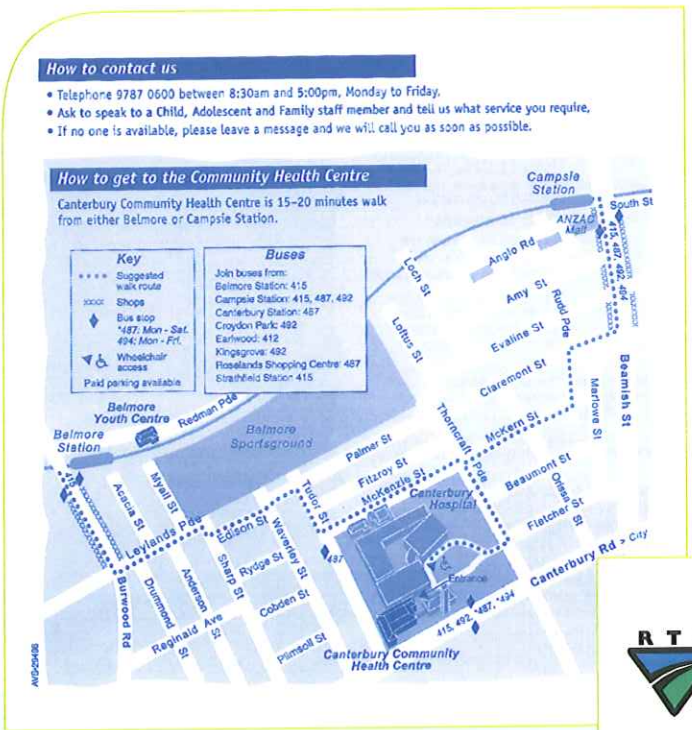
Guides may be incorporated into stationery, brochures and sales literature, or provided electronically on your website and in e-mails where electronic links to www.131500.com can be provided. Staff involved in organising events or providing information to customers can hold an electronic version in their computer and reproduce it as needed. Reception and enquiry staff should be familiar with the content so they can advise callers about easy transport options that don't require car travel.

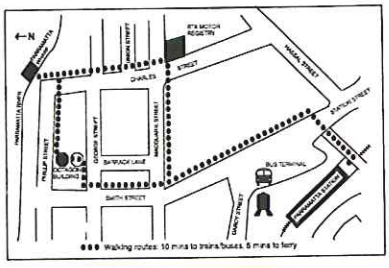
Simple and effective

A Transport Access Guide is simple to produce but very effective. It can be part of a broader transport greenhouse strategy, but it's something you can do right now.

As well as reducing greenhouse emissions, it will also:

- contribute to good staff and customer relations, and enhance your organisation's public image;
- promote 'active transport' including walking and cycling, which contribute to the 30 minutes of daily physical exercise recommended by the NSW Chief Health Officer; and
- more broadly, contribute to changing people's assumptions about transport options and reducing the emphasis on car travel.





Roads and Traffic Authority
www.rta.nsw.gov.au

Octagon Building
99 Phillip Street Parramatta NSW 2150
PO Box 3035 Parramatta NSW 2124
Telephone (02) 9218 6888

Transport access information provided from Central Sydney Area Health Service and from RTA staff business cards

How to develop a Transport Access Guide

1. Who is it for?

The content and presentation of a Transport Access Guide will depend on who is going to use it.

Who is it for?

Staff?
Customers/Clients?
Visitors?
Conference attendees?
Venue hirers/buyers?

How will it fit with other information you provide for these people?

Will it cater for people with disabilities?

Can the information be provided electronically, offering links to further information?

2. Involve stakeholders

The process of developing a Transport Access Guide needs to involve:

- **key staff** who will be distributing the guide (reception or enquiry staff, for example; personnel or sales staff; event organisers) - these people will have useful advice about the content and possible formats for the guide;
- **staff with disabilities** - involve these people as they will have valuable information too; and
- **public transport operators and the local Council** - you'll probably be contacting them for information anyway, but it's a good idea to involve them from the beginning. Tell them that you're developing a Transport Access Guide and ask them to review and confirm a draft.

You could also try to get some input from **potential users** of the guide (staff, customers, clients) - perhaps produce a brief questionnaire to find out how people are currently travelling to the site, and what they know about transport options.

Once you've developed a draft guide, you can show it to stakeholders who have provided input, to see what they think about it and how it could be improved.

3. Gather information

Here's a checklist of the kind of information you could include in your guide.

- ❑ A map. Start with the Local Council's Pedestrian Access and Mobility Plan (PAMP), which can be simplified for pedestrian use.
- ❑ Bus routes, train lines, ferry routes, bike paths including rail trails.
- ❑ The closest railway station, wharf and/or bus stops and how long it takes to walk from them to your site or venue (walk it and time it to find out).
- ❑ Service details (e.g. first and last service; frequency; weekends and weekdays; fare information).
- ❑ Access arrangements for people with disabilities on public transport routes and at train stations.
- ❑ Key visual landmarks for people on foot and unfamiliar with the area; closest cross street.
- ❑ Estimated travel time from the closest major centres or interchanges (e.g Railway Square, Parramatta, Sutherland).
- ❑ For an event which is due to start and end at specified times, you could also include relevant timetable information (exactly which buses or trains to catch, for inwards and outwards journeys).
- ❑ Phone numbers and web addresses for public transport service providers.
- ❑ Location of taxi ranks and phone numbers for any local taxi services.
- ❑ Availability of facilities for cyclists - secure bike parking, showers/change facilities, lockers (check the site or venue). Contact Bicycle NSW at http://bicyclensw.org.au which has useful information, especially their publication "Bike It".

Put information about parking facilities in context. For example: 'Getting to [the site] by public transport is easy, but some parking is available at a cost of...'; 'Accessible parking is available for people with disabilities'; 'Parking is metered and costs $X per hour...'.

If a better located bus stop or better bus stop facilities would be useful, talk to your local service provider and Council.

Other information, particularly for less accessible sites or venues, might include:

- ❑ A telephone number to call for information about carpooling (you'll need to establish a system for putting drivers and passengers together if you offer this option).
- ❑ For events such as conferences or dinners, consider the cost of a 'free' shuttle bus to be included in the total cost and recovered through the general price.

Sources of information

The **Sydney Public Transport Directory** is a printed guide including detailed maps showing railway lines, stations, bus and ferry routes, as well as contact details for service providers in different areas. This is a good place to start for information, although some information may be out of date. Available from Transport NSW on **(02) 9268 2920**.

The **Transport Infoline, phone 131 500 or visit www.131500.com.au** provides route, fare and timetable information on public transport in and around Sydney, Newcastle, Central Coast, Blue Mountains, South Coast, Southern Highlands and Hunter Region. Transport Infoline includes rail, bus and ferry services for both public and private operators. Transport Infoline call centre operates 6 a.m. to 10 p.m., seven days a week, some services are available 24 hours a day. For hearing and voice impaired people a teletypewriter (TTY) service is available on **1800 637 500**.

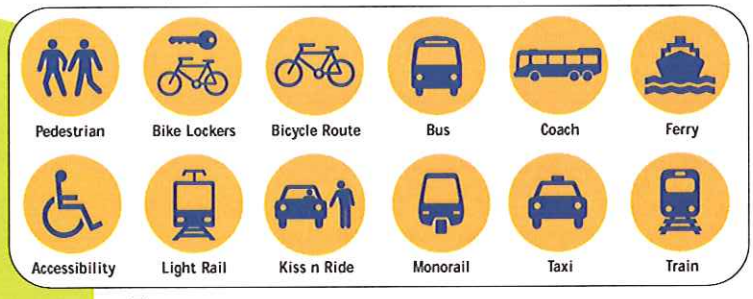
The **Roads and Traffic Authority (RTA)** has published a set of maps of cycle paths for Sydney, Newcastle, Central Coast and Illawarra. There is also a brochure which includes a map of the Parramatta to Liverpool Rail Trail.

To get maps call **1800 06 06 07** or visit RTA website www.rta.nsw.gov.au/bicycles.htm

4. Present the information

How you present the information will depend on how the guide will be used, but some general principles include:

- ❑ **Be graphic** - show the address of the site or venue on a small map marking bus stops, railway stations, bicycle paths and lockers/stands/showers; you could use icons to emphasise public transport options. The following icons are available from Transport NSW, Communications Division on **(02) 9268 2915** or at www.transport.nsw.gov.au



- ❑ **Be specific** - '10 minutes walk from Central Station, using the Eddy Ave exit' is better than 'close to Central Station'.
- ❑ **Be** as **comprehensive** as possible - and cover getting there and back.
  The meeting hall is within 10 minutes walk of the bus stop at the Forest shops next to the primary school. Forest Coach Lines (tel 9450-2277) route 280 departs from Stand Q at Chatswood interchange at 7:03 am and runs every 60 minutes. Return buses go every 60 minutes throughout the day.
- ❑ **Be helpful** - provide phone numbers or web addresses for public transport, and any local taxi companies. Remind people about fare discounts such as TravelTen (for State Transit buses) and TravelPass (for set periods of unlimited travel within certain zones on combinations of trains, buses and ferries).
- ❑ **Be encouraging** - incorporate messages about the benefits of alternatives to car travel, such as:

  'No parking fees! No parking hassles!'

  'Catch the bus; take the first step to reducing pollution.'

  'Short walks to the bus stop contribute to the 30 minutes of daily physical activity recommended for health.'

Getting the most use out of your Transport Access Guide

There are many ways of using Transport Access Guides, and appropriate formats for each. Possibilities include:

- in recruitment advertising (brief statement about public transport accessibility), in induction information (full description of transport options, including any incentives or programs offered to staff such as TravelPasses by salary deduction);
- on business stationery including e.g. small maps of transport access on business cards, invitations, "with compliments" slips and in advertising or brochures;
- in newspaper or magazine advertising (small map summarising access);
- sales information (map and/or text, with level of detail depending on space constraints and readers' needs);
- on your website, in a format which can easily be downloaded, e.g. as a 'pdf' file;
- as a single-page guide which can be referred to by reception and enquiry staff, or faxed or emailed to enquirers as needed;
- as part of a standard 'hours of opening' voicemail message;
- as a separate 4-page or even 6-page brochure (if your organisation or event generates a lot of trips).

You could ask for it to be provided in a variety of formats (different sizes, with varying amounts of details, in print and electronic versions), or in a form that you can adapt for multiple uses yourself.

Monitor and report on effectiveness

For Transport Access guides produced for your staff and customers, try to work out ways of monitoring effectiveness.

If you conduct customer satisfaction surveys, for example, you could add a question about how people travel to your site and how much they know about transport options. What options exist for people with disabilities?

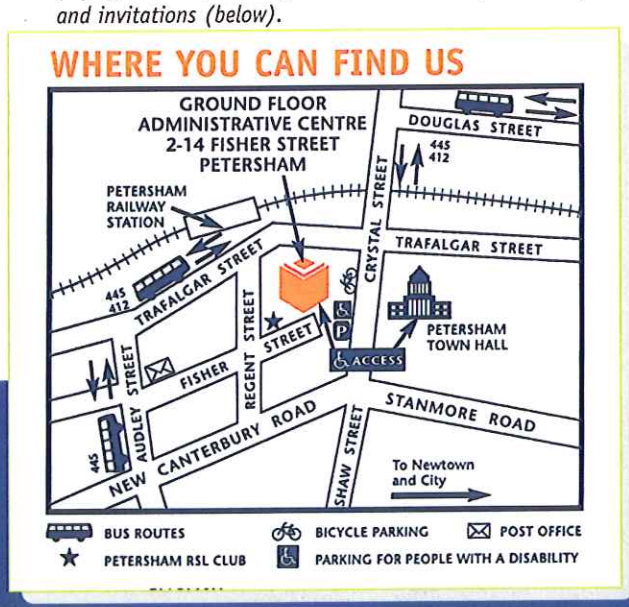
And if you surveyed people before introducing your Transport Access Guides, you can use those results as a baseline to show the effect of the guides.

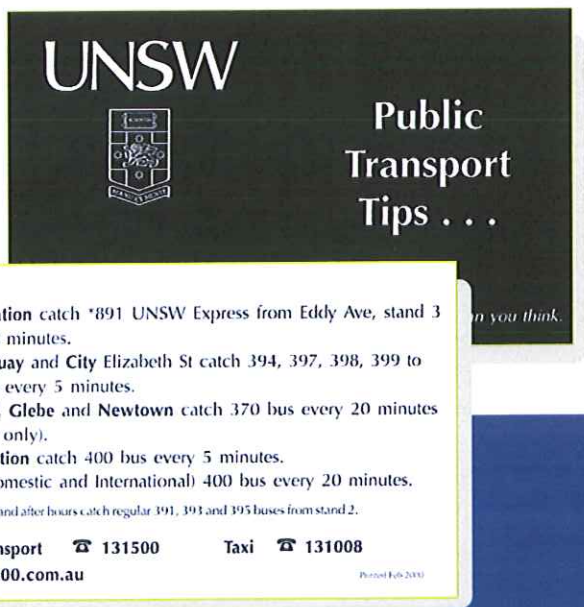
For specific events you can find out who came by what method of transport in the evaluation or housekeeping session. You can then work out the percentage of trips made by foot, bicycle, public transport (or combination) and by car. Are you doing well? Better than last time? What's the goal next time?

You can report results in terms of shares between difference modes of transport and include estimates of the benefits in various ways: for example, savings of air pollution or carbon dioxide emissions.

Such statistics can be published in corporate annual reports, and may be useful in promoting your commitment to sustainability, in marketing and in maintaining staff morale.

Transport tips provided on wallet sized cards by the UNSW (right), and map used by Marrickville Council for meetings and invitations (below).





AT A GLANCE CHECKLIST FOR TRIP GENERATORS

All trip generators need to consider these:

- ❑ Has information about transport access to your premises or the venue been gathered, including public transport services, pedestrian access, bike routes and facilities?
- ❑ Has this information been incorporated into Transport Access Guides for:
  - your staff recruitment, and induction information
  - your advertising and sales material
  - your website
  - your stationery and business cards
  - your events/venue details
- ❑ Are the contact staff in your organisation equipped with information to answer people's queries about access to the site by public transport, by foot and by cycling?

For Business premises consider:

- ❑ Does the organisation have a policy of including 'sustainable transport' access as a factor when choosing new premises?
- ❑ Have public transport service providers been consulted in the development of your Transport Access Guides, and been given copies to review and confirm?
- ❑ Is the use of your Transport Access Guides monitored, and the results included in your organisation's publicity and corporate reports?

For Events and Venues consider:

- ❑ Have you asked the Venue operator for their Transport Access Guide to the facility?
- ❑ Is the venue readily accessible by public transport, foot, bike (including for people with disabilities)?
- ❑ Have arrangements been made to monitor participants' use of the Transport Access Guide for the event? Have the results included in your organisation's publicity and corporate reports?
- ❑ If you developed a Transport Access Guide for the event yourself, have you left a copy with the venue and encouraged them to produce such a guide to other users in future?

Share your experiences

SEDA and RTA welcome your feedback on this brochure and your experience in developing Transport Access Guides. Why not send us a copy of your guide to tdm@rta.nsw.gov.au

Want to do more?

Big savings can be made by improving the efficiency of your organisation's use of transport energy in areas such as: business travel, including fleet operation; travel to and from work by your staff; and the use of freight and courier services. Contact RTA if you're interested in developing a more comprehensive Transport Energy Strategy.

Energy Smart Business

Efficient use of transport energy is just one way an organisation can become Energy Smart. Contact SEDA for more information on how your organisation can save dollars and reduce harmful greenhouse gas emissions: **www.energysmart.com.au**

RTA

Contact the Roads and Traffic Authority at www.rta.nsw.gov.au

Contact SEDA at www.energysmart.com.au

SEDA