

## INQUIRY INTO CROSS CITY TUNNEL

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Date Received: 8/05/2006

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Theme:

Summary



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1 May 2006

The Director  
Joint Select Committee on the Cross City Tunnel  
Parliament House  
Macquarie Street  
SYDNEY NSW 2000

JSC CROSS CITY TUNNEL

8 MAY 2006

RECEIVED

Dear Madam/Sir

**RE: INQUIRY INTO THE CROSS CITY TUNNEL – LANE COVE TUNNEL**

Thank you for inviting North Sydney Council to make a submission to the Inquiry into the Cross City Tunnel – Lane Cove Tunnel.

North Sydney Council is greatly concerned about two matters in relation to the Lane Cove Tunnel Project:

- Safe pedestrian and cyclist access
- The equity of the proposed Falcon Street tolls

**Pedestrian and Cyclist Access**

North Sydney Council has repeatedly expressed concerns regarding pedestrian and cyclist access and safety at Falcon Street. North Sydney Council firmly believes that the only way to provide safe pedestrian and cyclist access at Falcon Street is to provide grade-separated facilities in both an east-west direction and a north-south direction. Council's main concern is that a serious accident is not a matter of if but when, unless safe facilities are put in place at Falcon Street.

North Sydney Council was provided with the opportunity to comment on Thiess John Holland's Cycle and Pedestrian Plan (TJH-PL-GL-ENV-114 29 November 2005).

North Sydney Council believes the fundamental problem with this report is that it has been prepared in consideration of the contract between Thiess John Holland and the Roads and Traffic Authority, and not the Minister's Condition of Approval 42. Council maintains that the proposals outlined in this report fail to address MCoA 42, which is "[a] safe, high quality and contiguous cyclist/pedestrian path(s) shall be provided for recreational and commuter cyclists and for pedestrians for the length of the Project..." The RTA have failed to include components in their contract with TJH that would permit compliance with MCoA 42.

In addition, the proposal as it stands does not meet the relevant Australian Standards, Traffic and Transport Guidelines, State Policies, RTA Policies or general best practice for transport design.



Hundreds of residents, including parents with young children, school groups and elderly people, use this section of road every day to access St Leonards Park, local kindergartens and playgrounds, shops in North Sydney CBD, or public transport. There is increasing awareness, particularly as the population ages, that pedestrian facilities must cater to those with mobility needs.

Without a pedestrian overpass or underpass, a serious accident is inevitable, particularly when it is known that 77,000 vehicles use Falcon Street/Military Road each day.

The proposed pedestrian crossing on the south side of Falcon Street (to supplement the northern crossing) is seen by Council and the community as being unacceptable because six separate signalised crossings will have to be crossed by a pedestrian. Undoubtedly the traffic signals at each of these locations will maximise the capacity for the vehicular traffic. This will make the crossing for pedestrians slow and tedious and will most likely lead to them "running" the red. Clearly this crossing will be daunting at the very least but also extremely unsafe. This proposal coupled with the marked degradation of the pedestrian amenity on the northern side of Falcon Street is of major concern for North Sydney Council.

North-south pedestrian access is also vital. The current north-south crossing means pedestrians have to follow a wide arc, crossing Military Road far to the east at Park Avenue. The risk is that pedestrians will take a shorter route without the protection of traffic signals.

Historically the Freeway has virtually cut the Council area in half. This not only presents a problem for pedestrians who need to detour significantly, it places a physical and psychological divide between communities. The proposed works at Falcon Street will increase the pedestrian crossing times significantly. This reduction in amenity and Council's concerns regarding pedestrian safety at this key crossing point is totally unacceptable and does not comply with Minister's Condition 42.

Much is made of the number of traffic signals that projects such as the Lane Cove Tunnel will allow motorists to avoid and the projected time savings that will result. This is used to justify billions of dollars in construction costs. Council firmly believes that a small fraction of this cost should be spent on adequate and safe pedestrian and cyclist amenities, which will not only improve pedestrian and cyclist access but will free up intersection time for additional vehicle movements. Further, as Council has previously discussed with the RTA, advertising on the proposed pedestrian overbridge could pay for these facilities.

North Sydney Council's conclusion to this report was:

As has been demonstrated throughout this report, North Sydney Council maintains that the Minister's Conditions 42, 43, 242 and 235 have not been met with regard to the Falcon Street works. Council has repeatedly expressed concerns regarding pedestrian and cyclist access and safety at Falcon Street. North Sydney Council firmly believes that the only way to provide safe pedestrian and cyclist access at Falcon Street is to provide grade-separated facilities in both an east-west direction and a north-south direction.

North Sydney Council's full response to Thiess John Holland's Cycle and Pedestrian Plan (TJH-PL-GL-ENV-114 29 November 2005), dated 16 January 2006, is enclosed.

Thiess John Holland did provide a response to Council's review of the Cycle and Pedestrian Plan on the 29 March 2006. However, North Sydney Council was extremely disappointed with this response.

Much of Council's submission to the Plan was ignored. In particular Council's concerns that Minister's Conditions 42, 43, 242 and 235 have not been met was not addressed.

### **Transport Strategies and Public Transport Funding**

Given the recent political, media and community interest in Public-Private Partnerships for major civil infrastructure projects and associated tolling, and the imminent opening of the Falcon Street ramps as part of the Lane Cove Tunnel Project, North Sydney Council felt it was appropriate to outline a position statement on transport strategies and public transport funding.

On the 10 April 2006, North Sydney Council adopted the following recommendations:

- **THAT** Council support the following transport strategies:
  - Improving the equity of private motor vehicle transportation through standardised tolling (cost per kilometer) for existing and new toll roads, the introduction of demand management tolling for toll roads, the introduction of E-tags only on the Harbour Bridge and Tunnel, that cashless tolls be introduced on all toll roads, abolition of the two-way toll charged by taxis on the Harbour Bridge and Tunnel, a standardised parking levy for medium and large commercial centres across the Sydney metropolitan area and greater equity with polluter pays policies.
  - The income raised from private motor vehicle transportation fees be transferred directly to the upgrading of existing public transport systems and the construction of new public transport services.
- **THAT** the Mayor forward this report for the information of the NSW Premier and the Minister for Roads.
- **THAT** support for Council's position be sought from the Premier and the Leader of the Opposition.

The full report outlining Council's position statement is enclosed.

If you would like to discuss this further please call me on (02) 9936 8112.

Yours faithfully



**Genia McCaffery**  
**MAYOR**

**Report to General Manager****Council  
Attachments:****SUBJECT:** Transport Strategies & Public Transport Funding – Position Statement**AUTHOR:** Cathy Edwards-Davis, Traffic Engineer, 10 April 2006**SUMMARY:**

Given the recent political, media and community interest in Public-Private Partnerships for major civil infrastructure projects and associated tolling, and the imminent opening of the Falcon Street ramps as part of the Lane Cove Tunnel Project, it is appropriate that Council outlines a position statement on transport strategies and public transport funding.

**RECOMMENDATION:****THAT** Council support the following transport strategies:

- Improving the equity of private motor vehicle transportation through standardised tolling (cost per kilometer) for existing and new toll roads, the introduction of demand management tolling for toll roads, the introduction of E-tags only on the Harbour Bridge and Tunnel, that cashless tolls be introduced on all toll roads, abolition of the two-way toll charged by taxis on the Harbour Bridge and Tunnel, a standardised parking levy for medium and large commercial centres across the Sydney metropolitan area and greater equity with polluter pays policies.
- The income raised from private motor vehicle transportation fees be transferred directly to the upgrading of existing public transport systems and the construction of new public transport services.

**THAT** the Mayor forward this report for the information of the NSW Premier and the Minister for Roads.**THAT** support for Council's position be sought from the Premier and the Leader of the Opposition.**Financial Implications**

There are no additional financial implications.

Signed \_\_\_\_\_

Endorsed by \_\_\_\_\_  
Director of Engineering & Property Services

## DETAIL

### 1. Executive Summary

Given the recent political, media and community interest in Public-Private Partnerships for major civil infrastructure projects and associated tolling, and the imminent opening of the Falcon Street ramps as part of the Lane Cove Tunnel Project, it is appropriate that Council outlines a position statement on transport strategies and public transport funding.

Transport is essential for connecting communities and businesses. However, travel has environmental, health and other costs. Over the past few decades, the State Government has concentrated on the expansion of the road network, and at the same time NSW has seen rapid decreases in the reliability, service and safety of the existing public transport network and insufficient funding for new services.

Currently public transport users subsidise private motor vehicle usage, whether this is measured in real dollar terms or personal time. This inequality must be addressed by improving the equity of private motor vehicle transportation through standardised tolling (cost per kilometer) for existing and new toll roads, the introduction of demand management tolling for toll roads, the introduction of E-tags only on the Harbour Bridge and Tunnel, that cashless tolls be introduced on all toll roads, abolition of the two-way toll charged by taxis on the Harbour Bridge and Tunnel, a standardised parking levy for medium and large commercial centres across the Sydney metropolitan area and greater equity with polluter pays policies. The income raised from private motor vehicle transportation fees should be transferred directly to the upgrading of existing public transport systems and the construction of new public transport services. These various strategies must be combined with effective integrated land use planning.

### 2. The Problem

In Sydney, travel by private vehicle is larger than all other modes combined. In 1991, 70% of all trips were made in a private vehicle. This majority share was sustained a decade later in 2001 as car usage continued to grow. The share of trips by car has remained stable over time, but this total masks a shift from passenger to driver trips. The prevalence of the car can be evidenced from all indicators of car travel, which increased at a faster pace in comparison to population. Between 1991 and 2001, the number of car driver and passenger trips made on an average weekday grew annually by 1.8% from about 9 million to about 11 million trips. The total number of household vehicles rose from 1.7 to 2.1 million by a faster rate of 2.2%. The number of licence holders increased by 2.1%. Vehicle kilometres travelled (VKT) also grew from 64 to 80 million kilometres, up by an average of 2.3% every year. These growth rates outpaced the annual growth in population of 1.3% (TransFigures, DIPNR, 2005)

The number of public transport trips has been declining at about a percent each year and this is reflected in its gradually declining share of the market (compared with other modes) since 1999 (TrasnFigures, DIPNR, 2005). The geographical analysis of car usage demonstrates that

the proximity and accessibility of public transport infrastructure exerts a strong influence on private motor vehicle usage.

Since 1999, there has been a declining proportion of households with none or one private vehicle. The share of those with multiple vehicles has been rising. The result is an increase in the average number of vehicles per household from 1.40 in 1999 to 1.46 in 2003, an annual average growth of 1.2%, despite a decline in household size from 2.73 to 2.71 over the same period.

### 3. North Sydney

#### Residents

In the North Sydney Council LGA in 1996, there were 53,790 people living in 30,139 dwellings. In 2001, the population increased to 56,547 people living in 32,278 dwellings. In 2003, the population was 60,023.

Of the occupied dwellings in the North Sydney area, the following graph, Figure 1, shows a breakdown of the number of vehicles per household.

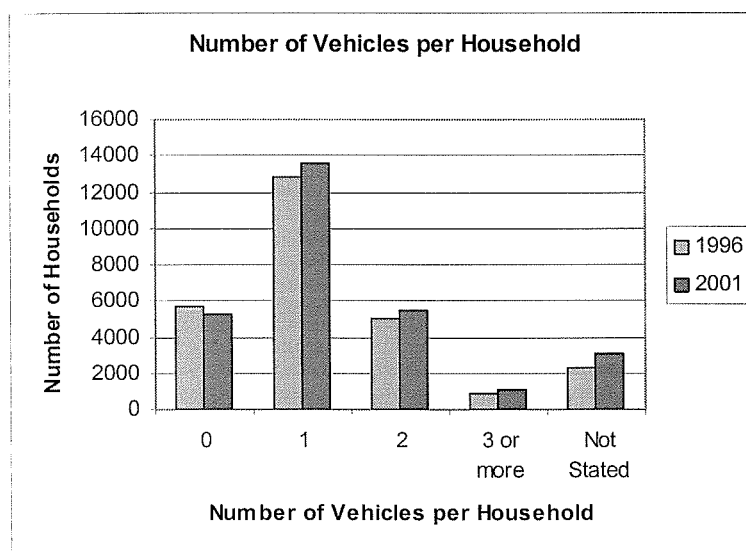


Figure 1: Number of Vehicles per Household (ABS, 1996 & ABS, 2001)

It is evident from this graph that the number of vehicles per household is increasing, and at the same time the number of households is increasing in the North Sydney LGA. In 1996, the minimum total number of vehicles belonging to people in North Sydney was 25,608 (where those households with 3 vehicles or more are counted as only having 3 and 2,321 households did not state how many vehicles they owned). In 2001, the minimum total number of vehicles was 27,750 (where 3,064 households did not state how many vehicles they owned).

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Re: Transport Strategies & Public Transport Funding – Position Statement

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The residential population of North Sydney is expected to grow from between 3,200 to 7,499 by the year 2011 - an average increase of between 320 and 750 persons per year and it is anticipated that there will be an average of 350 additional dwellings per year over the next ten years and then decrease over time (NSC, 2004).

### **Working Population**

North Sydney is a major employment centre in the Sydney Region providing employment for an estimated 62,338 workers (NSC, 2004) in an estimated 1,257,790m<sup>2</sup> of net commercial floor space. The ratio of commercial floor space to worker is estimated to be 20m<sup>2</sup>. According to the 2001 Census 15.5% of North Sydney residents also work in North Sydney. The existing worker population that does not live in North Sydney is 52,676 (62,338 minus 15.5%).

Growth of commercial floor space will be concentrated in the North Sydney Centre, where further residential development is prohibited. The NSLEP 2001 allows for an additional 250,000m<sup>2</sup>, resulting in an additional worker population of 10,563. It is estimated that 17,600m<sup>2</sup> of additional commercial floor space can be developed in St Leonards, resulting in an additional worker population of 743. In the smaller commercial centres in North Sydney, it is assumed that the workforce population will increase by 11,306 in the ten year period to 2013.

### **North Sydney Traffic and Transport Strategy**

The North Sydney Traffic and Transport Strategy states in terms of equity that, “vehicle users should pay for the costs of works associated with making their journeys compatible with these principles” and with respect to the environment, “the environmental effects of vehicular trips should be minimised by encouraging people to make fewer trips and use their car less.”

### **2020 Vision**

The recently drafted and adopted North Sydney 2020 Vision has a section on transport issues. The report states:

For a reliable, and accessible and sustainable transport system, we will:

- Promote equity of access to public and community transport
- Incorporate true environmental and social costs in our transport planning
- Pursue improvement and expansion of sustainable transport options
- Encourage the use of alternative modes of transport to the private car

Some of the stated aims with regard to transport include:

- The impact of the private car on our community and environment is dramatically reduced
- The frequency, quality and diversity of public transport throughout North Sydney is increased
- Pedestrians and cyclists enjoy easy and safe access throughout North Sydney



- Transport management is coordinated at a regional level

#### 4. Impacts

Transport is essential for connecting communities and businesses. A given transport service usually provides users with multiple outputs. As well as moving between two points, factors such as comfort, flexibility, reliability and time taken are all important attributes.

However, travel has environmental and other costs: it consumes significant amounts of non-renewable resources especially fossil fuels, and produces air pollution and greenhouse gas emissions. Transport also has noise, visual and other impacts on the urban environment and leads to traffic congestion and accidents. Runoff from roads can affect water quality and can have an impact on biodiversity by fragmenting natural ecosystems. There are important linkages between transport use, air pollution and health. Increasing use of public transport, walking and cycling are likely to have a dual benefit: reducing air pollution as well as factors for cardiovascular disease, diabetes, cancer and osteoporosis (EPA, 2003).

The Australian Greenhouse Office has identified the following attributes of vehicles:

- Larger cars and those with bigger engines often consume more fuel, which increases the level of greenhouse gas emissions.
- Commercial style vehicles and large off road vehicles are usually built to less stringent emission standards than regular passenger cars, so produce more air pollutants.
- Air pollution is more of a concern in areas with larger populations and more traffic. This is particularly the case in our larger cities.
- Greenhouse emissions will have an impact regardless of where you live or are likely to drive.

There are also economic costs associated with motor vehicles including accidents, congestion, noise, costs from human health, pollution control and repair, and the costs of having to manage climate change in the future.

Major roads can also create psychological and physical barriers to communities. The Warringah Freeway through North Sydney is a very good example of this.

An increased reliance on private cars by populations results in greater infrastructure requirements (roads and parking), and likely increases in energy consumption, noise levels, accidents and associated fatalities. Reductions in the level of motor vehicle use can free up financial, energy and land resources for other activities.

The transport sector accounts for 15% of all carbon dioxide equivalent emissions (CO<sub>2</sub>-e) net national emissions in 2003, after stationary energy industries and agriculture. Road transport emissions were 31% higher in 2003 than in 1990. Within the transport sector, road transport contributed 90% of emissions in 2003. This represents 13% of net national emissions (Greenhouse Gas Inventory, Greenhouse Office, 2003). The Australian Greenhouse Office

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predicts that cars will increase their greenhouse gas emissions by 60% by 2020. This is because, although vehicles are becoming more fuel efficient, more people are driving further.

In 2001-2002, 37% of final energy consumption in Australia was consumed in the transport sector. Energy use in transport is growing faster than in other sectors, despite the fact that motor vehicles, and transport systems generally, have continually become more energy efficient. The increase in energy usage reflects increased vehicle numbers and usage (Productivity Commission, 2005).

The environmental and health impacts of vehicles have been highlighted recently in the media, particularly in the Sydney Morning Herald's "Campaign for Sydney."

## **5. Lack of Funding for Public & Alternative Transport**

Since the 1980s the State Governments have been pushing the build, own, operate and transfer public-private partnership that has seen a number of large tollway road infrastructure projects built such as the Cross City Tunnel and the Lane Cove Tunnel Project. This capacity to tap into new sources of finance to fund road building increases the pressure on the State Government to give in to the roads lobby and defer adequate transport planning which meets the needs of the existing and future populations, particularly within urban areas. If the large scale urban growth envisaged in the Metro Strategy takes place through urban consolidation, despite enormous spending on road infrastructure, these systems will essentially fail.

In contrast funding for public transport, which has the potential to meet the expanding population, is woefully inadequate and has seen rapid decreases in the reliability, service and safety of the existing public transport network and insufficient funding for new services. Just one example is highlighted by the Long Term Strategic Plan for Rail (Christie Report) which found that since 1996, there had been a significant decline in spending on rail infrastructure in the state. This has resulted in obsolete rolling stock, outdated signaling and passenger overcrowding.

Without improvements to the public transport system and travel demand measures, additional road capacity provided by major road infrastructure will ultimately be taken up and will lead to further congestion downstream. Once road capacity has been improved and congestion and travel times reduced there will be less incentive for people to change their mode of travel to public transport. The only effective way to manage this is to incorporate an efficient mass public transport system with any proposal to increase road capacity.

In addition to public transport, there is a need to take cycling and walking as a mode of transport more seriously. Despite this, in mid-2005 the Roads and Traffic Authority announced cuts to the RTA Bicycle Facilities funding and to the loss of the General Manager Bicycle and Pedestrians from the RTA's Management structure. A specific example of where the RTA have given no consideration to pedestrian and bicycle issues is the construction of the Falcon Street ramps at the Warringah Freeway, in conjunction with the Lane Cove Tunnel Project. At this location, there is currently an unbroken footpath approximately 150m long

for pedestrians, which 330 pedestrians are using in the peak hours. With the new works, there will now be three signalised crossings for pedestrians/bicycles on the northern side of Falcon Street and six signalised crossings for pedestrians/bicycles on the southern side of Falcon Street. This not only means there will be no improvement in pedestrian facilities, there will be a significant reduction in the level of service for pedestrians and a significant reduction in safety for pedestrians and cyclists.

The north-south crossing from the Military Road island to the northern side of Military Road has been located, at Park Avenue, approximately 170 metres to the east of Merlin Street north. This presents a significant detour for pedestrians, particularly those using the bus stop proposed for Merlin Street north. Of principal concern to Council is pedestrian safety on a road that caters to over 77,000 vehicles per day.

Thiess John Holland presented the Cycle & Pedestrian Plan (TJH-PL-GL-ENV-114 29 November 2005), as per Minister's Condition of Approval 42 for the Falcon Street ramps.

Council's response to the plan concludes:

As has been demonstrated throughout this report, North Sydney Council maintains that the Minister's Conditions 42, 43, 242 and 235 have not been met with regard to the Falcon Street works. Council has repeatedly expressed concerns regarding pedestrian and cyclist access and safety at Falcon Street. North Sydney Council firmly believes that the only way to provide safe pedestrian and cyclist access at Falcon Street is to provide grade separated facilities in both an east-west direction and a north-south direction.

## **6. Users of public transport pay significantly more than private transport**

Currently public transport users subsidise private motor vehicle usage, whether this is measured in real dollar terms or time. Consideration needs to be given to financially addressing this inequality, as it has been done in some European cities. Beyond a certain level of traffic, every vehicle entering a road space imposes congestion costs on *all* other vehicles using that road. To explain, say it would take 30 minutes to drive from A to B, or 60 minutes on the train. If all or even some of those people travelling on the train were to decide to drive, the congestion on the roads would increase, and it may now take 45 minutes to drive from A to B. Conversely, if some of the motorists were to catch the train, then congestion would be reduced on the roadways and it may now take 15 minutes to drive from A to B.

As road usage approaches the capacity of a road, additional vehicles slow traffic significantly and fuel consumption is around twice that under free-flow conditions (Productivity Commission, 2005).

The bus lane on the harbour bridge transports 13,000 people per hour. One car lane on the harbour bridge transports 1,600 people per hour. Therefore one bus lane carries more people per hour than all seven general traffic lanes combined (NSROC Transport).

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The most effective way to address this inequality and to bring about behavioural change in motorists is a carrot-and-stick approach. That is, to not only improve public transport services, but also to ensure equity in the way tolls and parking levies are implemented on motorists using the road network. This money could then be spent on building faster, regular, more efficient, more reliable and clean public transport.

Further, if triple bottom line analysis was undertaken, the environmental and health cost imposed by private motor vehicles users on the community as a whole is unsustainable when compared with the lesser impact of public transport and active transport usage.

## 7. Cost Equality

There are three main methods to improve the equity of private motor vehicle transportation and improve cost equity between private and public modes of transport:

- Standardised tolling (cost per kilometre) for toll roads
- Standardised parking levy across the Sydney metropolitan area
- Greater equity with polluter pays policies

### Standardised Tolling

It is increasingly evident that urban areas, particularly Sydney, are facing total traffic gridlock, particularly at peak hours. This has stemmed from the rapid growth in private vehicle journeys combined with the push for substantial residential growth.

It is evident from the graph on the following page that the Falcon Street ramps in dollars per kilometre are grossly over-priced.

It is likely that the RTA will argue that the Falcon Street tolls are not for the short 200 metre section of ramps, but that in conjunction with the tunnel toll, it will cover the full cost of the Lane Cove Tunnel *Project*. However, the public perception is likely to be that the Falcon Street toll is just for the 200 metre ramps; and it is public perception that is important when considering road tolls. This is evident with the recent public backlash to the Cross City Tunnel tolls.

Other major Sydney roads such as the Pacific Highway, the Princess Highway, the Great Western Highway, the Hume Highway, etc., for historical reasons do not attract a toll.

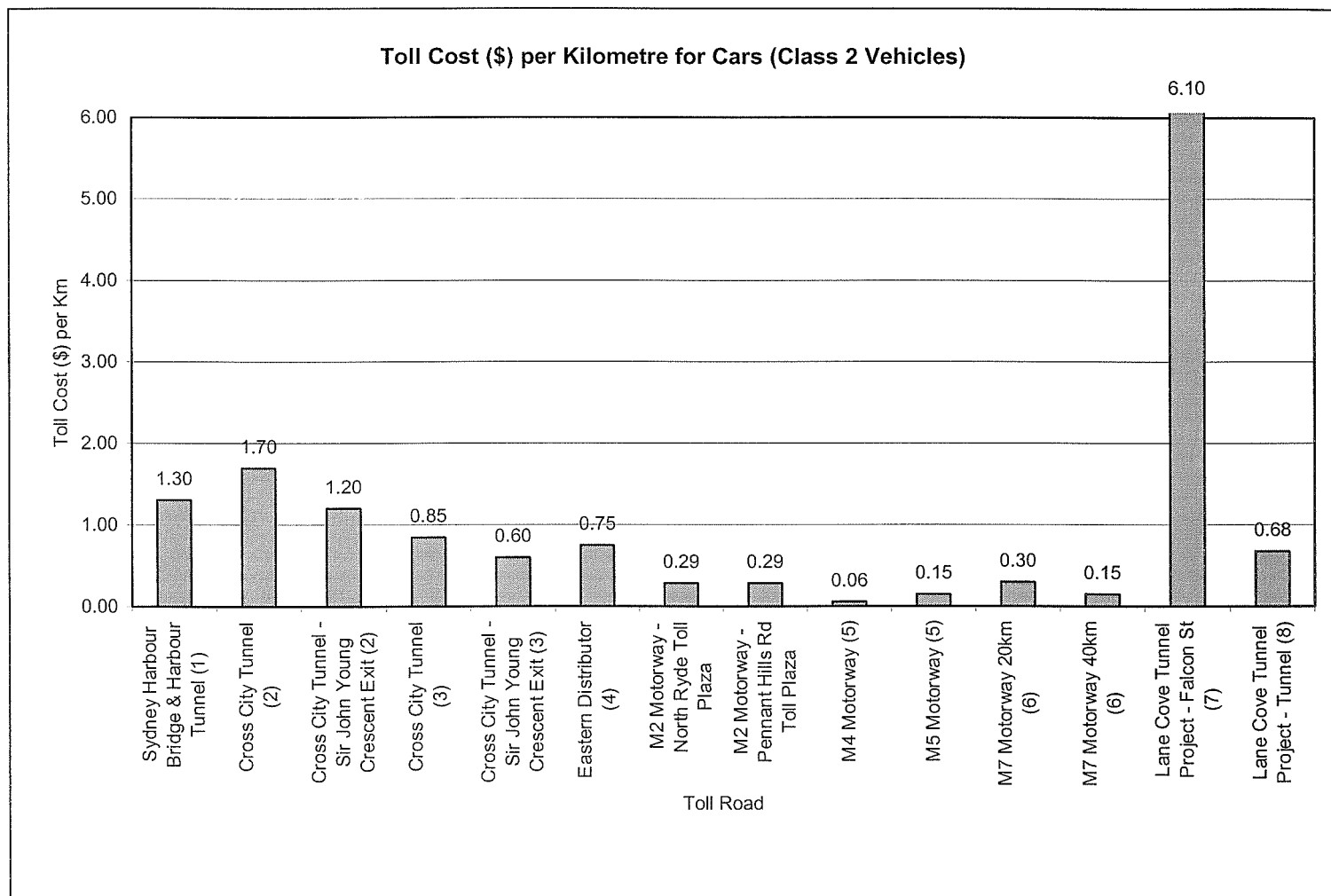
The current inequitable imposition of tolls in Sydney has resulted in some of these major civil engineering projects not delivering the expected positive outcomes.

Tolls on existing motorways and new toll roads should be imposed on a per kilometre basis, such as that for the M7 motorway. Further, tolls should be imposed on a consistent and regular basis. That is, they should not be seemingly randomly applied to some roads and not to other major roads.

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The following graph shows the cost per kilometre of the various tollways throughout Sydney.



Notes:

- (1) Southbound toll only
- (2) Toll after 6 June 2006
- (3) Toll 6 March 2006 to 6 June 2006 (reduced tolls in exchange for a possible permanent loss of bus lanes in the Sydney CBD)
- (4) Northbound toll only
- (5) The M4 and M5 motorways have a cashback scheme for motorists driving privately registered vehicles
- (6) The M7 operates on distance tolling, currently up to \$5.98 for 20 kilometres, at which point the toll is capped
- (7) The toll is \$1 in 1999 dollars, indexed to quarterly CPI
- (8) The toll is \$2 in 1999 dollars, indexed to quarterly CPI

Council is therefore seeking the support of the Premier to go back to the toll company regarding the inequality of charging tolls for the on and off ramps at Falcon Street and for the toll to be included in the Lane Cove Tunnel toll.

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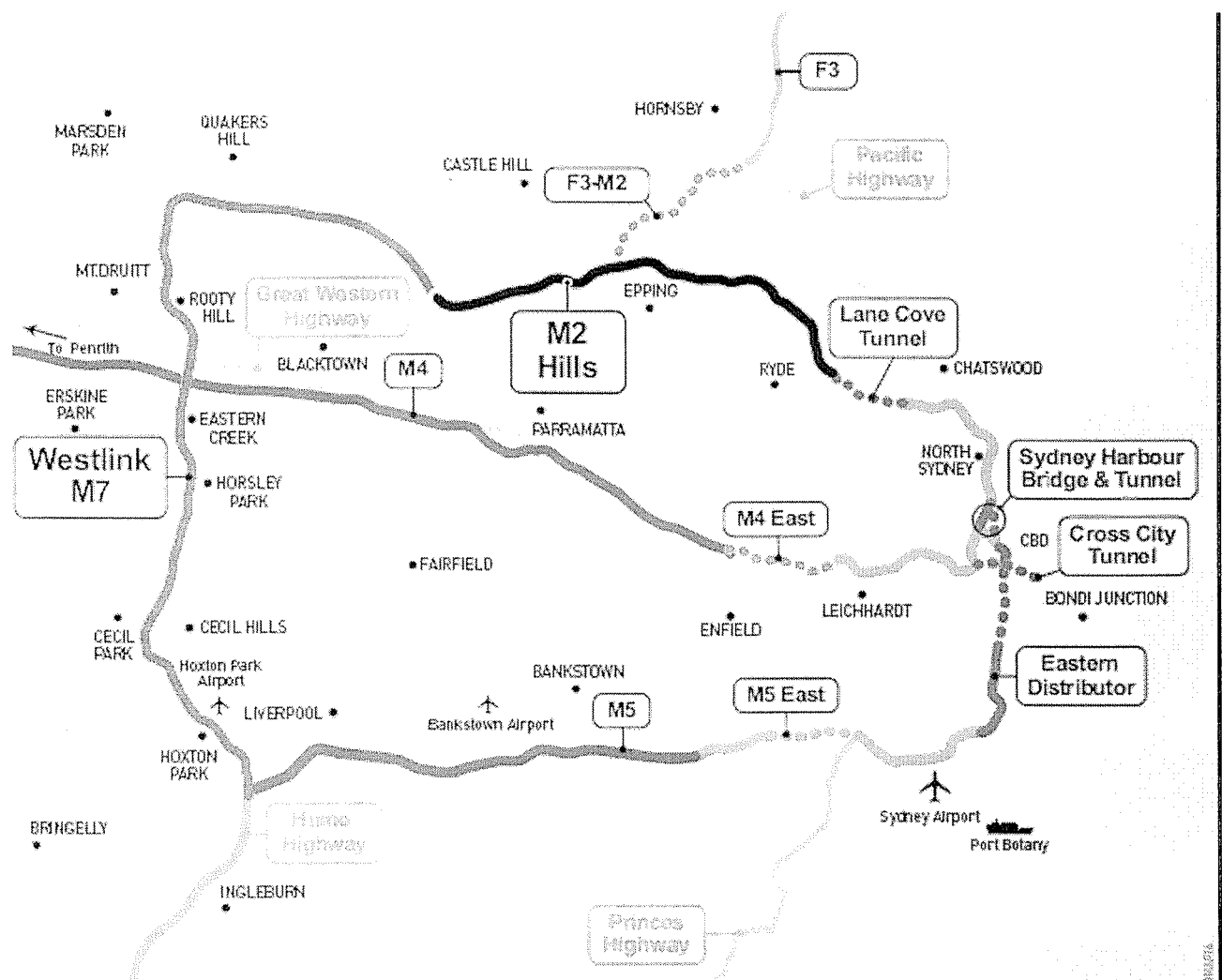


Diagram: Map of the motorways in Sydney (transurban.com.au)

The imposition of tolls results in different patterns of behaviour, and should therefore be used for the management of private motor vehicle transportation rather than purely for the method of financing major civil engineering projects.

The most efficient means to reduce the number of private motor trips and to spread the hours of peak travel is to introduce demand management tolling on toll roads. Congestion is greatest during peak hours, when increasingly the “supply” of roads cannot meet the “demand” for roads. The introduction of demand management tolling, where a greater toll is charged during peak hours would have two impacts. It would increase the person to vehicle ratio and it would reduce the “peak” of vehicles, and encourage the spread of demand throughout the day.

North Sydney Council made the following comments regarding travel demand management at the time of the EIS submission for the Lane Cove Tunnel Project (letter dated 31 January 2002):

**The main concerns arising from the proposed Lane Cove Tunnel that affect the North Sydney Area are:**

- 1) Increase in traffic and congestion on the Warringah Freeway and the Harbour Bridge, and**
- 2) No provision has been made to include Travel Demand Management measures with the project and the Harbour Bridge.**

The EIS notes that traffic flow along the Gore Hill Freeway east of Willoughby Road will increase by 28% and 33% by the end of 2006 and 2016 respectively. This increase in traffic on the Gore Hill Freeway will be loaded onto the Warringah Freeway and partially on the Harbour Bridge. The PARAMICS modelling which was used to simulate traffic flow and queuing starts at Willoughby Road and did not include the Warringah Freeway and Harbour Bridge.

Council has always maintained that without proper controls the Lane Cove Tunnel will add significant additional capacity to the Warringah Freeway. This additional capacity will ultimately be taken up and will lead to congestion on the approaches to the Harbour Bridge.

It would be anticipated that this congestion would be similar to what occurred prior to the opening of the Harbour Tunnel. During this period our Council area was badly affected by through traffic filtering off the main roads into our residential streets trying to jump the queue on the Warringah Freeway. Significant rat runs developed through the Council's area and this had an adverse impact on the amenity of our local residents. A repeat of this outcome is totally unacceptable. It is considered that the only effective way of managing this is to incorporate a demand management toll system in the Tunnel project and the Harbour Bridge.

The objective of a demand management strategy would be to increase vehicle occupancy, reduce congestion and increase the use of public transport. The benefits of such a strategy would be to increase efficiency of the road network and reduced adverse impacts on the environment, particularly air quality impacts. The key aspects of this system are:

1. Cash tolls higher than electronic tolls.
2. Discounted electronic tolls when travelling outside peak hour periods.
3. Cars that meet the T3 requirement should be allowed to travel in Bus Lanes and pay no toll (video surveillance at toll booths should be implemented to police this).
4. Bus Lanes should be T3
5. All of the above proposals should be cost neutral to the private operator of the freeway and therefore the cash toll and single occupancy electronic toll need to be set at such a level so the discount are revenue neutral.

The Harbour Bridge and Tunnel are also at capacity during peak periods. The proposed Lane Cove Tunnel would relocate the bottleneck from Lane Cove to the bridge and tunnel at North Sydney, exacerbating the problems of:

- Reduced air quality from pollution created by vehicles queuing on the freeway; and

- Reduced local amenity due to a significant volume of traffic that exits the freeway prior to or at North Sydney, and filters through local roads before re-joining the freeway. This traffic not only reduces residential amenity but also increases congestion on the local road system, which in turn leads to increased pollution.

The EIS shows that the Toll Fee can influence travel on the tunnel/corridor however it fails to seriously consider the development of a Travel Demand Management Strategy as discussed above. Council requests that demand management measures be made an integral part of the Lane Cove Tunnel proposal. In this regard it is noted that the Department of Urban Affairs & Planning and Environment Protection Authority have both required that the EIS examine demand management and also the issue of toll avoidance.

The imposition of a \$1 toll on both the on and off ramps at Falcon Street raises the question of toll avoidance. Traffic could avoid the toll by using existing routes such as Berry Street/Mount Street on the west side of Warringah Freeway and the Kurraba Road route on the east side thereby resulting in rat runs and impacting on our local roads and residents.

In 1991, the average vehicle occupancy rate for trips to work was 1.16 persons and in 2002, this had decreased further to 1.12 (DIPNR, Household Travel Survey 2002). This gives a clear indication that there is a large number of vehicles being used to inefficiently transport just one driver. The increase in car driver trips between 1991 and 2001 was highest at 8am (26%) and 5pm (23%) (TransFigures, DIPNR, 2005). This indicates that demand for roadways that are already under strain is continuing to increase in the peaks.

The benefit of demand management tolling on toll roads is a decrease in the level of congestion, effectively a more efficient use of the road resource and an increase in average travel speeds which will mean vehicles are running at closer to their optimum level, decreasing fuel consumption and reducing the amount of air pollution created.

The lack of demand management tolling on the Harbour Bridge greatly impacts on the residential amenity of the North Sydney area. The Harbour Bridge effectively acts as a funnel for traffic during the peak hours for north-south travelling vehicles. This causes a traffic congestion point on the bridge, which then translates into increased noise and air pollution for North Sydney residents as well as an increased potential for “rat running” vehicles to use local North Sydney streets. Projects such as the Lane Cove Tunnel Project serve only to get vehicles to the Harbour Bridge bottleneck faster.

To put this discussion into perspective, consider for a moment the Sydney train and bus networks. If public transport were the equivalent of Sydney’s road network, then for example the Illawarra train line would be free to travel on and the northern line would attract a fare of \$10. Further, the short distance of the northern line between Sydney City and North Sydney would be \$8 and the much greater distance between North Sydney and Berowra would be just \$2. The public transport system could not operate on this basis. This example highlights how the inequitable imposition of fares/tolls is unacceptable to the travelling Sydney public.



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### **Parking Levy**

The objectives of the existing Parking Space Levy are generally supported, as it reduces commuter-generated traffic and improves public transport facilities. However, concern is raised that the current Parking Space Levy is an inequitable tax that heavily impacts upon only a few areas of Sydney.

The Ministry of Transport has not provided any substantial facts to demonstrate that the Parking Space Levy has been effective in reducing traffic congestion since its introduction in 1992. The Parking Space Levy was established to fund public transport facilities. In order for the Levy to be effective, there must be a highly visual connection between the Levy charged and an improvement in public transport facilities. However, to date, the projects funded from the Public Transport Facilities Fund are in areas that are not subject to the Parking Space Levy.

A graduated Parking Space Levy should be applied to other competing medium and large commercial centres across the wider Sydney basin area. A diminished return on investment caused by the Parking Space Levy works actively against future investment by developers and businesses in centres such as the Sydney CBD, North Sydney, Bondi Junction, Chatswood, Parramatta and St Leonards, compared with other locations exempt from the Levy. That is, this tax results in increased development expansion, by pushing developers and businesses away from already established central business districts. This is contrary to State policies, which encourage development within existing centres and policies for nodes of employment and transport. In contrast, this Levy has no impact on large business parks built in the outer suburbs with potentially hundreds of parking spaces and poor links to public transport.

The Parking Space Levy should relate to parking space turnover rates. It is recommended that the levy be applied on a graduated basis across all of Sydney, and not be based on a flat fee in particular seemingly arbitrary areas.

Another means to reduce car usage is to restrict the availability of parking. For example City of Sydney Council and North Sydney Council with their Development Control Plan have a maximum number of car spaces that may be provided within new developments (compared with most Councils which have a minimum number of car spaces). The restrictions on the number of parking spaces in private developments needs to be undertaken in conjunction with resident parking permit schemes for on-street parking. This obviously restricts car ownership and by extension helps to restrict private vehicle usage.

The benefits of restricting parking is further highlighted by Journey to Work Statistics from the Sydney Household Travel Survey which demonstrates that the only areas where less than 50% of commuting is by car is in inner Sydney. Inner city residents are better served by public transport, are likely to be making shorter journeys to work to central locations, and may face parking restrictions at both home and work. The major reason for using public transport cited by 45% of public transport users in response to the Sydney Household Travel Survey was to “avoid parking problems or costs” (DIPNR).

Councils and developers also need to start looking at innovative solutions such as Car Share and Car Pooling, as an alternate to private vehicle ownership. In that way, the number of vehicles provided for in new developments can be significantly reduced, again encouraging public and active transport usage, but still addressing the mobility gap issue. In San Jose, many businesses provide their employees with free public transport passes to get to/from work.

### **Polluter Pays**

In order to foster behavioural change, the State government needs to ensure greater equity with polluter pays policies for motor vehicles that have a greater impact on the environment. This could be done through the registration system. An example of this on a smaller scale, is that North Sydney Council now charges different fees for resident parking permits, based on the environmental impact of the vehicle. Smaller vehicles are charged less, and larger vehicles are charged more. This is a classic carrot-and-stick scenario, where people who choose to run a high impact vehicle may do so, however they will be taxed to do so, while vehicles with a lesser impact such as hybrids pay less.

## **8. Additional Income for Public Transport**

The money raised from standardised tolling on toll roads, the parking levy and greater equity with polluter pays policies can be transferred directly to the upgrading of existing public transport systems and the construction of new transport services.

Currently Parking Levy money is being collected in the inner city areas and spent in the outer suburbs. In order for the existing levy and any expanded levy system to be effective, there must be a highly visual connection between the Levy charged and an improvement in public transport facilities. However, currently the projects funded from the Public Transport Facilities Fund are in areas that are not subject to the Parking Space Levy.

For example, in Perth where a Parking Levy exists, the introduction of the Levy coincided with the improvement to public transport in the central area where the Levy was applied. That is, there was a clear link between the Levy and positive highly visible improvements to the transport alternatives to the car.

Both the Parry and Unsworth reports recommended the appointment of Regional Transport Coordinators, who would be responsible for the coordination of long term regional transport strategies. These positions could be also be funded from monies raised from motor vehicles taxes. The Minister for Transport has recently announced that two Transport Coordinators will be appointed for the Sydney metropolitan area. While this is a step in the right direction, coordinators are needed for the regional areas, including the Northern region of Sydney.

Report of Cathy Edwards-Davis, Traffic Engineer

Re: Transport Strategies & Public Transport Funding – Position Statement

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## 9. Local Government Association

North Sydney Council recently submitted a motion to the 2005 Local Government Conference:

**THAT** the LGA call upon the State Government to show greater commitment and adequately fund the continual improvement of public transport and alternate transport means to reduce traffic and parking congestion (and their environmental impacts).

This motion was supported.

## 10. Conclusion

Given the information and discussion above, it is recommended that Council support the following:

- Improving the equity of private motor vehicle transportation through standardised tolling (cost per kilometer) for existing and new toll roads, the introduction of demand management tolling for toll roads, the introduction of E-tags only on the Harbour Bridge and Tunnel, that cashless tolls be introduced on all toll roads, abolition of the two-way toll charged by taxis on the Harbour Bridge and Tunnel, a standardised parking levy for medium and large commercial centres across the Sydney metropolitan area and greater equity with polluter pays policies.
- The income raised from private motor vehicle transportation fees be transferred directly to the upgrading of existing public transport systems and the construction of new public transport services.

31 March 2006

Ms Sue Netterfield  
Community Relations Manager  
Lane Cove Tunnel Project  
Thiess John Holland  
Locked Bag 2010  
NORTH RYDE BC NSW 1670

Dear Ms Netterfield

**RE: CYCLE AND PEDESTRIAN PLAN**

Thank you for forwarding your response to Council's review of the Cycle & Pedestrian Plan (TJH-PL-GL-ENV-114).

North Sydney Council is extremely disappointed with Thiess John Holland's response. Much of Council's submission to the Plan has been ignored. In particular Council's concerns that Minister's Conditions 42, 43, 242 and 235 have not been met has not been addressed.

It is acknowledged that the problem may be that the contract between Thiess John Holland and the Roads and Traffic Authority does not permit compliance with Minister's Condition 42. However, the fact remains that MCoA 42, which is "[a] safe, high quality and contiguous cyclist/pedestrian(s) shall be provided for recreational and commuter cyclists and for pedestrians for the length of the Project" has not been met. If Thiess John Holland is not able to respond to this matter, it is requested that you forward these concerns to the Roads and Traffic Authority for a response.

As stated in Council's review of the Cycle and Pedestrian Plan, North Sydney Council has repeatedly expressed concerns regarding pedestrian and cyclist access and safety at Falcon Street. North Sydney Council firmly believes that the only way to provide safe pedestrian and cyclist access at Falcon Street is to provide grade separated facilities in both an east-west direction and a north-south direction.

If you would like to discuss this further please call me on 9936 8112 or contact Council's Traffic Engineer, Cathy Edwards-Davis on 9936 8242.

Yours sincerely

Genia McCaffery  
**MAYOR**

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cc Mr Mike Hannon, A/Chief Executive Officer, Roads and Traffic Authority  
Mr Ian Hunt, Chief Executive Officer, Lane Cove Tunnel Company  
Ms Jillian Skinner MP, Member for North Shore  
Ms Gladys Berejiklian MP, Member for Willoughby  
Mr Eric Roozendaal MLC, Minister for Roads  
Mr Frank Sartor MP, Minister for Planning

**Original signed by Penny Holloway on 16 January 2006**

Ms Sue Netterfield  
Community Relations Manager  
Lane Cove Tunnel Project  
Thiess John Holland  
Locked Bag 2010  
NORTH RYDE BC NSW 1670

16 January 2006

Dear Ms Netterfield

**RE: Cycle & Pedestrian Plan (TJH-PL-GL-ENV-114 29 November 2005)**

Thank you for providing North Sydney Council with the opportunity to comment on the Cycle & Pedestrian Plan (TJH-PL-GL-ENV-114 29 November 2005).

North Sydney Council's comments are attached.

Should you have any further enquiries, please contact Council's Traffic Engineer, Cathy Edwards-Davis on 02 9936 8242.

Yours Faithfully

Penny Holloway  
**GENERAL MANAGER**

cc Mr Mike Hannon  
A/Chief Executive Officer  
Roads and Traffic Authority  
PO Box K198  
HAYMARKET NSW 1238

## 1. Introduction

Thank you for providing North Sydney Council with the opportunity to comment on the Cycle & Pedestrian Plan (TJH-PL-GL-ENV-114 29 November 2005).

North Sydney Council believes the fundamental problem with this report is that it has been prepared in consideration of the contract between Thiess John Holland and the Roads and Traffic Authority, and not the Minister's Condition of Approval 42. Council maintains that the proposals outlined in this report fail to address MCoA 42, which is "[a] safe, high quality and contiguous cyclist/pedestrian path(s) shall be provided for recreational and commuter cyclists and for pedestrians for the length of the Project..." The RTA have failed to include components in their contract with TJH that would permit compliance with MCoA 42.

In addition the proposal as it stands does not meet the relevant Australian Standards, Traffic and Transport Guidelines, State Policies, RTA Policies or general best practice for transport design.

There are significant problems with the planned pedestrian and cyclist access across and along the Warringah Expressway at Falcon Street, which Council has highlighted to the RTA on numerous occasions. Council's main concern is that a serious accident is not a matter of if but when, unless safe pedestrian and cyclist facilities are put in place on Falcon Street.

Hundreds of residents, including parents with young children, school groups and elderly people, use this section of road every day to access St Leonards Park, local kindergartens and playgrounds, shops in North Sydney CBD, or public transport. There is increasing awareness, particularly as the population ages, that pedestrian facilities must cater to those with mobility needs.

Without a pedestrian overpass or underpass, a serious accident is inevitable, particularly when it is known that 77,000 vehicles will be moving on and off Falcon Street each day.

The proposed pedestrian crossing on the south side of Falcon Street (to supplement the northern crossing) is seen by Council and the community as being unacceptable because six separate signalised crossings will have to be crossed by a pedestrian. Undoubtedly the traffic signals at each of these locations will be maximise the capacity for the vehicle traffic. This will make the crossing for pedestrians slow and tedious and will most likely lead to them "running" the red. Clearly this crossing will be daunting at the very least but also extremely unsafe. This proposal coupled with the marked degradation of the pedestrian amenity on the northern side of Falcon Street is of major concern for North Sydney Council.

North-south pedestrian access is also vital. The current north-south crossing means pedestrians have to follow a wide arc, crossing Military Road far to the east at Park Avenue. The risk is that pedestrians will take a shorter route without the protection of traffic signals.

Historically the Freeway has virtually cut the Council area in half leaving only three major at-grade crossing points, Falcon Street, Mount Street and West Street. This not only presents a problem for pedestrians who need to detour significantly, it places a physical and psychological divide between communities. The proposed works at Falcon Street will increase the pedestrian crossing times significantly. This reduction in amenity and Council's concerns regarding pedestrian safety at this key crossing point is totally unacceptable and does not comply with Minister's Condition 42.

Much is made of the number of traffic signals that projects such as the Lane Cove Tunnel will allow motorists to avoid and the projected time savings that will result. This is used to justify billions of dollars in construction costs. Council firmly believes that a small fraction of this cost should be spent on adequate and safe pedestrian and cyclist amenities, which will not only improve pedestrian and cyclist access but will free up intersection time for additional vehicle movements. Further, as Council has previously discussed with the RTA, advertising on the proposed pedestrian overbridge could pay for these facilities.

## **2. Previous Council Comments**

### **2.1. EIS submission**

North Sydney Council made the following comments regarding pedestrian and cyclist access at the time of the EIS submission (letter dated 31 January 2002):

#### **5. Lack of pedestrian and cyclists facilities (Multi-Use Paths) along the transport corridor**

Council welcomes the provision of shared pedestrian and bicycle paths along the corridor as a means of improving access and mobility for pedestrians and cyclists and encouraging these modes as an alternate to the motor car. However it is disappointing to note that the proposed shared pedestrian and bicycle paths abruptly end in the vicinity of Willoughby Road. The continuation of these facilities along the Warringah Freeway should be included and continued through to North Sydney with connections made to the RTA's proposed and designed Regional bicycle route from the Harbour Bridge along Alfred Street, St Leonard's Park to Ernest Street overpass.

Council has a proposal to provide a pedestrian underpass at Falcon Street along the western shoulder area of the Warringah Freeway. This proposal is part of the North Sydney Pedestrian Network and Amenity Study undertaken in July 1999. The provision of on and off ramps at Falcon Street will need to take this into consideration, and it is requested that the design of the ramps include a culvert underpass for pedestrians. This proposal is integral to an overall proposal to provide a level pedestrian link from the Ridge Street pedestrian overpass on the Warringah Freeway to Falcon Street and beyond.

No provision has been made for cyclists to access the on ramps. This exclusion is based on the fact that the on ramp joins the middle/inside lane of Warringah Freeway and cyclists would have to cross 3 lanes of fast moving



traffic to access the shoulder area. However alternate provision could be made for cyclists. A suitable ramp leading to the freeway western shoulder area could be provided near the existing steps from Falcon Street.

Subject to the other concerns raised in this submission been addressed Council supports the concept pathway proposal “Lane Cove to Harbour Pathway” submitted by North Sydney resident Bill Orme. This proposal is in keeping with Council’s request to extend the shared/multi use pathway through to North Sydney Council. The resident’s proposal would provide many opportunities to alleviate the physical and psychological barriers created by the Warringah Freeway and promote walking as an alternate mode of transport.

Pedestrians currently use the path along the northern side of Falcon Street to travel to and from Neutral Bay to access bus stops shops restaurants and many other facilities. This requires only one crossing of the northern arm of Merlin Street. The proposed ramps at Falcon Street will create an additional 3 crossings with traffic lights. This will substantially increase travel times and will be another barrier for pedestrians. Options to alleviate this problem should be investigated. The suggested shared pedestrian/bicycle pathway and level connections from Falcon Street pedestrian underpass to the Ridge Street pedestrian overpass would assist in alleviating this problem.

It is also suggested that a new bicycle link be provided from the Warringah Freeway to the existing local bicycle route in Cammeray Golf Course.

In July 2002, the RTA produced the Representations Report, which added a southern footpath on Falcon Street, with six crossings.

## **2.2. Changes at Falcon Street**

Since the EIS and after consent was given, and the Minister’s Conditions prepared, the design of the Falcon Street works and pedestrian access has been significantly changed. The northbound on-ramp access point is now on the western side of the Falcon Street bridge, and the southbound off-ramp is in the centre of the Falcon Street bridge. These changes occurred in December 2003 and were made public in July 2004. At no time has Council been invited to comment on these changes.

North Sydney Council met with RTA representatives on the 5 February 2004. However, this meeting was organised to discuss the Military Road Island Masterplan. It was not organised to discuss the Lane Cove Tunnel Project and the construction of the Falcon Street ramps. The Senior Council Staff who were present at the meeting do not recall the Falcon Street works being discussed, other than the potential impact of the ramps on the Masterplan proposal. All plans presented by the RTA at this meeting were referred to as "Draft" plans and did not show any detail of locations of lights, pedestrian crossings, etc. The purpose of the drawings provided was for Council to ascertain the area available for development. The Senior Council Staff at the meeting were not at any time invited to comment on any plans for the Falcon Street ramps, being constructed in conjunction with the Lane Cove Tunnel.

In March 2004, Council was given a copy of project documents labelled “Lane Cove Tunnel Project Deed – Exhibit A Scope of Works and Technical Criteria Appendix 14 – Civil Set 6” which still showed the Falcon Street ramps in the EIS configuration.

In progressive stages, the pedestrian crossings on the northern side of Falcon Street have gone from:

- Two signalised crossings; to
- Two signalised crossings and one zebra pedestrian crossing; to
- Three signalised crossings, with two phased together; to
- Three signalised crossings, all phased separately.

On the southern side of Falcon Street there are six signalised crossings, all phased separately.

The north-south crossing from the Military Road island to the northern side of Military Road has been located, at Park Avenue, approximately 170 metres to the east of Merlin Street north. This presents a significant detour for pedestrians, particularly those using the bus stop proposed for Merlin Street north.

Council has repeatedly expressed concern that the modifications made will significantly increase the Falcon Street crossing time and prejudice the safety of those persons using the Falcon Street pedestrian crossings.

### **2.3. Options**

The Mayor and General Manager of North Sydney Council, along with resident representatives met with Mr Paul Forward from the RTA on a number of occasions to discuss options to improve pedestrian and cyclist accessibility and safety at this location. A combination of the following facilities were under investigation:

- Pedestrian bridges on the northern or southern side of Falcon Street bridge
- An underpass beneath the eastern abutment of the Falcon Street bridge
- A ramp suitable for cyclists and disabled access connecting Alfred Street and the eastern side of the Ridge Street bridge

## **3. Literature Review**

Below is literature review of major planning and transport strategies for the management of transport in Sydney and technical guidelines for the design of pedestrian and cyclist facilities. It is noted that all of these plans discuss the increasing importance of providing adequate and safe pedestrian and cyclist facilities in order to provide a safe and realistic alternative to the private motor vehicle.

### **3.1. Policies & Strategies**

#### **Sydney Metro Strategy**

The newly released Sydney Metro Strategy states that, “At the neighbourhood level, the Strategy envisages improved local transport such as walking and cycling facilities

and bus services that link neighbourhoods, villages and town centres to major centres. Good local accessibility allows people to undertake more of their trips closer to home, reducing the time taken and cost of longer trips (p155)...Many of the social, resource and environment impacts of transport can be managed through a greater emphasis on sustainable transport to meet travel needs — walking, cycling and public transport. Greater use of these modes also contributes to broader Metropolitan Strategy goals of creating vibrant liveable communities (p159).”

“Road safety has clear costs to the community. In 2003 Sydney roads saw 29,357 crashes causing 162 deaths and 15,361 injuries. Apart from the suffering of victims and their loved ones, the financial cost in NSW of road crashes is estimated around \$3.7 billion each year.”

With the current design at Falcon Street, Council is greatly concerned that road safety for pedestrians and cyclists has been compromised, and is likely to result in serious injuries.

### **Planning Guidelines for Walking & Cycling**

Technical Direction TDT 2005/01 states that “the use of *Planning Guidelines for Walking and Cycling* is mandated by RTA Core Business Policy Number PN027.”

The Planning Guidelines outline that “the NSW Government recognises the importance of walking and cycling in the creation of sustainable neighbourhoods and cities.”

“The Government is keen to support NSW councils, communities and the development industry to improve planning for walking and cycling...The broad benefits of better planning for walking and cycling are many and varied...Equity of access to services can be improved by reducing household travel costs and providing an alternative means of travel for those without a car.”

“It is anticipated that improving practice in planning for walking and cycling provide will create more opportunities for people to live in places with easy walking and cycling access to urban services and public transport. This will help reduce car use and create healthier neighbourhoods and cities...Creating a walkable and cycleable city is an important part of creating a sustainable city — one that is equitable, livable, cost-effective, healthy, environmentally sound and safe (p.iv).

### **Guidelines for Improving Transport Choice**

The Guidelines for Improving Transport Choice is a key NSW Government guideline document for the creation of walkable and cycleable cities and neighbourhoods. The Guidelines include ten Accessible Development Principles, including Principle 6 Improve pedestrian access and Principle 7 Improve cycle access.

The Guidelines outline that, “the pedestrian and cycling network should be integral to the design of the neighbourhood. It should not be considered as an optional add-on at the end of the design process or facility to be retrofitted at a later stage. Fundamental

to creating an effective network is that every street is designed and constructed to be a good walking and cycling street.”

“Provision of footpaths that allow a clear and continuous path of travel for all users along all streets is an important element of neighbourhood design for walking and cycling. This element is most important in and around centres and major trip generators and along heavily used walking routes.”

### **Shaping Our Cities**

Shaping Our Cities, the precursor to the newly released Metro Strategy includes a principle to “enhance opportunities for walking, cycling and using public transport and contain the growth of travel demand in all land use and development decisions” and includes an objective of “urban structures which make public transport, walking and cycling more attractive and viable whilst moderating car use”.

### **The National Greenhouse Strategy**

The National Greenhouse Strategy includes a number of greenhouse reduction modules, one of which is “efficient transport and sustainable urban planning”. Within this module is an aim to “encourage greater use of public transport, walking and cycling”.

### **Action for Air**

Action for Air is the NSW Government’s air quality management plan. It includes an aim to “provide more and better transport choices” and a strategy to “provide for cycling and walking”.

### **Creating Active Communities**

Creating Active Communities is a guideline document prepared by the NSW Physical Activity Task Force in response to the Simply Active Everyday action plan adopted by the NSW Government. Creating Active Communities is designed to encourage physical activity in their areas, including walking and cycling. It aims “to promote the philosophy of physical activity”, “to encourage integrated planning” and “to encourage monitoring and evaluation”.

### **RTA Website**

The RTA website notes that pedestrians are the largest single road-user group and that walking is a fundamental component of travel. Pedestrians depend on the availability of pedestrian facilities for protection.

The RTA’s own website states that, “the RTA recognises that the community will benefit from improved pedestrian safety standards and has a number of key pedestrian initiatives to facilitate and promote walking as a safe and healthy alternative to the private car. Changes in RTA operations, along with greater customer and government demands, require us to review the way we work and manage our initiatives and activities. Innovative development and the management of pedestrian facilities will

help the RTA achieve the NSW Government's goal of encouraging alternative modes of transport to the private car and contribute to:

- making NSW a leader in integrated pedestrian system planning;
- improving access to the number and quality of transport choices available to the people of NSW;
- maximising the capacity and effectiveness of existing pedestrian infrastructure; and
- minimising the impact on the environment.

To achieve these objectives for pedestrians, the RTA is addressing the following key issues:

- providing more facilities to help people cross roads safely and conveniently;
- enhancing traffic signal timing for pedestrians in areas of high pedestrian concentration;
- ensuring that all RTA pedestrian facilities satisfy the needs of all users;
- properly facilitating pedestrians in the design of all roads and traffic management facilities;
- improving pedestrian links to public transport;
- improving the safety of pedestrian behaviour;
- improving pedestrian links around schools to ensure children's safety;
- ensuring that Traffic Management initiatives are integrally linked to Road Safety initiatives;
- providing road crossing facilities for recreational walking, for the elderly and people with disabilities; and
- educating pedestrians and other road users about how pedestrian facilities operate.”

### **Action for Transport 2010**

Action for Transport 2010 is the NSW Government's integrated transport plan that aims to pursue a number of initiatives to reduce car dependency and manage travel demand. The report states, “reducing the current rate of growth in car use, especially for journeys to work, is essential to improve our air quality ... To do that will require a series of initiatives.” The incentives include constructing a network of cycleways, encouraging innovative transport and working arrangements and making space for cyclists and walkers.”

“Preventing accidents and saving lives ... The NSW Government believes a large proportion of crashes can be prevented or their severity reduced by building roads and an environment that is forgiving ... Reducing accidents and saving lives is an important goal of the road improvement program. The Government aims to provide the safest possible road and traffic environment for each type of road user, whether they are pedestrians, cyclists, drivers or passengers.”

“Prevention is better than cure. The State Government has also launched a program of road safety audits to assess the risks on existing roads. Potential safety hazards are identified and eliminated before construction commences. Expertise and experience used at the design phase will ensure that new roads are safer from the outset. The safety of pedestrians is particularly important in Sydney.”

### **Action for Bikes 2010**

The introduction to Action for Bikes 2010 begins, “to help make cycling a viable travel alternative, the NSW Government is committed to improving facilities for cyclists and making it safer to cycle.”

“This plan puts in place a commitment to build off-road cycleways wherever practicable when new roads are built and to create off-road cycleways wherever possible. These new cycleways will connect people with their desired destinations.”

“To be accessible cycling should be safe. The NSW Government will...ensure that the design of cycleways provides safe conditions. This will reduce the annual number of deaths and serious injuries suffered by cyclists.”

“To realise the benefits to the community that cycling offers it is important that the State Government takes an active role in the promotion of cycling...[including] providing appropriate cycling infrastructure.”

“The NSW Government understands that improving people’s safety and security will encourage them to cycle more often. The Government aims to cut serious injuries to cyclists.”

### **Road Safety 2010**

The New South Wales Government is committed to making our roads the safest in the world. To achieve our goal of having the safest roads in the world, the State Government will pursue a range of initiatives in three key areas, safer people, safer roads and safer vehicles.

The Road Safety 2010 manual notes that at speeds at or above 60 km/h the likelihood of pedestrian death is above 70%. It also notes that an unprotected road user such as a pedestrian or cyclist is injured at much lower speeds than are people travelling within a motor vehicle.

The report goes on to state, “Road design in the future will increasingly focus on the safety of all users. Special consideration is given to road users who are more at risk of serious injury such as pedestrians and cyclists. They will be separated from other traffic where possible, or vehicle speeds will be reduced in appropriate areas.” Road Safety 2010 particularly recognises that elderly pedestrians are of increasing concern given the ageing population.

“Upgrading existing roads and higher safety standards in new road construction ...will lead to significant savings in road trauma and crash costs.”

“The Government is also committed to an ongoing program to build pedestrian overbridges, particularly in the vicinity of schools and in other locations of high pedestrian activity, to separate pedestrian traffic.”

## **Pedestrian Safety**

The Pedestrian Safety report produced by the RTA outlines that “the most effective countermeasures to pedestrian accidents are likely to be road environment solutions such as separating pedestrians from vehicular traffic where possible.”

“Pedestrian facilities used in NSW are developed to assist all pedestrians to safely and efficiently use the road and surrounding road environment. Pedestrian facilities have been developed to incorporate international best practice and with close collaboration with key stakeholders. All pedestrian facilities are installed according to established selection criteria and guidelines.”

### **3.2. Technical Guidelines**

#### **Australian Standard 1742.10 (1990) Pedestrian Control & Protection**

8.1.3 of AS1742.10 states:

“In assessing the need for subways and bridges, account should be taken of site conditions, accident history, pedestrian and vehicle volumes and delays, and likely usage by school children and handicapped persons.

When comparing the cost with that of possible alternatives, savings attributable to the following should be taken into account –

- a. Reduction of accidents;
- b. Reduction of delay to vehicular and pedestrian traffic; and
- c. Elimination of any existing pedestrian facility, if appropriate.”

In the past five years there have been three accidents involving pedestrians in the vicinity of the new Falcon Street works. Given the increased potential for conflict between vehicles and pedestrians, Council is concerned that there will be further serious accidents involving pedestrians.

Council undertook a pedestrian survey in August 2004. During a morning peak hour, it was found that 187 pedestrians use the Falcon Street footpaths. Council’s Pedestrian Analysis is attached in Appendix A. When crossing at the proposed nine signalised crossings on Falcon Street, these pedestrians will potentially conflict with the 77,000 vehicles who use Military Road/Falcon Street each day.

There are a number of schools in this area, which use the Falcon Street bridge to access facilities such as St Leonards Park.

#### **Austrroads Part 13: Pedestrians**

Austrroads Part 13 notes that “pedestrian devices are often designed to cater for the “average or “normal’ pedestrian...pedestrians under 12 years old and generally those over 50 are misrepresented, as also are intoxicated persons, the vision and hearing impaired and possibly, people with prams or in wheelchairs...it is interesting to note that it is those groups who are most dependent on walking, and who often do not have

the option of driving a car, who are most impeded by some current accessibility design practices.”

Council is very concerned that the significant crossing times at Falcon Street will be further increased for elderly and less mobile pedestrians, who as noted by Austroads often do not have access to a private motor vehicle and are reliant on accessible and safe pedestrian facilities.

“Pedestrians are particularly vulnerable road users and should have direct, easy and safe access at all times to the transport system. To achieve maximum safety, the pedestrian network itself should be separate from, but integrated with, the main road (p13).”

The current Falcon Street design places pedestrians at extreme conflict with motor vehicles, with six crossings on the southern side and three crossings on the northern side of Falcon Street. Motorists turning onto the freeway ramps may already be in “freeway” mode and potentially speeding and/or not looking out for pedestrians.

Council’s concern is highlighted in Austroads, “Arterial roads constitute a major problem in pedestrian mobility and safety, as the provision for pedestrians on the arterial road system will be in conflict to the principal function of moving traffic.... There is scope for the use of grade (spatial) separation techniques on arterial roads (p15).

Austroads notes that pedestrian facilities should not be designed solely on the current pedestrian usage, “footpath installation warrants based solely on pedestrian volumes are not practical, partially because individuals tend to walk where there are footpaths and footpaths tend to be built where people walk... the need for footpaths should be related to the functional classification of streets (p16)... “the provision of this type of facility [grade separated crossings] needs to be carefully evaluated considering each case on its merits, rather than set numerical warrants and guides (p48).”

All of the Government policies outlined above speak of the need to increase walking and cycling as a desirable mode of transport, and this is achieved by providing high quality, safe facilities. The extensive delays and safety issues at Falcon Street will not encourage increased walking and cycling activities. In fact, it is likely to detract people in this area.

In relation to crossing lengths at signalised crossings Austroads states, “others may be deterred from using a crossing because of a perception of excessive exposure to traffic (p31). This perception of excessive exposure would also relate to the number of pedestrian crossings which pedestrians will be subjected to at Falcon Street.

Austroads notes that “the objectives of grade (spatially) separated pedestrian facilities are “to increase the safety of pedestrians by eliminating conflict between vehicles and pedestrians (p27)” and “where freeways and high speed expressways are involved, and a permanent pedestrian crossing demand exists or is anticipated, a grade separation will be essential for the safety of both pedestrians and motor traffic and these need to be incorporated in the planning of these routes (p48).”



### **Austrroads Part 14: Bicycles**

As well as the Government policies discussed above, Austrroads Part 14 notes that, “authorities responsible for roads have an important role to play in encouragement of bicycle travel as they produce the environment in which safe, convenient and comfortable cycling can take place...providing adequate encouragement for cycling therefore requires the consideration of this mode of transport in all road planning, design construction and maintenance activities...improvements systematically implemented to cater for the various bicycle users...it is important that the wider transport policies and programs cater for cycling in an integrated manner. In order to maximise the role of cycling in local transport, cycling provisions and good design will need to be included in all transport infrastructure projects (p1).”

Although off-road cyclist facilities have been provided for the rest of the project, adequate and safe cyclist facilities have been largely forgotten at Falcon Street. The “integration of cyclists’ needs into all planning and design activities including...road designs and maintenance programs (p3)” as prescribed by Austrroads has not occurred at this part of the project.

Austrroads notes that in order to make cycling an attractive alternative and non-polluting means of transport, cycling must be safer and more convenient. “For bicycles to be most effective as a means of transport cyclists must be able to maintain speed without having to slow or stop often...Bicycle routes, especially off-road should be designed for continuous riding, minimising the need to slow or stop for any reason including ... intersections, or to give way to other people because the width available is too narrow (p14).” The proposed bicycle facilities have six crossings on the southern side and three crossings on the northern side of Falcon Street, within the distance of approximately 150 metres. This does not provide “continuous” riding. Further, as these facilities are shared paths with significant volumes of pedestrians, they will be required to slow down considerably to avoid conflict with pedestrians.

The TJH Community Relations Coordinator has confirmed that the current design does not allow for a pedestrian fence on the Falcon Street bridge, along the kerblines. Austrroads states “due to the side “wind” force exerted on bicycle riders from heavy vehicles, roads should be designed to provide satisfactory clearances between the bicycle envelope and the vehicle. At motor vehicle speeds of 60 km/h...clearances between the cyclist envelope and an adjacent truck...should be provided to enhance cyclist safety (p16)” and “It is recommended that the path be located to adequately [to] achieve ... clearance from road traffic... physical barriers (including landscaping) may be appropriate where: the kerbside lane is heavily trafficked (p80).” Given that there are 77,000 vehicles using Military Road/Falcon Street each day, directly next a shared path, Council believes a barrier should be provided to increase pedestrian and cyclist safety.

Austrroads states in evaluating the suitability of cyclists using (or not using) freeways, “under special circumstances such as very high traffic volumes or difficult geometry which cause serious safety hazards, short sections of off-carriageway cycling path may need to be provided to enable cyclists to by-pass the hazardous area (p38).” Although this refers to bicycles travelling along the freeway, this statement also

relates to Falcon Street which will see conflict between bicycles (and pedestrians) and high volumes of vehicles entering and exiting the Warringah Freeway.

Austrroads recognises that cyclists are likely to get impatient waiting at the six signalised crossings, “at freeway ramps where a significant number of cyclists have to cross through a large volume of motor vehicles, delays to cyclists may be excessive causing them to either take unreasonable risks or use an alternative route. In these instances consideration may be given to providing cyclists with a grade separation (p38).” Although this refers to unsignalised ramps, excessive delays due to multiple traffic signals is likely to lead to the same outcome: unreasonable risks.

Again, although referring to unsignalised ramps, it is noted that Austrroads states, “if analysis indicates that the average delay to cyclist is greater than 15 seconds (over which they are assumed to accept unsafe gaps of less than 7 seconds) then ... grade separation of cyclists should be evaluated (p38).” The phasing of the traffic signals across the Falcon Street ramps is likely to be greater than 15 seconds.

Austrroads highlights the danger of intersections, “intersections, by their very nature, are locations where there is considerable potential for conflict between different traffic streams and different road users. At busy intersections motorists, cyclists and pedestrians often have to deal with complex situations...in the case of cyclists this is confirmed by crash records which show that most reported bicycle crashes occur at intersections, involve cars and are of a serious nature (p47).” These crash statistics will be potentially multiplied by six times on the southern side of Falcon Street and three times on the northern side of Falcon Street.

The importance of grade-separated facilities for bicycles is highlighted in Austrroads, “paths can have a critical transportation role, where, for instance, they form part of a strategic bicycle route, or are used to avoid limitations caused by ... undesirable traffic conditions (p69).”

### **NSW Bicycle Guidelines**

The NSW Bicycles Guidelines outlines some of the key design principles of the bicycle transport system is safety, with a criteria of “minimum risk of conflict with car traffic”; comfort, with a criteria of “reduced need to stop (p11); and with a primary aim “to reduce travelling times by minimising delays (p12).

As discussed above, the proposed bicycle facilities have six crossings on the southern side and three crossings on the northern side of Falcon Street, within the distance of approximately 150 metres. This does not provide “continuous” riding or minimise delays. It results in a significant amount of conflict with vehicles, which is not in keeping with the guidelines which state “good bicycle network facilities, like roadways should be designed to reduce the seriousness of accidents and conflicts and cater for all members of the community (p12).” Further, as these facilities are shared paths with significant volumes of pedestrians, they will be required to slow down considerably to avoid conflict with pedestrians.

The Guidelines consider that, “[signalised] crossings have to be carefully planned to include efficient and convenient bicycle movements, otherwise riders will become

frustrated and may attempt to ‘run’ red lights... Careful consideration must be made on waiting times and the coordination of crossing signals. For example where an off-road bicycle path crosses a roadway via a wide central median, the rider should not have to wait for a separate phase on the island to complete the crossing (p52).” In the case of Falcon Street, cyclists will not have to wait for one additional separate phase, they will be faced with six signalised crossings on the southern side of Falcon Street and three on the northern side.

### **RTA Technical Directions**

TDT 2002/10 states, “Action for Transport 2010 outlines the Government’s objective to encourage and facilitate walking. The provision of safe and effective pedestrian facilities is an integral component of the RTA’s commitment to facilitating and encouraging people to walk as a health alternative to using cars, especially for short trips.

### **RTA Pedestrian Facilities (Draft)**

The Pedestrian Facilities (draft) manual produced by the RTA states, “Safety and convenience for pedestrians are important issues for the Roads and Traffic Authority of NSW (RTA) and all councils of Local Government Areas... Pedestrian facilities should be an integral component of roads and traffic facilities. They should be considered for appropriate locations throughout the process of design, construction and operation.”

The pedestrian facilities guide goes on to say that the provision of physically separated facilities should be based on a thorough site assessment. Warrants and selection criteria do not in themselves compel or justify the use of a particular facility. Consideration should be given to the prevailing road environment, the current and potential pedestrians, personal safety considerations, the type and amount of vehicular traffic and the prevailing traffic conditions.

## **4. Minister’s Conditions of Approval**

42. A safe, high quality and contiguous cyclist/pedestrian path(s) shall be provided for recreational and commuter cyclists and for pedestrians for the length of the Project. Details of the provisions for cyclists shall be developed through the preparation of a detailed Cycleway and Pedestrian Plan which shall be prepared in consultation with Bicycle NSW, local councils, relevant bicycle user groups, NSW Health and the CLGs.

The Cycleway and Pedestrian Plan shall also include:

- (a) a detailed description of the proposed design including all connections to surrounding roads, streets and paths;
- (b) lighting, where appropriate;
- (c) safety including safe crossings for pedestrians and those accessing bus stops and security;

- (d) linemarking and signage to separate cyclists from pedestrians in accordance with signposting directions from the RTA in relation to all shared paths;
- (e) maintenance;
- (f) consideration of links to existing and future planned cycle networks, roads and paths and potential linkages; and
- (g) landscaping in accordance with the Urban Design and Landscape plan to be prepared in accordance with Condition 86 and 87.

The Cycleway and Pedestrian Plan shall be submitted to the Director-General and require the approval of the Director-General within an appropriate timeframe to ensure that the approved cycleway and pedestrian path is opened to cyclists and pedestrians no later than completion of works on Epping Road.

When reviewing the meaning of Condition 42, the Macquarie Dictionary defines safe as “secure from liability to harm, injury, danger or risk”, quality as “(3) character with respect to excellence, fineness, etc., or grade of excellence” and contiguous as “touching; in contact”

In the past five years, there have been no accidents involving pedestrians on the Falcon Street bridge. This can likely be attributed to the fact they currently enjoy an uninterrupted crossing on the northern side. There have however been three accidents involving pedestrians within the area covered by the Falcon Street works. That is, with the area covered by Falcon Street, 50m east of the Warringah Freeway, through to the intersection of Military Road and Watson Street. Council is greatly concerned that given there will be nine new signalised crossings at the Falcon Street bridge, the potential for conflict with the 77,000 motor vehicles that use Military Road/Falcon Street each day is greatly increased and therefore pedestrian and cyclist safety at this location will be extremely compromised. While it is impossible to design a facility that is entirely secure from liability to harm, injury, danger or risk, a grade separated pedestrian and cyclist facility will have a far greater probability of providing this level of safety.

When considering the various Government policies and strategies which are outlined above, which refer to encouraging sustainable transport modes such as walking and cycling through the provision of uninterrupted and attractive facilities, the proposed design at Falcon Street falls well below the definition of a “quality” facility.

Prior to works, Falcon Street did enjoy a contiguous pedestrian footpath on the northern side of the bridge. Given that there will now be six signalised crossings on the southern side and three signalised crossings on the northern side of Falcon Street, a “contiguous” path will no longer be provided.

Point (c) which relates to the “safety” of pedestrian crossings has not been adequately addressed by the Cycleway and Pedestrian Plan, or indeed the contract between the RTA and TJH. Adequate consideration has not been given to level of conflict and therefore safety between 77,000 vehicles which use Military Road/Falcon Street daily at the nine new signalised pedestrian and cyclist crossings.

Therefore, for the reasons outlined, North Sydney Council believes that MCoA 42 has not yet been met.

43. All cycleway/pedestrian path elements resulting from the Cycleway and Pedestrian Plan shall be designed and constructed in accordance with Austroads *Guide to Traffic Engineering Practice Part 14 – Bicycles* and other relevant reference documents.

As discussed above, the contract between the RTA and TJH does not allow compliance with Austroads Part 14. The literature review above, which includes “other relevant reference documents” also demonstrates that the contract between the RTA and TJH does not permit compliance.

242. The Proponent shall prepare an Urban Design and Landscaping Sub Plan for the Falcon Street ramps and **pedestrian overbridge** in accordance with Condition of Approval No. 87 which shall consider:

...  
(c) pedestrian and cycle elements including footpaths and paving, **pedestrian crossings/overpasses** and fixtures...

MCoA 242 twice refers to a pedestrian overbridge. However, despite Council’s repeated requests for such, an overbridge has not been shown in the Cycleway and Pedestrian Plan.

235. The Proponent shall ensure that at grade pedestrian access is maintained across Falcon Street and Military Road from Merlin Street south to Merlin Street north unless otherwise agreed to by the Director-General.

This Minister’s Condition of Approval has not been complied with. There is no pedestrian crossing from Merlin Street south to Merlin Street north. A signalised pedestrian crossing has been provided at Park Avenue, approximately 170 metres east of Merlin Street north. This means that a pedestrian getting off the bus at Merlin Street north, who wishes to travel to a property on the southern side of Military Road, will need to travel approximately 170 metres to east to Park Avenue, wait for the pedestrian signals, and then walk back approximately 170 metres to the west to then head in a southerly direction. This is a significant detour for pedestrians, particularly elderly, disabled or less mobile pedestrians. Council has grave concerns that pedestrians will choose not to walk this long distance, and will instead run across a high volume road with four lanes and fast moving vehicles and buses.

## 5. Review of the Cycleway and Pedestrian Plan

(TJH-PL-GL-ENV-114 29 November 2005)

The Cycleway and Pedestrian plan states, “an objective of the Lane Cove Tunnel Project (the Project) is to improve facilities for pedestrians and cyclists...the overall objective of the CPP is to ensure provisions implemented for recreational and commuter cyclists and pedestrians are adequate, appropriate and in accordance with the requirements of DoP’s approval of the Project. Facilities will be provided to

encourage more people to walk or cycle in the area in order to reduce pollution and improve the health of the local community (p0).”

As has been discussed above, and as acknowledged in many of the Government policies, to encourage people to walk or cycle in the area, the facilities provided have to be uninterrupted and safe. The proposal, as per the contract between TJH and the RTA, does not provide adequate and safe access for pedestrians and cyclists.

On Page 0 it states, “these facilities have been designed: in consultation with relevant user groups, government agencies and local government.” As discussed above, Council was only made aware of the finalised designs for Falcon Street in July 2004 when they became public. Although Council has been provided with the opportunity to comment on the Urban Design and Landscape Sub Plan which included limited details on the materials, location and finishes for pedestrian footpaths, Council has not been consulted on the overall design of facilities for pedestrian and cyclists. Council has repeatedly expressed concern regarding the adequacy and safety of the proposed pedestrian and cyclist access at Falcon Street and has on a number of occasions met with the RTA to discuss the need for grade-separated facilities.

On page 2 it states that the Framework and Urban Design and Landscape Plan as required by MCoA 86 was approved by the Director-General on 3 August 2004. However, it was not presented to CCLG 4 until 4 September 2004. Can you please confirm that the Director-General has approved the Framework and Urban Design and Landscape Plan for the Falcon Street section of the project.

On page 4 it states in relation to MCoA 43 that the design complies with Austroads Part 14. However, as discussed above, the contract between the RTA and TJH does not allow compliance with Austroads Part 14.

On page 9 it states in relation to MCoA 235 that the at-grade access is provided between Merlin Street south to west of Park Avenue. As outlined above, this Minister’s Condition of Approval has not been complied with. There is no pedestrian crossing from Merlin Street south to Merlin Street north.

On page 10, it states, “Action for Bikes – Bikeplan 2010 outlines the RTA’s commitment to improving the cycling environment in NSW and includes the following commitments:

- Improving the network by making comprehensive provision for bicycles on all new major road infrastructure projects with a strong preference for off-road cycling; and
- Making it safer to cycle by improving road safety and security while riding.”

While it is agreed that the other sections of the project have likely resulted in improved bicycle facilities, Falcon Street has largely been forgotten. As discussed above, six crossings on the southern side and three crossings on the northern side of Falcon Street will result in conflict between the cyclists (and pedestrians) and motorists which cannot result in safer cycling.

On page 10 it states, “The provision of pedestrian and cyclist facilities is an important component of the Project, which includes upgrading facilities for pedestrians, cyclists

and public transport” and on page 12, “the Project will improve the amenity and access for pedestrians along the Project corridor and at the Falcon Street interchange”. Again, while in other sections of the project there may have been an improvement in facilities, the proposed arrangements at Falcon Street have not resulted in an “upgrade”. In fact, the facilities will be made considerably worse. Prior to works, pedestrians had an unbroken footpath across Falcon Street. Now they face considerable delays, while waiting for three signalised crossings on the northern side and six on the southern side. Further, pedestrian safety and the increased potential for conflict with motor vehicles is of grave concern to Council. Similarly, cyclists had a path on the southern side of Falcon Street. Now they are forced to wait for six sets of traffic signals, and they are forced onto a shared path with pedestrians, which will greatly slow them down and may cause conflict issues. Although a bus stop has been provided at Merlin Street north, no north-south pedestrian crossing has been provided to access this bus stop.

On Page 12 and elsewhere, it states “cyclist facilities will be reinstated as per existing arrangements at the Falcon Street Interchange”. This statement is potentially misleading. Prior to the commencement of works, cyclists enjoyed their own laneway. The proposed arrangement is a shared path, with cyclists sharing with pedestrians. Therefore the cyclist facilities will not be reinstated as per the existing arrangement.

On pages 14, 15 and 17 a number of future notification and education methods to inform the community on the safe use of shared paths have been outlined. Council supports these initiatives and requests further information on these programs once they have been further developed.

On page 18 it states, “consultation has been undertaken with local councils...during the detailed design process.” As discussed above, although Council has been provided with the opportunity to comment on the Urban Design and Landscape Sub Plan and a number of other plans, Council has not been consulted on the overall design of facilities for pedestrian and cyclists. North Sydney Council has repeatedly expressed concern regarding the adequacy and safety of the proposed pedestrian and cyclist access at Falcon Street and has on a number of occasions met with the RTA to discuss the need for grade-separated facilities.

It states on page 28 that “due to the new location and alignment of the Falcon Street ramps (as specified by the RTA, December 2003), the installation of a pedestrian crossing between Military Road Island and Merlin Street north will no longer be possible.” This means that MCoA 235 will not be complied with. As discussed above, since the EIS and after consent was given, and the Minister’s Conditions prepared, the design of the Falcon Street works and pedestrian access has been significantly changed. This new design was not subject to a further EIS or review of the Minister’s Conditions. These changes occurred in December 2003 and were made public in July 2004. At no time has Council been invited to comment on these changes. Council is opposed to the location of the north-south pedestrian crossing at Park Avenue, as this has greatly increased the distance that pedestrian must walk. Council has grave concerns that pedestrians will choose not to walk this long distance, and will instead run across a high volume road with four lanes and fast moving vehicles and buses.

In order to now comply with MCoA 235, Council believes that a north-south pedestrian underpass must be constructed adjacent to the eastern abutment of the Falcon Street bridge.

Council requests that Neutral Bay Shopping Centre be added to Table 5-1 on page 30.

On pages 31-35 reference is made to regional bicycle routes to North Sydney and the Sydney Harbour Bridge. It should be noted that whilst local bicycle routes have been installed to access many of these areas, the RTA are yet to fund/install the regional route which runs alongside the western side of the Warringah Freeway from the Pacific Highway up to Falcon Street (and continuing on to Chatswood and the Warringah Mall).

On page 39 it states “the cycleway/pathway will be continuous, direct and safe to use; the facility will represent an attractive and comfortable route for pedal cyclists and pedestrians.” Again, while in other sections of the project there may have been an improvement in facilities, the proposed arrangements at Falcon Street have not resulted in an “upgrade”. In fact, as discussed above the facilities will be made considerably worse. Six sets of traffic signals on the southern side and three sets on the northern side does not present an attractive pedestrian and cyclist route. Further, this is under conditions with 77,000 vehicles driving past at high speeds, with no vegetation or shelter from conditions on the Falcon Street bridge.

Council supports the installation of directional signage as described on page 48.

On page 67 it states, “overall, these provisions [signalised crossings at Falcon Street] will provide an improvement to the existing pedestrian facilities. Again, Council does not agree with this statement. The RTA’s proposed pedestrian and cyclist arrangements at this location are considerably worse than the existing arrangement. Prior to works, pedestrians had an unbroken footpath across Falcon Street. Now they face considerable delays, while waiting for three signalised crossings on the northern side and six on the southern side. Further, pedestrian safety and the increased potential for conflict with motor vehicles is of grave concern to Council. Similarly, cyclists had a path on the southern side of Falcon Street. Now they are forced to wait for six sets of traffic signals, and they are forced onto a shared path with pedestrians, which will greatly slow them down and may cause conflict issues. Although a bus stop has been provided at Merlin Street north, no north-south pedestrian crossing has been provided to access this bus stop. The north-south pedestrian crossing that has been installed at Park Avenue represents a significant detour for pedestrians.

Enclosed are copies of Council’s Walking North Sydney 2005 brochure and a draft copy of the soon to be published North Sydney Bicycle Map. Council requests that these be included in Appendix C of the Plan.

The following items have not been outlined in the Plan:

- Council requests that TJH confirm that kerb/pram ramps and tactile indicators complying with the Australian Standard will be installed at all crossing points/intersections



- Mr Bill Orme from CCLG4 has expressed concern regarding pedestrian sight distances on the left turn for westbound vehicles on Military Road, turning left onto the freeway ramps. Austroads Part 13 outlines that at a signalised pedestrian crossing in a 60 km/h zone, there should be a stopping sight distance of 55 metres. Council requests TJH confirm that there is a 55 metre stopping sight distance at this location.
- Council requests that TJH confirm that the utility service covers, grates and drainage pits on the shared paths can be safely negotiated by cyclists.
- Council requests that TJH confirm that inductive detector loops will be installed for bicycles at the each of the crossing points/intersections along the shared path
- The diagrams do not provide enough detail to determine the location of street furniture and its potential impact on the level of accessibility for pedestrians. Council requests that TJH confirm that at all locations (including “pinch” points) will be a minimum 1.2 metres wide for pedestrian paths and 3.0 metres wide for shared paths.

### **5.1. Bus Access**

Council has recently been informed that the RTA and STA are in negotiations regarding the bus stop at Merlin Street north, and whether buses will indeed stop at this location. Council would consider this bus stop to be essential, and therefore adequate and safe pedestrian access to this bus stop also essential.

### **5.2. Pedestrian Crossing Times**

Council has been provided with inadequate information to determine if adequate pedestrian crossing times will be provided for pedestrians, particularly less mobile such as elderly pedestrians.

Council has not been given access to the signal timings and phasings, therefore rough calculations have been based on the MWT report “*Assessment of Pedestrian Conditions*” at Falcon Street (dated September 2003)

On the northern footpath, MWT found that the Option Y configuration would have a total crossing time of 430 seconds (travel time and wait time). This assessment was for two signalised crossings and three pedestrian crossings. Adjusting this, for the latest design, three signalised crossings and two pedestrian crossings, gives 471 seconds (7.9 minutes). It should be noted that this figure is for average wait times. If there is an elderly or disabled pedestrian who just misses the pedestrian phase and has to wait at each signal, the maximum crossing time is up to 609 seconds (10.2 minutes).

This significant crossing time is of great concern to Council, particularly given that pedestrians current enjoy an unbroken footpath on the northern side of the Falcon Street bridge.

## **6. Conclusion**

As has been demonstrated throughout this report, North Sydney Council maintains that the Minister's Conditions 42, 43, 242 and 235 have not been met with regard to the Falcon Street works. Council has repeatedly expressed concerns regarding pedestrian and cyclist access and safety at Falcon Street. North Sydney Council firmly believes that the only way to provide safe pedestrian and cyclist access at Falcon Street is to provide grade separated facilities in both an east-west direction and a north-south direction.

## APPENDIX A – Council Pedestrian Survey

Item 4. - Traffic - 29/10/04

N O R T H S Y D N E Y C O U N C I L R E P O R T S

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To the General Manager

Attach Report

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**SUBJECT:** (4.) Pedestrian Survey – Falcon Street at Warringah Freeway

**AUTHOR:** Report of Traffic Planning Officer, Greg Holding 6 October 2004

**DESCRIPTION/SUBJECT MATTER:**

See attached report for details.

**RECOMMENDATION:**

**THAT** this report be referred to Council's Pedestrian Sub-Committee.

**THAT** Council continue to pursue the impacts of the Lane Cove tunnel project on pedestrians and cyclists.

**THAT** the Roads and Traffic Authority of NSW look favourably on the impacts of the Lane Cove tunnel project on pedestrians and cyclists.

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## EXECUTIVE SUMMARY

### Purpose of Surveys

The Roads and Traffic Authority of NSW has requested that Council undertake volume counts of pedestrians currently using Falcon Street as a means to cross Warringah Freeway. These volume counts are to ascertain both the level at which the Falcon Street crossing is currently being used and determine the direction in which they are travelling.

In conjunction with these volume counts, North Sydney has undertaken a survey by interviewing a sample of those people using the Falcon Street crossing. This survey is to ascertain the overall movements of pedestrians using the Falcon Street crossing.

These pedestrian counts were undertaken to support Council's request that the Roads and traffic Authority of NSW construct a pedestrian bridge across Warringah Freeway from Wyagdon Street, Neutral Bay to St Leonards Park, North Sydney. This pedestrian bridge is required to provide continuous unbroken pedestrian access across the Freeway.

### Pedestrian Count Outcomes

The key outcomes of the survey were:

- During the peak flow periods, roughly equal numbers of pedestrians used the Falcon Street northern footpath as used the St Leonards Park footpath. A significantly less amount used the Falcon Street southern footpath. Therefore roughly half of the pedestrians currently using Falcon Street, as a means to cross Warringah Freeway could utilise the proposed bridge.

### Pedestrian Interview Outcomes

The key outcomes of the survey were:

- **The vast majority of destinations were Neutral Bay (eighty two percent) for eastbound pedestrians and North Sydney (sixty two percent) for westbound pedestrians. Only twenty three percent of the pedestrians travelling in an eastbound direction were heading north of Falcon Street. Therefore the vast majority of the current Falcon Street crossing users could utilise the proposed bridge.**
- **Roughly equal amounts of pedestrians travelling in an easterly direction came from the south of Falcon Street, as came from the North. Therefore half of the pedestrians currently using Falcon Street to travel east and who are heading north of Falcon Street could still use the proposed bridge.**
- **The vast majority of pedestrians travelling in a westerly direction came from the south of Falcon Street. Therefore the vast majority of pedestrians travelling in a westerly direction coming from the south of Falcon Street could utilise the proposed bridge.**

### **Recommendations**

- That this report be referred to Council's Pedestrian Sub-Committee.
- That Council continue to pursue the impacts of the Lane Cove tunnel project on pedestrians and cyclists.
- That the Roads and Traffic Authority of NSW look favourably on the impacts of the Lane Cove tunnel project on pedestrians and cyclists.

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## INTRODUCTION

### **Purpose of Surveys**

The Lane Cove Tunnel Project being undertaken by the Roads and Traffic Authority of NSW will severely impact upon the amenity of pedestrians that currently use Falcon Street, North Sydney as a means to cross Warringah Freeway. As a result, North Sydney Council has proposed a pedestrian / cycleway bridge to be incorporated to supplement the Lane Cove Tunnel works at Falcon Street. The Roads and Traffic Authority of NSW has requested that Council undertake volume counts of pedestrians currently using Falcon Street as a means to cross Warringah Freeway. These volume counts are to ascertain both the level at which the Falcon Street crossing is currently being used and determine the direction in which they are travelling.

In conjunction with these volume counts, North Sydney has undertaken a survey by interviewing a sample of those people using the Falcon Street crossing. This survey is to ascertain the overall movements of pedestrians using the Falcon Street crossing.

**PEDESTRIAN COUNT****Survey Details**

Manual pedestrian volume counts were undertaken at the following locations:

- Falcon Street – northern footpath,
- Falcon Street – southern footpath,
- St Leonards Park footpath,

during the following times:

- Tuesday 17 August 2004 – 6.30am-9.30pm, 11am-2pm & 3pm-7pm
- Wednesday 25 August 2004 – 6.30am-9.30pm & 3pm-7pm
- Thursday 26 August 2004 – 6.30am-9.30pm & 3pm-7pm

A full account of the survey has been provided in Appendix B.

**Key Findings**

The key findings of the survey were:

- During the peak flow periods, roughly equal numbers of pedestrians used the Falcon Street northern footpath as used the St Leonards Park footpath. A significantly less amount used the Falcon Street southern footpath.

**Impacts of Proposed Bridge**

Based on the key findings above, the resulting impacts of the proposed pedestrian / cyclist bridge would be as follows:

- During peak flow periods, roughly half of the pedestrians currently using Falcon Street, as a means to cross Warringah Freeway could utilise the proposed bridge.

**Summary of Pedestrian Count**

The peak flow of pedestrians using Falcon Street as a means to cross Warringah Freeway were as follows:

Tuesday 17 August 2004

Time Period			Pedestrian Movements						Total
			Northern Footpath		Southern Footpath		St Leonards Park		
			East	West	East	West	In	Out	
7:45	-	8:45	44	76	2	6	64	4	196
13:00	-	14:00	24	19	4	9	14	17	87
17:15	-	18:15	68	38	4	2	10	55	177

Wednesday 25 August 2004

Time Period			Pedestrian Movements						Total
			Northern Footpath		Southern Footpath		St Leonards Park		
			East	West	East	West	In	Out	
8:00	-	9:00	58	120	2	7	125	16	328
17:15	-	18:15	91	53	2	4	20	74	244



Thursday 26 August 2004

Time Period			Pedestrian Movements						
			Northern Footpath		Southern Footpath		St Leonards Park		Total
			East	West	East	West	In	Out	
7:45	-	8:45	63	100	3	3	109	21	299
17:15	-	18:15	95	61	4	0	13	77	250

## PEDESTRIAN INTERVIEWS

### Survey Details

Interviews were undertaken of pedestrians using the Falcon Street Bridge as a means to cross Warringah Freeway, travelling in both an east and west bound direction.

A full account of the survey has been provided in Appendix B.

### Key Findings

The key findings of the survey were:

- The vast majority of destinations were Neutral Bay (eighty two percent) for eastbound pedestrians and North Sydney (sixty two percent) for westbound pedestrians.
- Only twenty three percent of the pedestrians travelling in an eastbound direction were heading north of Falcon Street.
- Roughly equal amounts of pedestrians travelling in an easterly direction came from the south of Falcon Street, as came from the North.
- The vast majority of pedestrians travelling in a westerly direction came from the south of Falcon Street.

### Impacts of Proposed Bridge

Based on the key findings above, the resulting impacts of the proposed pedestrian / cyclist bridge would be as follows:

- The vast majority of the current Falcon Street crossing users could utilise the proposed bridge.
- Based on their origin, half of the pedestrians currently using Falcon Street to travel east and who are heading north of Falcon Street could still use the proposed bridge.
- Those pedestrians travelling in a westerly direction coming from the south of Falcon Street could utilise the proposed bridge.

### Summary of Pedestrian Destination Survey

	East Bound	West Bound
<b>Surveyed</b>	88	60
<b>Age</b>		
Under 30	45 %	50 %
Over 30	55 %	50 %
<b>Male / Female</b>		
Male	49 %	43 %
Female	51 %	57 %
<b>Period</b>		
AM Peak	56 %	43 %
Mid day	10 %	9 %

	<b>East Bound</b>		<b>West Bound</b>
PM Peak	34 %		48 %
<b>Origin</b>			
North Sydney	40 %	Neutral Bay	77 %
Cammeray	38 %	Cammeray	8 %
Neutral Bay	10 %	North Sydney	7 %
Cremorne	3 %	Cremorne	6 %
Crows Nest	3 %	Mosman	2 %
Kirribilli	2 %		
Lavender Bay	2 %		
City	2 %		
<b>Destination</b>			
Neutral Bay	82 %	North Sydney	62 %
North Sydney	10 %	Cammeray	20 %
Cammeray	3 %	Crows Nest	7 %
Cremorne	3 %	Neutral Bay	5 %
Mosman	2 %	Cremorne	3 %
		Woolloomooloo	1 %
		McMahons Pt	1 %
		Wollstonecraft	1 %
<b>Mode of Transport</b>			
Walking Only	95 %		92 %
Walk / Bus	2 %		-
Walk / Car	2 %		2 %
Jogging	-		2 %
Other	2 %		4 %
<b>Purpose of Journey</b>			
Work	45 %		52 %
Shopping	22 %		18 %
Recreation	8 %		22 %
Schooling	3 %		4 %
Bus	10 %		-
Library	2 %		-
Other	10 %		4 %

---

## CONCLUSION

### **Pedestrian Count Outcomes**

The key outcomes of the survey were:

- During the peak flow periods, roughly equal numbers of pedestrians used the Falcon Street northern footpath as used the St Leonards Park footpath. A significantly less amount used the Falcon Street southern footpath. Therefore roughly half of the pedestrians currently using Falcon Street, as a means to cross Warringah Freeway could utilise the proposed bridge.

### **Pedestrian Interview Outcomes**

The key outcomes of the survey were:

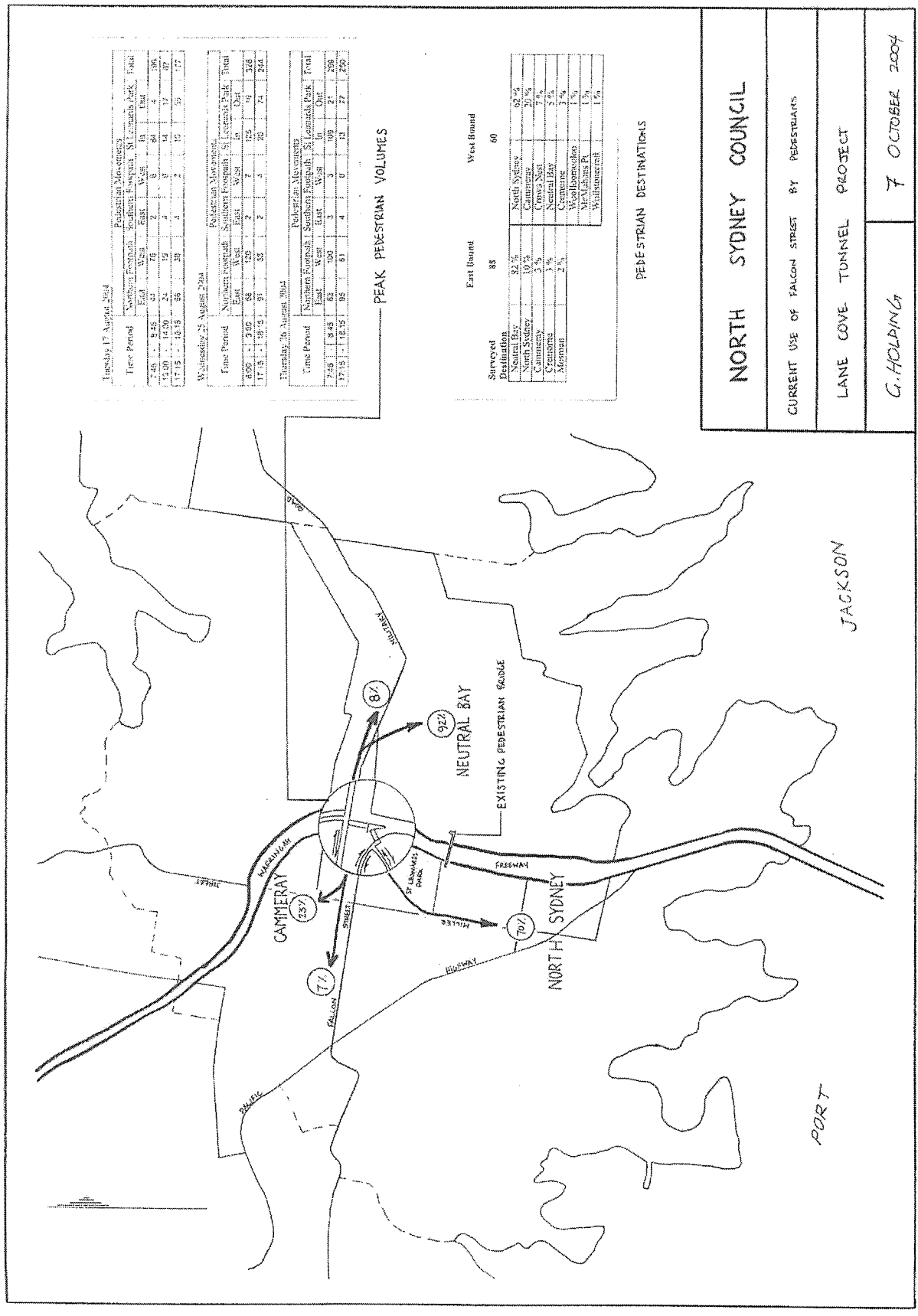
- The vast majority of destinations were Neutral Bay (eighty two percent) for eastbound pedestrians and North Sydney (sixty two percent) for westbound pedestrians. Only twenty three percent of the pedestrians travelling in an eastbound direction were heading north of Falcon Street. Therefore the vast majority of the current Falcon Street crossing users could utilise the proposed bridge.
- Roughly equal amounts of pedestrians travelling in an easterly direction came from the south of Falcon Street, as came from the North. Therefore half of the pedestrians currently using Falcon Street to travel east and who are heading north of Falcon Street could still use the proposed bridge.
- The vast majority of pedestrians travelling in a westerly direction came from the south of Falcon Street. Therefore the vast majority of pedestrians travelling in a westerly direction coming from the south of Falcon Street could utilise the proposed bridge.

## **RECOMMENDATIONS**

Based on the findings of this report, it is recommended:

- That this report be referred to Council's Pedestrian Sub-Committee.
- That Council continue to pursue the impacts of the Lane Cove tunnel project on pedestrians and cyclists.
- That the Roads and Traffic Authority of NSW look favourably on the impacts of the Lane Cove tunnel project on pedestrians and cyclists.

**APPENDIX A - PEDESTRIAN USE OF FALCON STREET**



Surveyor: I.P. Amadio 2004

Date: 17 August 2004

Time Period: 7:55 - 8:55

Time Period	Northbound		Southbound		Total
	In	Out	In	Out	
7:55 - 8:55	10	0	0	0	10
8:55 - 9:55	30	0	0	0	30
10:00 - 11:00	10	0	0	0	10
11:05 - 12:05	10	0	0	0	10
12:10 - 13:10	10	0	0	0	10
13:15 - 14:15	10	0	0	0	10
14:20 - 15:20	10	0	0	0	10
15:25 - 16:25	10	0	0	0	10
16:30 - 17:30	10	0	0	0	10
17:35 - 18:35	10	0	0	0	10

Wednesday, 18 August 2004

Time Period	Northbound		Southbound		Total
	In	Out	In	Out	
7:55 - 8:55	0	0	0	0	0
9:00 - 10:00	0	0	0	0	0
10:05 - 11:05	0	0	0	0	0
11:10 - 12:10	0	0	0	0	0
12:15 - 13:15	0	0	0	0	0
13:20 - 14:20	0	0	0	0	0
14:25 - 15:25	0	0	0	0	0
15:30 - 16:30	0	0	0	0	0
16:35 - 17:35	0	0	0	0	0
17:40 - 18:40	0	0	0	0	0

Thursday, 19 August 2004

Time Period	Northbound		Southbound		Total
	In	Out	In	Out	
7:55 - 8:55	3	3	0	0	6
8:55 - 9:55	5	5	0	0	10
9:55 - 10:55	10	10	0	0	20
10:55 - 11:55	10	10	0	0	20
11:55 - 12:55	13	13	0	0	26
12:55 - 13:55	17	17	0	0	34
13:55 - 14:55	17	17	0	0	34
14:55 - 15:55	17	17	0	0	34
15:55 - 16:55	22	22	0	0	44
16:55 - 17:55	25	25	0	0	50

PEDESTRIAN DESTINATIONS

Destination	Eastbound		Westbound	
	In	Out	In	Out
North Sydney	10%	10%	0	0
Cammeray	3%	3%	0	0
Neutral Bay	3%	3%	0	0
Cammeray	2%	2%	0	0
Woolloomooloo	1%	1%	0	0
McAlhays Pt	1%	1%	0	0
Woolloomooloo	1%	1%	0	0
Woolloomooloo	1%	1%	0	0

PEDESTRIAN DESTINATIONS

Destination	Eastbound		Westbound	
	In	Out	In	Out
North Sydney	10%	10%	0	0
Cammeray	3%	3%	0	0
Neutral Bay	3%	3%	0	0
Cammeray	2%	2%	0	0
Woolloomooloo	1%	1%	0	0
McAlhays Pt	1%	1%	0	0
Woolloomooloo	1%	1%	0	0
Woolloomooloo	1%	1%	0	0

PEDESTRIAN DESTINATIONS

Destination	Eastbound		Westbound	
	In	Out	In	Out
North Sydney	10%	10%	0	0
Cammeray	3%	3%	0	0
Neutral Bay	3%	3%	0	0
Cammeray	2%	2%	0	0
Woolloomooloo	1%	1%	0	0
McAlhays Pt	1%	1%	0	0
Woolloomooloo	1%	1%	0	0
Woolloomooloo	1%	1%	0	0

PEDESTRIAN DESTINATIONS

NORTH SYDNEY COUNCIL

CURRENT USE OF FALCON STREET BY PEDESTRIANS

LANE COVE TUNNEL PROJECT

G. HOLDING

7 OCTOBER 2004

**APPENDIX B - PEDESTRIAN COUNT AND INTERVIEWS**





JOB NUMBER 2028

JOB NAME NORTH SYDNEY

SURVEY LOCATIONS FALCON ST @ WARRINGAH FWY

SURVEY TYPE PEDESTRIAN COUNT

SURVEY DAY/DATE TUE 17-08-2004  
WED 25-08-2004  
THU 26-08-2004

SURVEY PERIOD 0630 - 0930  
1100 - 1400  
1500 - 1900

Interviews with pedestrians crossing Warringah Freeway  
**Eastbound**

LEGEND	
Mode of Transport	Purpose of Journey
a	To/From work
b	Going to shops
c	Recreation
d	Other

Date	Period	Male/Female	Age	Direction	Origin of Pedestrian		Destination of Pedestrian		Mode of transport	Purpose of journey	Comments
					Street	Suburb	Street	Suburb			
Tue 17 Aug	AM	F	Over 30	Eastbound	Mc Lauren	North Sydney	Mc Lauren ST	North Sydney	a	c	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Eastbound	Falcon ST	Neutal Bay	Military RD	Neutal Bay	a	c	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Eastbound	Falcon ST	Neutal Bay	Military RD	Neutal Bay	a	a	Regular - Approx 4 days a week
Tue 17 Aug	AM	M	Under 30	Eastbound	Falcon ST	North Sydney	Military RD	Neutal Bay	a	d bus	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Over 30	Eastbound	Ermon ST	Cammeray	Military RD	Neutal Bay	a	d	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Under 30	Eastbound	Ermon ST	Cammeray	Military RD	Neutal Bay	a	d	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Over 30	Eastbound	Falcon ST	North Sydney	Military RD	Neutal Bay	a	b	Regular
Tue 17 Aug	MD	M	Over 30	Eastbound	Harbour side	Kirribilli	YEO ST	Neutal Bay	a	c	Regular - Daily
Tue 17 Aug	MD	M	Over 30	Eastbound	Miller ST	Cammeray	Military RD	Neutal Bay	d	b	Regular - Daily
Tue 17 Aug	MD	F	Over 30	Eastbound	Lytton ST	Cammeray	Military RD	Neutal Bay	a	b	Regular - Daily
Tue 17 Aug	MD	F	Over 30	Eastbound	Falcon ST	Cammeray	Military RD	Neutal Bay	a	b	Regular
Tue 17 Aug	PM	M	Over 30	Eastbound	Walker ST	North Sydney	Undercliff	Neutal Bay	a	a	Regular
Tue 17 Aug	PM	F	Under 30	Eastbound	Walker ST	North Sydney	Cremorne ST	Neutal Bay	a	d	Regular
Tue 17 Aug	PM	F	Over 30	Eastbound	Gerard ST	Cammeray	Military RD	Neutal Bay	a	b	Regular - Approx 4 days a week
Tue 17 Aug	PM	F	Over 30	Eastbound	Pacific Hwy	Neutal Bay	Military RD	Neutal Bay	a	a	Regular - Daily
Tue 17 Aug	PM	F	Over 30	Eastbound	Miller ST	North Sydney	Military RD	Neutal Bay	a	d	Regular - Daily
Tue 17 Aug	PM	F	Under 30	Eastbound	City	City	Military RD	Neutal Bay	c	a	Regular
Tue 17 Aug	PM	M	Over 30	Eastbound	Military RD	Neutal Bay	Moode ST	Cammeray	b	a	Regular
Wed 25 Aug	AM	F	Over 30	Eastbound	Moode	Cammeray	Military Road	Neutal Bay	a	a	Regular - Approx 2 days a week
Wed 25 Aug	AM	M	Over 30	Eastbound	Falcon Street	North Sydney	Military Road	Neutal Bay	a	a	Regular - Approx 2 days a week
Wed 25 Aug	AM	M	Under 30	Eastbound	Ernest Street	Cammeray	Military Road	Neutal Bay	a	a	Regular - Daily
Wed 25 Aug	AM	F	Over 30	Eastbound	Miller Street	North Sydney	Military Road	Neutal Bay	a	a	Regular gets off bus at military Rd
Wed 25 Aug	AM	M	Over 30	Eastbound	Falcon Street	Cammeray	Military Road	Neutal Bay	a	a	Regular - Approx 4 days a week
Wed 25 Aug	AM	F	Over 30	Eastbound	Ernest Street	Cammeray	Military Road	Neutal Bay	a	a	Regular
Wed 25 Aug	AM	F	Over 30	Eastbound	Ernest Street	Cammeray	Military Road	Neutal Bay	a	b	Regular
Wed 25 Aug	AM	F	Over 30	Eastbound	Ernest Street	Cammeray	Military Road	Neutal Bay	a	b	Regular
Wed 25 Aug	AM	F	Over 30	Eastbound	Ernest Street	Cammeray	Military Road	Neutal Bay	a	b	Regular
Wed 25 Aug	AM	F	Over 30	Eastbound	Moode	Cammeray	Military Road	Neutal Bay	a	b	Regular
Wed 25 Aug	AM	F	Over 30	Eastbound	Miller Street	North Sydney	Military Road	Neutal Bay	a	a	Regular
Wed 25 Aug	AM	M	Over 30	Eastbound	Falcon Street	Cammeray	Military Road	Neutal Bay	a	a	Regular
Wed 25 Aug	AM	M	Under 30	Eastbound	Miller Street	North Sydney	Military Road	Neutal Bay	a	a	Irregular
Wed 25 Aug	AM	F	Under 30	Eastbound	Miller Street	North Sydney	Military Road	Neutal Bay	a	a	Irregular
Wed 25 Aug	AM	F	Under 30	Eastbound	Falcon Street	Cammeray	Military Road	Neutal Bay	a	a	Irregular
Wed 25 Aug	AM	F	Under 30	Eastbound	Pacific Hwy	Cammeray	Military Road	Neutal Bay	a	d tale	Regular - Approx 3 days a week
Wed 25 Aug	AM	F	Over 30	Eastbound	Miller Street	North Sydney	Military Road	Neutal Bay	a	a	Regular
Wed 25 Aug	AM	F	Over 30	Eastbound	Bardsley Garden	Cammeray	Military Road	Neutal Bay	a	a	Regular
Thu 26 Aug	AM	F	Under 30	Eastbound	Moode Street	Cammeray	Military Road	Neutal Bay	a	a	Regular - Approx 4 days a week
Thu 26 Aug	AM	F	Under 30	Eastbound	Lytton Street	Cammeray	Military Road	Neutal Bay	a	b	Irregular
Thu 26 Aug	AM	F	Under 30	Eastbound	North Sydney Station	North Sydney	Military Road	Neutal Bay	a	d bus	regular
Thu 26 Aug	AM	F	Under 30	Eastbound	Falcon Street	Cammeray	Military Road	Neutal Bay	a	d bus	regular
Thu 26 Aug	AM	M	Under 30	Eastbound	Moode Street	Cammeray	Military Road	Neutal Bay	a	d bus	regular
Thu 26 Aug	AM	M	Over 30	Eastbound	Ernest Street	Cammeray	Military Road	Neutal Bay	a	d bus	regular
Thu 26 Aug	AM	F	Over 30	Eastbound	Gerard Street	Cammeray	Military Road	Neutal Bay	a	a	regular
Thu 26 Aug	AM	M	Over 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	AM	M	Over 30	Eastbound	Murdoch	Neutal Bay	Miller street	Neutal Bay	a	c	regular
Thu 26 Aug	AM	F	Over 30	Eastbound	Murdoch	Neutal Bay	Miller street	Neutal Bay	a	c	Irregular
Thu 26 Aug	PM	M	Over 30	Eastbound	Mc Lauren	North Sydney	Military Road	Neutal Bay	a	b	Irregular
Thu 26 Aug	PM	F	Under 30	Eastbound	Miller street	North Sydney	Military Road	Neutal Bay	a	d	Irregular
Thu 26 Aug	PM	F	Under 30	Eastbound	Ernest Street	North Sydney	Military Road	Neutal Bay	a	a	Regular - Approx 2 days a week
Thu 26 Aug	PM	M	Over 30	Eastbound	Ernest Street	Cammeray	Park Road	Neutal Bay	a	c	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Ben Boyd Road	Neutal Bay	a	d tale	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	F	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	M	Under 30	Eastbound	Miller street	North Sydney	Belgrave Street	Neutal Bay	a	a	regular
Thu 26 Aug	PM	F	Under 30	Eastbound	Waverce street	Lavender Bay	Military Road	Neutal Bay	a	b	Regular - Approx 3 days a week
Thu 26 Aug	PM	F	Under 30	Eastbound	Miller street	North Sydney	Military Road	Neutal Bay	a	a	Regular - Daily
Thu 26 Aug	PM	F	Under 30	Eastbound	Miller street	North Sydney	Military Road	Neutal Bay	a	a	Family visit
Thu 26 Aug	PM	F	Under 30	Eastbound	Young Street	Cremorne	Military Road	Neutal Bay	a	a	Regular - Approx 4 days a week
Thu 26 Aug	PM	F	Under 30	Eastbound	Willoughby Rd	Crows Nest	Carlow Street	Neutal Bay	a	d	Regular - Approx 4 days a week

Interviews with pedestrians crossing Warringah Freeway.

Westbound

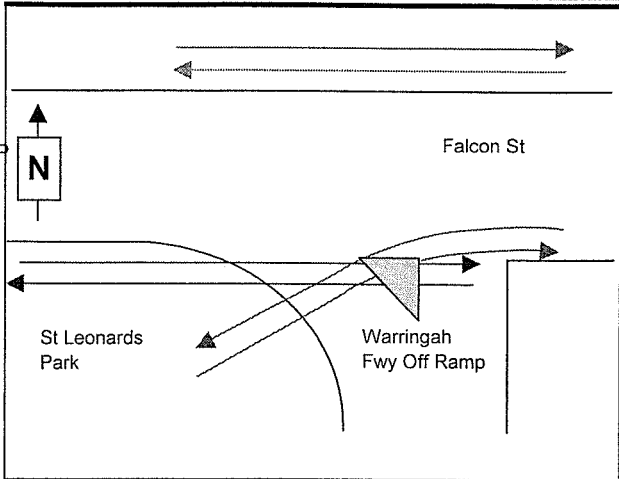
LEGEND	
Mode of Transport	Purpose of Journey
a Walked the whole day	a To/From work
b Caught the bus	b Going to Snops
c Dropped off	c Recreation
d Other	d Other

Date	Period	Male/Female	Age	Direction	Origin of Pedestrian		Destination of Pedestrian		Mode of transport	Purpose of journey	Comments
					Street	Suburb	Street	Suburb			
Tue 17 Aug	AM	F	Under 30	Westbound	Military RD	Neutral Bay	Miller ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Under 30	Westbound	Grosvenor ST	Neutral Bay	Miller ST	Woolloomooloo	d	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Under 30	Westbound	Military RD	Neutral Bay	Rail	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Westbound	Grosvenor ST	Neutral Bay	Miller ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Over 30	Westbound	Gerard	Cremorne	Williary RD	Crows Nest	a	c	Regular - Approx 6 days a week
Tue 17 Aug	AM	F	Over 30	Westbound	Gerard	Cremorne	Willoughby	Crows Nest	a	c	Regular - Daily
Tue 17 Aug	AM	M	Over 30	Westbound	Military RD	Neutral Bay	Falcon ST	North Sydney	a	b	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Over 30	Westbound	Park ST	Neutral Bay	Falcon ST	North Sydney	a	c	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Under 30	Westbound	Mc Lauren	North Sydney	Mc Lauren ST	North Sydney	a	c	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Westbound	Merlin ST	Neutral Bay	Pacific Hwy	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Westbound	Berita Rd	Cremorne	Miller ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Under 30	Westbound	Berry Rd	North Sydney	Faught	North Sydney	a	c	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Over 30	Westbound	Moodie ST	Cammeray	Military RD	Neutral Bay	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Over 30	Westbound	Murdoch	Neutral Bay	Military RD	McMahons Point	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Under 30	Westbound	Young ST	Cremorne	Murdoch	North Sydney	a	a	Regular - Daily
Tue 17 Aug	AM	F	Over 30	Westbound	Young ST	Neutral Bay	Ernest ST	Cammeray	a	c	Regular - Daily
Tue 17 Aug	AM	M	Over 30	Westbound	Merlin ST	North Sydney	Miller ST	North Sydney	d	a	Regular - Approx 2 days a week
Tue 17 Aug	AM	M	Over 30	Westbound	Military RD	Neutral Bay	Miller ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	M	Over 30	Westbound	Military RD	Neutral Bay	Miller ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Over 30	Westbound	Linnsay ST	Neutral Bay	Falcon ST	Neutral Bay	a	d	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Over 30	Westbound	Military RD	Neutral Bay	Miller ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Westbound	Glover ST	Cammeray	Miller ST	North Sydney	c	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Westbound	Ben Boyd RD	Neutral Bay	Miller ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Westbound	Dulton RD	Neutral Bay	Walker ST	North Sydney	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Under 30	Westbound	Murdoch ST	Neutral Bay	Pacific Hwy	Neutral Bay	a	a	Regular - Approx 5 days a week
Tue 17 Aug	AM	F	Over 30	Westbound	Falcon ST	Cammeray	Mc Lauren ST	North Sydney	c	a	Regular
Tue 17 Aug	MD	F	Over 30	Westbound	Military RD	Neutral Bay	Ridye ST	North Sydney	a	b	Regular - Approx 5 days a week
Tue 17 Aug	MD	M	Over 30	Westbound	Military RD	Neutral Bay	Miller ST	North Sydney	a	b	Regular - Approx 3 days a week
Tue 17 Aug	MD	M	Over 30	Westbound	Military RD	Neutral Bay	Falcon ST	North Sydney	a	b	Regular - Daily
Tue 17 Aug	MD	F	Under 30	Westbound	Gerard	Neutral Bay	Miller ST	North Sydney	a	b	Regular - Daily
Tue 17 Aug	MD	M	Over 30	Westbound	Cremorne	Neutral Bay	Miller ST	North Sydney	a	d bus	Regular - Approx 5 days a week
Tue 17 Aug	MD	M	Over 30	Westbound	Military RD	Neutral Bay	Walker ST	North Sydney	a	b	Regular - Approx 4 days a week
Tue 17 Aug	MD	F	Over 30	Westbound	Military RD	Neutral Bay	Falcon ST	North Sydney	a	b	Regular - Approx 5 days a week
Tue 17 Aug	MD	M	Over 30	Westbound	Military RD	Neutral Bay	King ST	North Sydney	a	c	Regular
Tue 17 Aug	MD	F	Over 30	Westbound	Military RD	Neutral Bay	Walker ST	North Sydney	a	c	Regular
Tue 17 Aug	PM	F	Under 30	Westbound	Military RD	Neutral Bay	Mc Lauren ST	North Sydney	a	b	Regular - Approx 6 days a week
Tue 17 Aug	PM	M	Over 30	Westbound	Military RD	Neutral Bay	Ernest ST	Cammeray	a	b	Regular - Daily
Wed 25 Aug	AM	F	Under 30	Westbound	Young street	Neutral bay	St Leonards Park	North Sydney	d jogging	c	Regular
Wed 25 Aug	AM	F	Under 30	Westbound	Raybody Rd	Neutral bay	Miller Street	North Sydney	a	d school	Regular
Wed 25 Aug	AM	F	Over 30	Westbound	Sutherland Street	Neutral bay	Falcon Street	North Sydney	d jogging	c	Regular
Wed 25 Aug	AM	M	Over 30	Westbound	Belgrave Street	Neutral bay	Ridge street	North Sydney	a	c	Regular
Wed 25 Aug	AM	M	Over 30	Westbound	Grassmere rd	Cammeray	Arthur street	North Sydney	a	a	Regular - Approx 2 days a week
Wed 25 Aug	AM	F	Over 30	Westbound	Merlin Street	Neutral bay	Ernest Street	Cammeray	a	a	Regular
Wed 25 Aug	AM	M	Over 30	Westbound	Military Road	Mosman	Miller Street	North Sydney	a	a	Regular
Wed 25 Aug	AM	M	Over 30	Westbound	Grosvenor St	Neutral bay	Miller Street	North Sydney	a	a	Regular
Wed 25 Aug	PM	F	Over 30	Westbound	Military Road	Neutral bay	Moodie street	Cammeray	a	a	Regular
Wed 25 Aug	PM	M	Under 30	Westbound	Falcon Street	Cammeray	Military Road	Neutral Bay	a	a	Regular - Approx 6 days a week
Wed 25 Aug	PM	F	Under 30	Westbound	Falcon Street	Cammeray	Moodie street	Cammeray	a	a	Regular
Wed 25 Aug	PM	F	Over 30	Westbound	Military Road	Neutral bay	Blue street	North Sydney	a	a	Regular
Wed 25 Aug	PM	F	Under 30	Westbound	Young street	Neutral bay	Pacific HWY	Crows Nest	a	a	Regular
Wed 25 Aug	PM	M	Over 30	Westbound	Miller Street	North Sydney	Hume street	Crows Nest	a	a	Regular

Wed 25 Aug	PM	M	Over 30	Westbound	Military Road	Neutral bay	Blue street	North Sydney	a	a	Regular - Approx 3 days a week
Wed 25 Aug	PM	M	Over 30	Westbound	Ranger	Neutral bay	West Street	North Sydney	a	a	Regular
Wed 25 Aug	PM	F	Under 30	Westbound	Merlin Street	Neutral bay	Miller Street	North Sydney	a	a	Irregular
Wed 25 Aug	PM	F	Under 30	Westbound	Military Road	Neutral bay	Mc Lauren Street	North Sydney	a	b	Regular
Wed 25 Aug	PM	M	Over 30	Westbound	Falcon Street	North Sydney	Neutral Bay	North Sydney	a	b	Regular
Wed 25 Aug	PM	F	Over 30	Westbound	Military Road	Neutral bay	Moodie street	Cammeray	a	b	Regular - Approx 2 days a week
Wed 25 Aug	PM	F	Under 30	Westbound	Military Road	Neutral bay	Bardsley Garden	Cammeray	a	b	Irregular
Wed 25 Aug	PM	M	Under 30	Westbound	Ben Body Road	Neutral bay	Falcon Street	Cammeray	a	c	Regular - Approx 3 days a week
Wed 25 Aug	PM	M	Under 30	Westbound	Holdsforth ST	Neutral bay	Falcon Street	Cammeray	a	c	Regular
Wed 25 Aug	PM	F	Over 30	Westbound	Military Road	Neutral bay	chandos street	Crows Nest	a	b	Regular - Approx 2 days a week
Wed 25 Aug	PM	F	Under 30	Westbound	Military Road	Neutral bay	Falcon Street	Crows Nest	a	b	Regular
Wed 25 Aug	PM	F	Under 30	Westbound	Military Road	Neutral bay	Bardsley	North Sydney	a	a	Regular - Approx 5 days a week
Wed 25 Aug	PM	M	Under 30	Westbound	Military Road	Neutral bay	Ernest Street	Cammeray	a	b	regular
Wed 25 Aug	PM	F	Under 30	Westbound	Park Avenue	Cammeray	St Leonards Park	Cammeray	a	c	regular
Thu 26 Aug	AM	M	Over 30	Westbound	Young Street	Neutral Bay	St Leonards Park	North Sydney	a	c	School
Thu 26 Aug	AM	F	Under 30	Westbound	Ben Boyd Road	North Sydney	Miller Road	North Sydney	a	a	School
Thu 26 Aug	AM	F	Under 30	Westbound	Glasmerie Street	Neutral Bay	Miller Road	North Sydney	a	d	School
Thu 26 Aug	AM	M	Under 30	Westbound	Falcon Street	Neutral Bay	St Leonards Park	North Sydney	a	c	regular
Thu 26 Aug	AM	F	Over 30	Westbound	Merlin Street	Neutral Bay	Blue Street	North Sydney	a	a	regular
Thu 26 Aug	AM	M	Over 30	Westbound	Ben Boyd Road	Neutral Bay	Wills Street	North Sydney	a	a	regular
Thu 26 Aug	AM	F	Over 30	Westbound	Military Road	Neutral Bay	Miller street	North Sydney	a	a	regular
Thu 26 Aug	AM	F	Under 30	Westbound	Military Road	Neutral Bay	Miller street	North Sydney	a	a	regular
Thu 26 Aug	AM	F	Over 30	Westbound	Gerard Street	Cremorne	Berry street	North Sydney	a	c	regular
Thu 26 Aug	AM	F	Under 30	Westbound	Military Road	Neutral Bay	North Sydney station	North Sydney	a	a	regular
Thu 26 Aug	AM	M	Under 30	Westbound	Ben Boyd Road	Neutral Bay	Miller street	North Sydney	a	d school	regular
Thu 26 Aug	AM	M	Over 30	Westbound	Military Road	Neutral Bay	Ernest Street	Cammeray	a	a	regular
Thu 26 Aug	AM	F	Under 30	Westbound	Leo Street	Neutral Bay	St Leonards Park	Cammeray	a	a	regular
Thu 26 Aug	AM	M	Under 30	Westbound	Young Street	Neutral Bay	Miller street	North Sydney	a	c	regular
Thu 26 Aug	PM	M	Over 30	Westbound	Military Road	Neutral Bay	Lyton street	Cammeray	a	b	regular
Thu 26 Aug	PM	F	Over 30	Westbound	Grosvenor street	Neutral Bay	St Leonards Park	North Sydney	a	c	regular
Thu 26 Aug	PM	F	Over 30	Westbound	Military Road	Neutral Bay	Lyton street	Cammeray	a	a	Regular - Approx 3 days a week
Thu 26 Aug	PM	M	Over 30	Westbound	Military Road	Neutral Bay	Moodie Street	Cammeray	a	a	Regular - Approx 5 days a week
Thu 26 Aug	PM	F	Under 30	Westbound	Military Road	Neutral Bay	Bardsley Garden	North Sydney	a	b	regular
Thu 26 Aug	PM	F	Under 30	Westbound	Military Road	Mosman	Ernest Street	Cammeray	a	a	Irregular
Thu 26 Aug	PM	F	Over 30	Westbound	Military Road	Neutral Bay	Moodie Street	Cammeray	a	a	Irregular
Thu 26 Aug	PM	F	Under 30	Westbound	Military Road	Neutral Bay	Ernest Street	Cammeray	a	a	City bound

# AUSTRALASIAN TRAFFIC SURVEYS

JOB 2028 NORTH SYDNEY  
 CLIENT NORTH SYDNEY COUNCIL  
 LOCATION FALCON ST @ WARRINGAH FWY OFF RAMP  
 SURVEY TYPE PEDESTRIAN COUNT  
 DAY, DATE THU 26-08-2004  
 SURVEY PERIOD 1500 - 1900



Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
15:00 - 15:15	19	6	2	0	2	8	37	
15:15 - 15:30	13	22	0	1	2	9	47	
15:30 - 15:45	13	10	1	1	2	7	34	
15:45 - 16:00	16	8	1	0	3	7	35	
16:00 - 16:15	10	6	0	0	6	7	29	
16:15 - 16:30	5	7	1	1	1	1	16	
16:30 - 16:45	9	12	5	1	7	11	45	
16:45 - 17:00	7	10	1	0	3	4	25	
17:00 - 17:15	7	12	0	0	3	7	29	
17:15 - 17:30	15	15	3	0	5	13	51	
17:30 - 17:45	23	20	0	0	1	15	59	
17:45 - 18:00	29	12	0	0	3	31	75	
18:00 - 18:15	28	14	1	0	4	18	65	
18:15 - 18:30	16	14	4	1	3	9	47	
18:30 - 18:45	20	6	1	2	0	12	41	
18:45 - 19:00	14	7	0	0	0	7	28	
Σ	244	181	20	7	45	166	663	

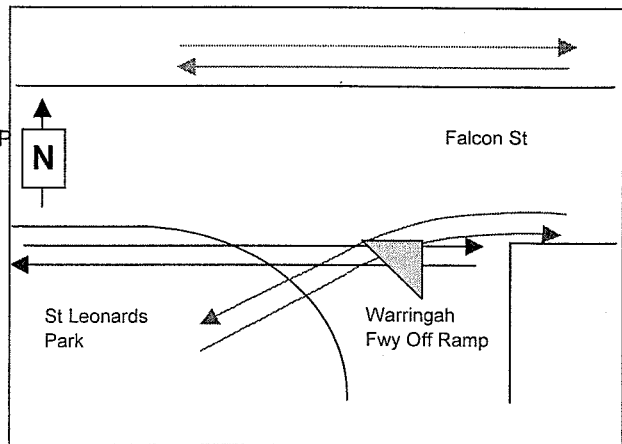
## HOURLY FLOWS

Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
15:00 - 16:00	61	46	4	2	9	31	153	
15:15 - 16:15	52	46	2	2	13	30	145	
15:30 - 16:30	44	31	3	2	12	22	114	
15:45 - 16:45	40	33	7	2	17	26	125	
16:00 - 17:00	31	35	7	2	17	23	115	
16:15 - 17:15	28	41	7	2	14	23	115	
16:30 - 17:30	38	49	9	1	18	35	150	
16:45 - 17:45	52	57	4	0	12	39	164	
17:00 - 18:00	74	59	3	0	12	66	214	
<b>17:15 - 18:15</b>	<b>95</b>	<b>61</b>	<b>4</b>	<b>0</b>	<b>13</b>	<b>77</b>	<b>250</b>	
17:30 - 18:30	96	60	5	1	11	73	246	
17:45 - 18:45	93	46	6	3	10	70	228	
18:00 - 19:00	78	41	6	3	7	46	181	

**PEAK**

# AUSTRALASIAN TRAFFIC SURVEYS

JOB 2028 NORTH SYDNEY  
 CLIENT NORTH SYDNEY COUNCIL  
 LOCATION FALCON ST @ WARRINGAH FWY OFF RAMP  
 SURVEY TYPE PEDESTRIAN COUNT  
 DAY, DATE THU 26-08-2004  
 SURVEY PERIOD 0630 - 0930



Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
6:30 - 6:45	5	4	10	0	16	2	37	
6:45 - 7:00	6	8	1	0	12	3	30	
7:00 - 7:15	4	6	0	1	4	1	16	
7:15 - 7:30	7	17	1	2	8	11	46	
7:30 - 7:45	9	10	1	2	11	5	38	
7:45 - 8:00	18	26	0	1	28	6	79	
8:00 - 8:15	11	27	1	0	28	7	74	
8:15 - 8:30	14	22	1	1	25	4	67	
8:30 - 8:45	20	25	1	1	28	4	79	
8:45 - 9:00	15	30	0	0	28	2	75	
9:00 - 9:15	3	12	0	1	6	1	23	
9:15 - 9:30	6	5	0	1	5	2	19	
Σ	118	192	16	10	199	48	583	

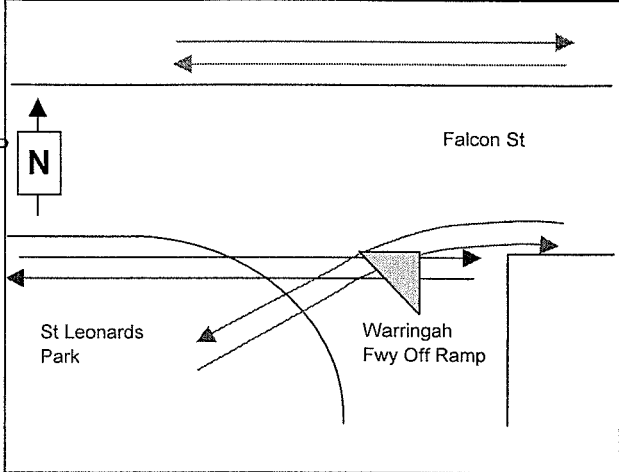
## HOURLY FLOWS

Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
6:30 - 7:30	22	35	12	3	40	17	129	
6:45 - 7:45	26	41	3	5	35	20	130	
7:00 - 8:00	38	59	2	6	51	23	179	
7:15 - 8:15	45	80	3	5	75	29	237	
7:30 - 8:30	52	85	3	4	92	22	258	
<b>7:45 - 8:45</b>	<b>63</b>	<b>100</b>	<b>3</b>	<b>3</b>	<b>109</b>	<b>21</b>	<b>299</b>	
8:00 - 9:00	60	104	3	2	109	17	295	
8:15 - 9:15	52	89	2	3	87	11	244	
8:30 - 9:30	44	72	1	3	67	9	196	

**PEAK**

# AUSTRALASIAN TRAFFIC SURVEYS

JOB 2028 NORTH SYDNEY  
 CLIENT NORTH SYDNEY COUNCIL  
 LOCATION FALCON ST @ WARRINGAH FWY OFF RAMP  
 SURVEY TYPE PEDESTRIAN COUNT  
 DAY, DATE WED 25-08-2004  
 SURVEY PERIOD 1500 - 1900



Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
15:00 - 15:15	6	5	1	0	3	4	19	
15:15 - 15:30	10	8	0	0	0	10	28	
15:30 - 15:45	18	14	1	1	13	3	50	
15:45 - 16:00	14	4	0	1	0	11	30	
16:00 - 16:15	11	5	0	0	2	8	26	
16:15 - 16:30	14	7	2	0	2	9	34	
16:30 - 16:45	5	3	3	1	0	11	23	
16:45 - 17:00	19	6	2	0	2	13	42	
17:00 - 17:15	17	12	1	2	5	15	52	
17:15 - 17:30	19	10	1	0	4	17	51	
17:30 - 17:45	20	17	0	1	4	20	62	
17:45 - 18:00	30	11	1	3	7	25	77	
18:00 - 18:15	22	15	0	0	5	12	54	
18:15 - 18:30	23	8	1	0	3	11	46	
18:30 - 18:45	14	7	2	0	2	12	37	
18:45 - 19:00	6	15	0	2	2	4	29	
Σ	248	147	15	11	54	185	660	

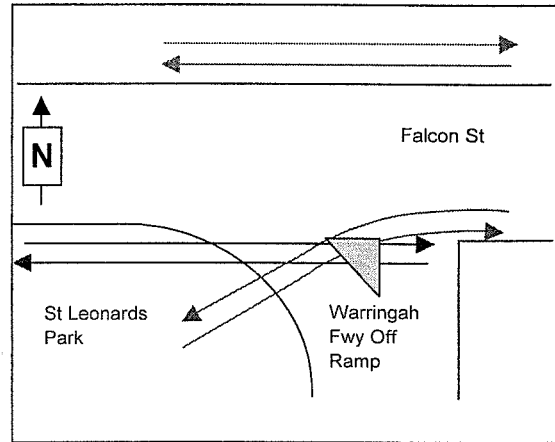
## HOURLY FLOWS

Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
15:00 - 16:00	48	31	2	2	16	28	127	
15:15 - 16:15	53	31	1	2	15	32	134	
15:30 - 16:30	57	30	3	2	17	31	140	
15:45 - 16:45	44	19	5	2	4	39	113	
16:00 - 17:00	49	21	7	1	6	41	125	
16:15 - 17:15	55	28	8	3	9	48	151	
16:30 - 17:30	60	31	7	3	11	56	168	
16:45 - 17:45	75	45	4	3	15	65	207	
17:00 - 18:00	86	50	3	6	20	77	242	
<b>17:15 - 18:15</b>	<b>91</b>	<b>53</b>	<b>2</b>	<b>4</b>	<b>20</b>	<b>74</b>	<b>244</b>	
17:30 - 18:30	95	51	2	4	19	68	239	
17:45 - 18:45	89	41	4	3	17	60	214	
18:00 - 19:00	65	45	3	2	12	39	166	

**PEAK**

# AUSTRALASIAN TRAFFIC SURVEYS

JOB 2028 NORTH SYDNEY  
 CLIENT NORTH SYDNEY COUNCIL  
 LOCATION FALCON ST @ WARRINGAH FWY OFF RAMP  
 SURVEY TYPE PEDESTRIAN COUNT  
 DAY, DATE WED 25-08-2004  
 SURVEY PERIOD 0630 - 0930



Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
6:30 - 6:45	6	4	1	1	6	1	19	
6:45 - 7:00	4	7	0	0	8	0	19	
7:00 - 7:15	3	5	2	0	11	7	28	
7:15 - 7:30	3	13	2	0	6	3	27	
7:30 - 7:45	11	19	3	2	20	3	58	
7:45 - 8:00	9	24	0	1	26	3	63	
8:00 - 8:15	10	34	1	1	35	4	85	
8:15 - 8:30	20	33	0	1	36	9	99	
8:30 - 8:45	19	27	0	3	29	2	80	
8:45 - 9:00	9	26	1	2	25	1	64	
9:00 - 9:15	7	14	1	1	11	4	38	
9:15 - 9:30	9	7	0	0	4	3	23	
Σ	110	213	11	12	217	40	603	

## HOURLY FLOWS

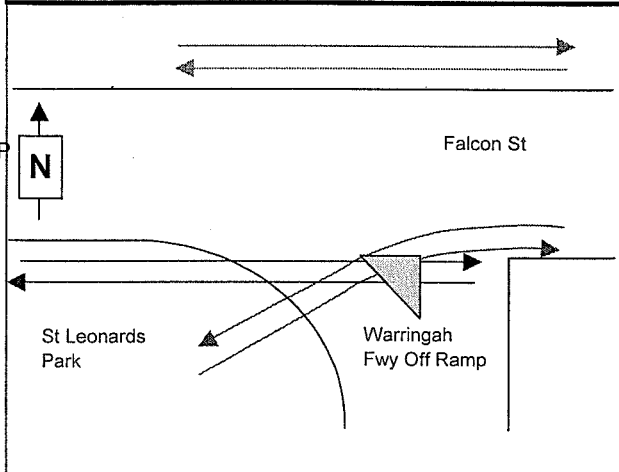
Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
6:30 - 7:30	16	29	5	1	31	11	93	
6:45 - 7:45	21	44	7	2	45	13	132	
7:00 - 8:00	26	61	7	3	63	16	176	
7:15 - 8:15	33	90	6	4	87	13	233	
7:30 - 8:30	50	110	4	5	117	19	305	
7:45 - 8:45	58	118	1	6	126	18	327	
<b>8:00 - 9:00</b>	<b>58</b>	<b>120</b>	<b>2</b>	<b>7</b>	<b>125</b>	<b>16</b>	<b>328</b>	
8:15 - 9:15	55	100	2	7	101	16	281	
8:30 - 9:30	44	74	2	6	69	10	205	

**PEAK**



# AUSTRALASIAN TRAFFIC SURVEYS

JOB 2028 NORTH SYDNEY  
 CLIENT NORTH SYDNEY COUNCIL  
 LOCATION FALCON ST @ WARRINGAH FWY OFF RAMP  
 SURVEY TYPE PEDESTRIAN COUNT  
 DAY, DATE TUE 17-08-2004  
 SURVEY PERIOD 1500 - 1900



Time Period	PEDESTRIAN MOVEMENTS						
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK		Σ
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND	
15:00 - 15:15	3	7	0	0	2	3	15
15:15 - 15:30	8	7	2	1	0	5	23
15:30 - 15:45	12	12	1	0	3	11	39
15:45 - 16:00	4	3	1	0	0	3	11
16:00 - 16:15	8	8	1	1	3	7	28
16:15 - 16:30	7	2	0	0	1	7	17
16:30 - 16:45	10	7	2	0	1	5	25
16:45 - 17:00	9	6	2	2	3	5	27
17:00 - 17:15	11	11	0	0	5	10	37
17:15 - 17:30	14	5	0	0	1	9	29
17:30 - 17:45	18	13	0	2	5	15	53
17:45 - 18:00	15	9	2	0	2	15	43
18:00 - 18:15	21	11	2	0	2	16	52
18:15 - 18:30	13	7	0	0	0	5	25
18:30 - 18:45	6	3	0	0	1	2	12
18:45 - 19:00	6	6	0	0	0	0	12
Σ	165	117	13	6	29	118	448

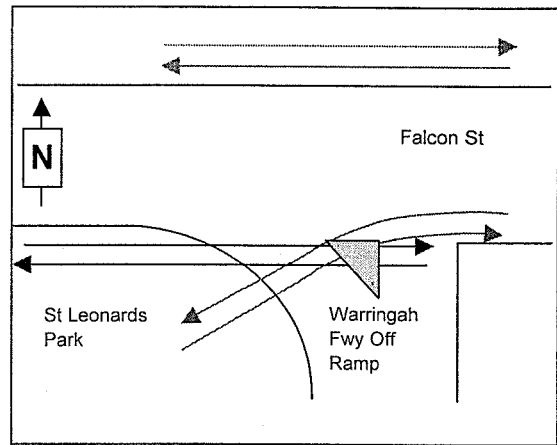
## HOURLY FLOWS

Time Period	PEDESTRIAN MOVEMENTS						
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK		Σ
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND	
15:00 - 16:00	27	29	4	1	5	22	88
15:15 - 16:15	32	30	5	2	6	26	101
15:30 - 16:30	31	25	3	1	7	28	95
15:45 - 16:45	29	20	4	1	5	22	81
16:00 - 17:00	34	23	5	3	8	24	97
16:15 - 17:15	37	26	4	2	10	27	106
16:30 - 17:30	44	29	4	2	10	29	118
16:45 - 17:45	52	35	2	4	14	39	146
17:00 - 18:00	58	38	2	2	13	49	162
<b>17:15 - 18:15</b>	<b>68</b>	<b>38</b>	<b>4</b>	<b>2</b>	<b>10</b>	<b>55</b>	<b>177</b>
17:30 - 18:30	67	40	4	2	9	51	173
17:45 - 18:45	55	30	4	0	5	38	132
18:00 - 19:00	46	27	2	0	3	23	101

**PEAK**

# AUSTRALASIAN TRAFFIC SURVEYS

JOB 2028 NORTH SYDNEY  
 CLIENT NORTH SYDNEY COUNCIL  
 LOCATION FALCON ST @ WARRINGAH FWY OFF RAMP  
 SURVEY TYPE PEDESTRIAN COUNT  
 DAY, DATE TUE 17-08-2004  
 SURVEY PERIOD 1100 - 1400



Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
11:00 - 11:15	3	4	0	1	1	1	10	
11:15 - 11:30	8	6	0	0	5	2	21	
11:30 - 11:45	3	3	0	1	2	1	10	
11:45 - 12:00	7	6	0	1	4	4	22	
12:00 - 12:15	5	3	0	1	1	3	13	
12:15 - 12:30	6	3	0	1	3	5	18	
12:30 - 12:45	8	4	1	0	1	4	18	
12:45 - 13:00	6	5	0	0	1	4	16	
13:00 - 13:15	6	5	1	4	4	6	26	
13:15 - 13:30	5	7	3	2	5	4	26	
13:30 - 13:45	5	5	0	1	3	4	18	
13:45 - 14:00	8	2	0	2	2	3	17	
Σ	70	53	5	14	32	41	215	

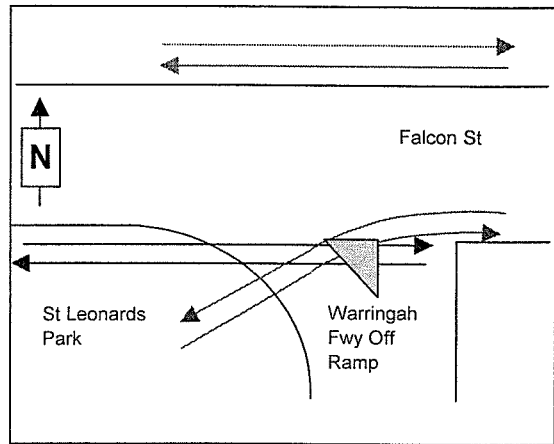
## HOURLY FLOWS

Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
11:00 - 12:00	21	19	0	3	12	8	63	
11:15 - 12:15	23	18	0	3	12	10	66	
11:30 - 12:30	21	15	0	4	10	13	63	
11:45 - 12:45	26	16	1	3	9	16	71	
12:00 - 13:00	25	15	1	2	6	16	65	
12:15 - 13:15	26	17	2	5	9	19	78	
12:30 - 13:30	25	21	5	6	11	18	86	
12:45 - 13:45	22	22	4	7	13	18	86	
<b>13:00 - 14:00</b>	<b>24</b>	<b>19</b>	<b>4</b>	<b>9</b>	<b>14</b>	<b>17</b>	<b>87</b>	

**PEAK**

# AUSTRALASIAN TRAFFIC SURVEYS

JOB 2028 NORTH SYDNEY  
 CLIENT NORTH SYDNEY COUNCIL  
 LOCATION FALCON ST @ WARRINGAH FWY OFF RAMP  
 SURVEY TYPE PEDESTRIAN COUNT  
 DAY, DATE TUE 17-08-2004  
 SURVEY PERIOD 0630 - 0930



Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
6:30 - 6:45	1	2	2	0	2	0	7	
6:45 - 7:00	3	10	1	3	7	2	26	
7:00 - 7:15	5	9	3	1	6	2	26	
7:15 - 7:30	3	13	0	0	8	1	25	
7:30 - 7:45	7	9	0	1	6	3	26	
7:45 - 8:00	18	21	0	3	21	1	64	
8:00 - 8:15	6	29	1	2	18	2	58	
8:15 - 8:30	13	15	1	0	14	1	44	
8:30 - 8:45	7	11	0	1	11	0	30	
8:45 - 9:00	9	8	0	0	11	3	31	
9:00 - 9:15	3	7	0	0	5	0	15	
9:15 - 9:30	6	1	0	0	3	2	12	
Σ	81	135	8	11	112	17	364	

## HOURLY FLOWS

Time Period	PEDESTRIAN MOVEMENTS							Σ
	NORTHERN FOOTPATH		SOUTHERN FOOTPATH		ST LEONARDS PARK			
	EASTBOUND	WESTBOUND	EASTBOUND	WESTBOUND	INTO - WESTBOUND	OUT - EASTBOUND		
6:30 - 7:30	12	34	6	4	23	5	84	
6:45 - 7:45	18	41	4	5	27	8	103	
7:00 - 8:00	33	52	3	5	41	7	141	
7:15 - 8:15	34	72	1	6	53	7	173	
7:30 - 8:30	44	74	2	6	59	7	192	
<b>7:45 - 8:45</b>	<b>44</b>	<b>76</b>	<b>2</b>	<b>6</b>	<b>64</b>	<b>4</b>	<b>196</b>	
8:00 - 9:00	35	63	2	3	54	6	163	
8:15 - 9:15	32	41	1	1	41	4	120	
8:30 - 9:30	25	27	0	1	30	5	88	

**PEAK**