PART

B

Information on the project

Chapter 5. Project objectives and need

5.1 Project objectives

The strategic objectives of the project are:

» Enhance public transport along an established and growing corridor of travel demand by:
  – Directly linking the North West region and 'Global arc' centres of Sydney, including the Sydney CBD;
  – Increasing access to the rail network across Sydney; and
  – Providing a spine for integrated public transport in North West Sydney.
» Provide local focus for employment and population growth patterns by:
  – Improving public transport access to centres, including Castle Hill, the Norwest Business Park, and Rouse Hill; and
  – Facilitating transit-oriented development and reducing urban sprawl.
» Improve public transport service quality by:
  – Reducing journey times;
  – Providing 'all-day' service;
  – Increasing passenger comfort and service reliability;
  – Provide rail network congestion relief on the Richmond Line and the Western Line including relieving overcrowding on trains;
» Support positive changes to travel behaviour by:
  – Reducing car dependency; and
  – Providing opportunities to walk to rail stations.

5.2 Need for the project

5.2.1 Population and employment growth predictions

Population and employment growth in North West Sydney

North West Sydney is experiencing significant population and employment growth. The Metropolitan Strategy indicated that by 2031, the population of North West Sydney will be 475,000, three times the 1981 population of 150,000. Eighteen percent of Sydney's anticipated residential growth is expected to occur in North West Sydney. Employment is expected to increase by 350% to 129,000. Figure 5.1 shows the recent and expected population growth pressures in both the North West and South West Growth Centres. Figure 5.2 illustrates the predicted population and employment growth in North West Sydney.

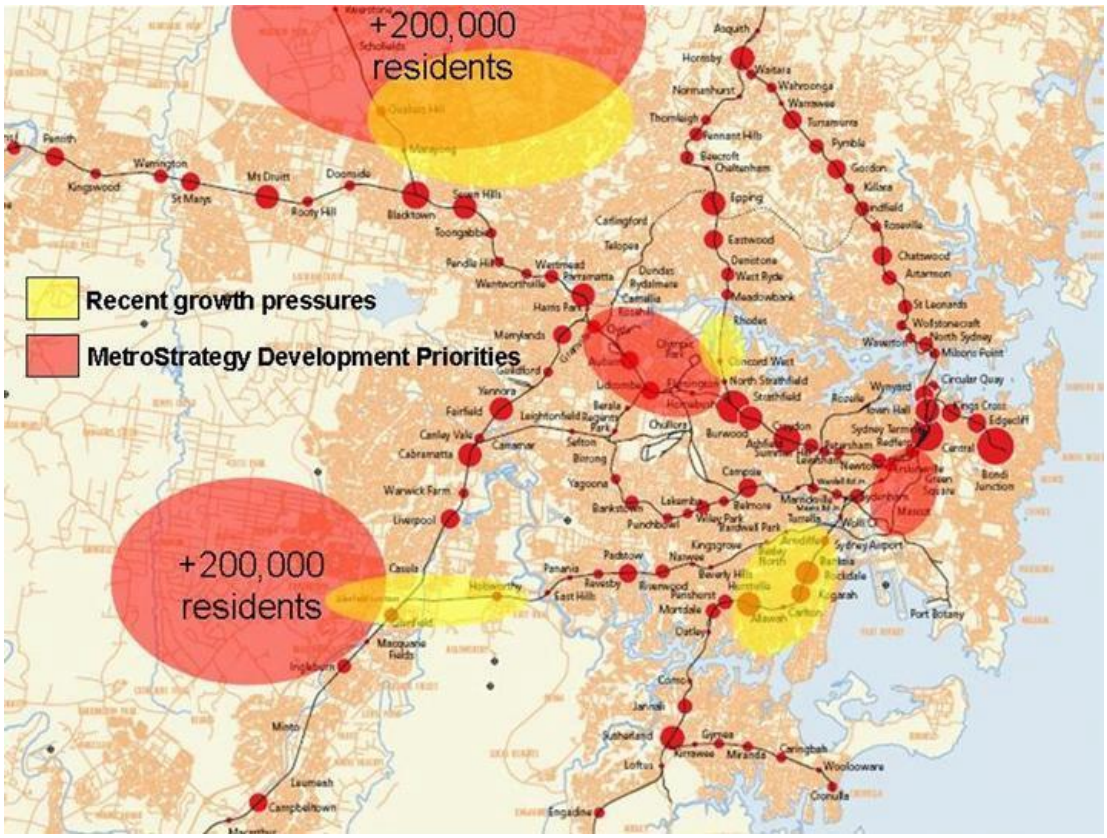

Figure 5.1 Growth centres to 2031

Source: PB, 2006a

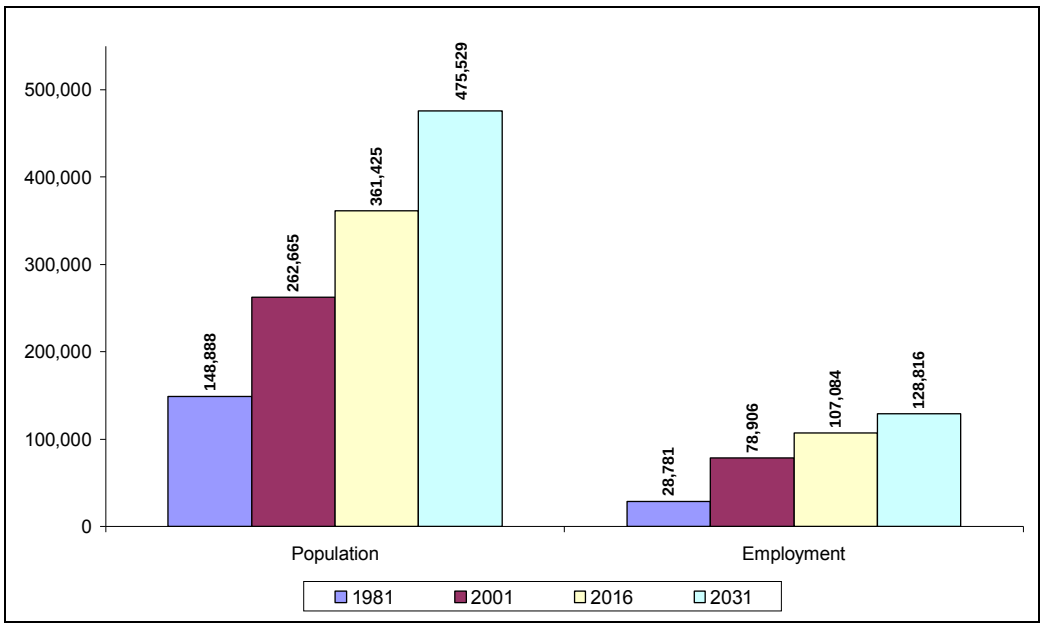

Figure 5.2 Population and employment growth in North West Sydney (1981 – 2031)

Source: SKM, 2006

Employment growth in the global arc

Major employment destinations for residents from North West Sydney include Macquarie Park (North Ryde), Chatswood, St. Leonards, North Sydney, the Sydney CBD and the commercial area around Sydney Airport.

Employment in the 'global arc' (based on the statistical local areas from Ryde to Sydney CBD) is forecast to grow by 21%, from 486,000 jobs in 2001 to 590,000 jobs in 2031. Figure 5.3 illustrates the predicted employment growth in the global arc.

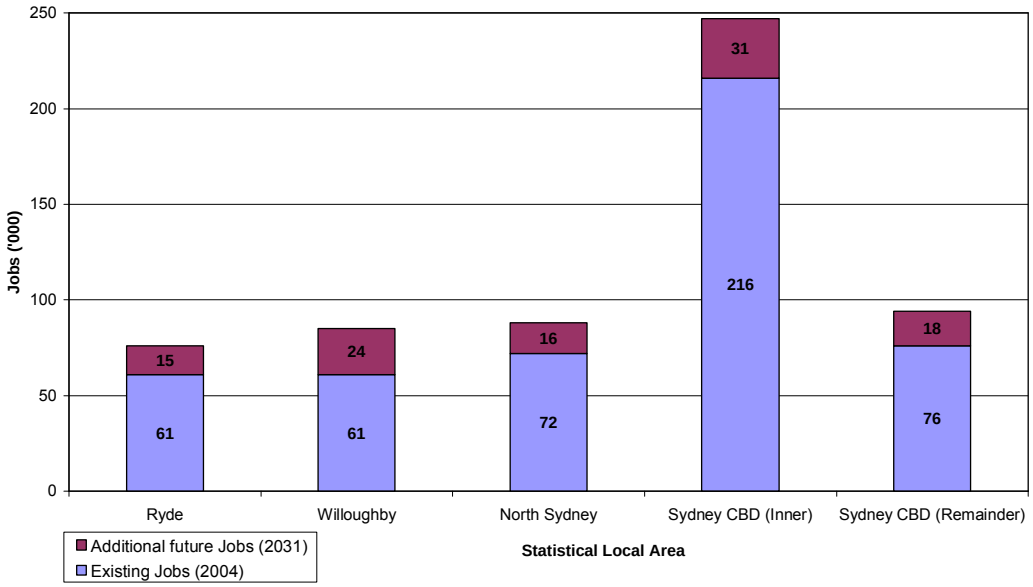

Figure 5.3 Predicted employment growth in the global arc

Source: SKM, 2006

Accommodating this growth sustainably, with the provision of necessary infrastructure such as public transport, is a key challenge for government.

5.2.2 Existing transport network constraints

The existing capacity of transport infrastructure in North West Sydney is considered to be insufficient to meet the predicted population and employment growth outlined above.

Public transport

The main form of existing public transport in this region is bus. Peak demand from buses, commercial and private vehicles cannot be adequately accommodated on the existing arterial road network. As a result, the operation and benefits of dedicated bus lanes and intersection priority for buses will be affected.

There may also be impacts on the North West Transitway (to commence operation from 2007). Whilst the North West Transitway will alleviate some congestion, it will focus on providing access to the Parramatta and Blacktown CBDs. The Transitway will have a separate but complementary role to the project, which would provide a trunk link to the wider Sydney transport network and direct access to other centres in Sydney.

The existing rail network would also be affected by increased growth. The Northern, Western and Richmond Lines currently draw patronage from North West Sydney. Without the project, rail demand is predicted to be well in excess of capacity along the Richmond Line and parts of the Western Line by 2021. Hence, there will be either significant overcrowding on trains east of Blacktown and on the Northern and Richmond Lines, or a move to private motor vehicles as rail commuters become frustrated with the overcrowding.

It is forecast that in 2021, the average train loading in the AM peak period (people to seated capacity) on the Western Line would reduce from 171% to 150% and from 106% to 103% on the Northern Line with the project in operation. This needs to be understood in the context of RailCorp's Community Services Obligation Contract with Government, which requires that load factors do not exceed 135% of seating capacity, and that no passenger should stand for more than 20 minutes except by choice. Without the project there would need to be investment on these existing lines to accommodate extra travel demand and meet RailCorp's Community Services Obligation Contract (SKM, 2006).

Road network

As shown in Table 5.1, traffic growth has been increasing on the key regional roads in North West Sydney

Table 5.1 Local traffic increases

Road	Traffic volumes[1]			% Change (1993-2003)
	1993	1999	2003	
Pennant Hills Road	35,816	65,046	70,521	97
Castle Hill Road	37,818	40,475	45,938	20
Windsor Road	35,151	42,904	45,662	30
Old Windsor Road	15,421	32,907	35,057	127
Showground Road	n.a.	36,498	42,906	-
M2 Motorway	n.a.	68,850	76,504	-

Source: PB, 2006a

[1]Figures are for discrete sections of each road and are intended to show general levels of traffic growth. Please refer to RTA data for detailed descriptions of traffic counts at particular locations.

The upgrade of Windsor/Old Windsor Road and the construction of the Westlink M7 has alleviated some of the traffic congestion. However, the road network will still be under increasing strain as a result of the growing levels of road traffic if an effective form of mass public transport is not provided to North West Sydney to meet the predicted levels of population growth.

5.2.3 Growth in travel demand

As noted in section 5.2.1, significant growth in employment is predicted to occur in both North West Sydney and the global arc. As a result, it is anticipated that there will be strong demand for travel from North West Sydney to centres in the global arc, to access employment, educational, recreation and cultural facilities.

In 2001, 23% of the 116,500 daily trips to work from North West Sydney were to areas in the global arc. In comparison, 15% of trips were to Parramatta and 10% to Blacktown. In 2031, it is forecast that the global arc will be the destination for 25% of the 164,000 daily trips to work, whilst Parramatta and Blacktown will both account for 12% of trips (see Figure 5.4). There is likely to be significant demand for other sorts of trips (non-work trips).

The predicted growth in employment within North West Sydney will also attract work trips into the region.

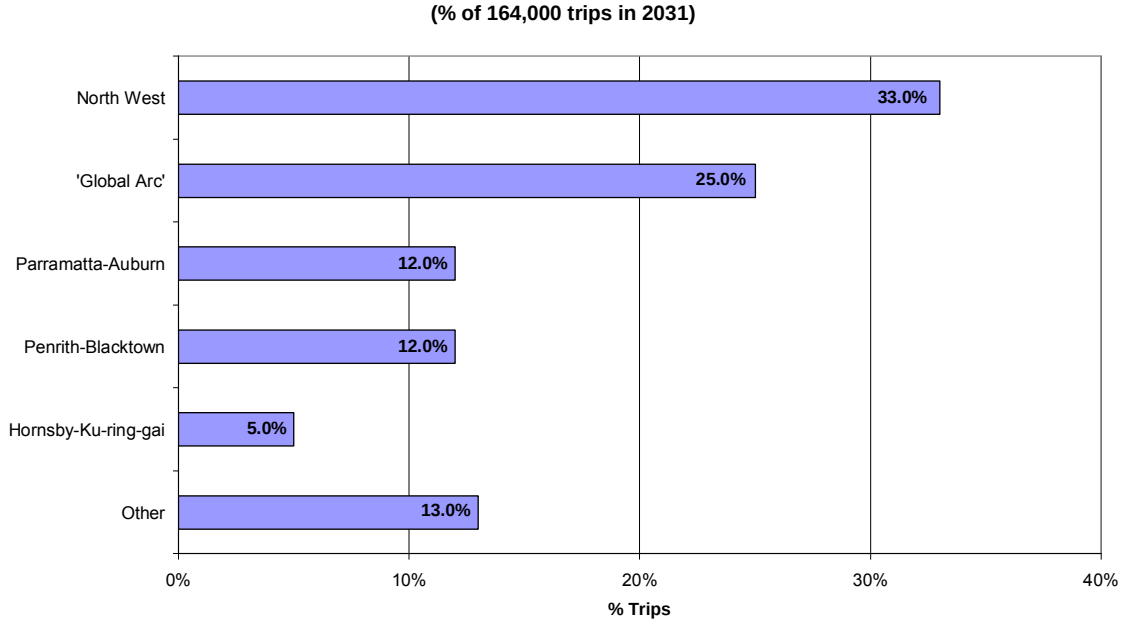

Figure 5.4 Key destinations from North West Sydney

Source: SKM, 2006

5.2.4 High levels of car dependency

Table 5.2 shows household travel characteristics in North West Sydney compared to Eastern Sydney.

Table 5.2 Household travel characteristics, 2003

Characteristic	North West Sydney	Eastern Sydney[1]
Household vehicle ownership	2.0	1.1
Household vehicle driver trips/day	6.8	3.3
Daily vehicle kilometres travelled per person	27 km	11 km
Household trips per day	12.5	11.8
Mode share to public transport	7%	15%
Household size (persons)	3.1	2.2

Source: PB, 2006a

[1]For the purposes of this table, eastern Sydney includes Waverley, Woollahra, Randwick, North Sydney, Sydney, Mosman, Manly, South Sydney, Botany Bay, Leichhardt, Marrickville and Willoughby Statistical Local Areas

The North West region of Sydney has a significantly high level of car ownership (two per household) and daily car use compared to eastern Sydney. In 2003, only 7% of the total household trips from residents of North West Sydney were on public transport; less than half that of residents in eastern Sydney. On average, each household in North West Sydney makes 6.8 vehicle driver trips per day with each resident travelling 27 kilometres per day by vehicle. In comparison, households in eastern Sydney make 3.3 trips per day with residents each travelling an average of only 11 kilometres each day.

In the majority of the northwest region of Sydney, more than 74% of employed residents travel to work by car only (PB, 2006a).

The provision of a new public transport line in North West Sydney is likely to reduce car dependency and the number and length of car journeys.

5.2.5 Travel and access times

Travel times

Despite the major capacity improvements delivered with the completion of the Westlink M7, the Lane Cove Tunnel and the Windsor and Old Windsor Road upgrades, traffic modelling predicts that car travel times in 2021 will be much longer than existing. Increasing road congestion is predicted to continue to increase travel times from the North West region (see Table 5.3).

Table 5.3 Sample car travel times from North West Sydney

Origin	Destination	2001 Road Network		2021 Road Network		% change
		Time (min)	Speed (km/h)	Time (min)	Speed (km/h)	In time 2001 to 2021
Kellyville	Wynyard	68	31	118	18	73%
Kellyville	Chatswood	55	29	101	17	82%
Castle Hill	Wynyard	67	29	99	18	48%
Castle Hill	Chatswood	54	27	82	17	52%
West Pennant Hills	North Sydney	45	31	75	17	67%
West Pennant Hills	Macquarie Park	31	27	47	13	53%
Rouse Hill	North Sydney	73	33	126	19	73%
Rouse Hill	Chatswood	68	31	117	19	72%

Source: North West Transport Link Patronage Study (PB, 2006a)

Access times

As illustrated in Figure 5.5, research undertaken by RailCorp has shown that the rail mode share of work trips in Sydney increases as the distance from residence to station decreases. At a distance of less than three kilometres from a station the mode share increases sharply from less than 10% to as much as 35%.

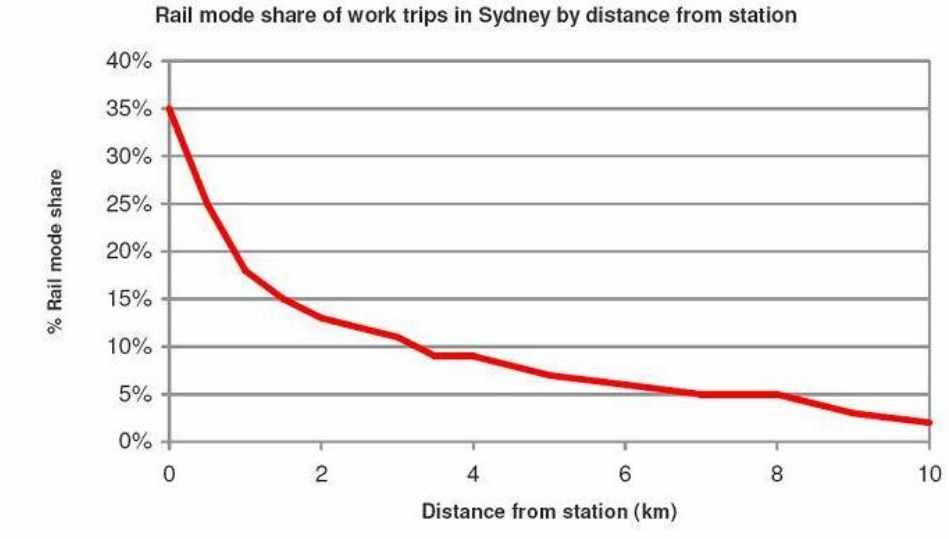

Figure 5.5 Rail mode share of work trips in Sydney by distance from station

Source: SKM, 2006

As illustrated in Figure 5.6, a significant proportion of residents of North West Sydney (shown with the red line) currently live outside of the three-kilometre zone of the existing rail network. Rail users either catch a bus or drive to stations on the Northern, Richmond or Western lines.

Figure 5.7 shows that the number of residents in the region within a three-kilometre catchment of the rail network significant increases when the project is added. As a result, access to the rail network for a significant part of North West Sydney is greatly improved. In 2021, it is estimated that approximately 196,000 residents and 55,000 jobs would be located within 3 kilometres of the six proposed stations.

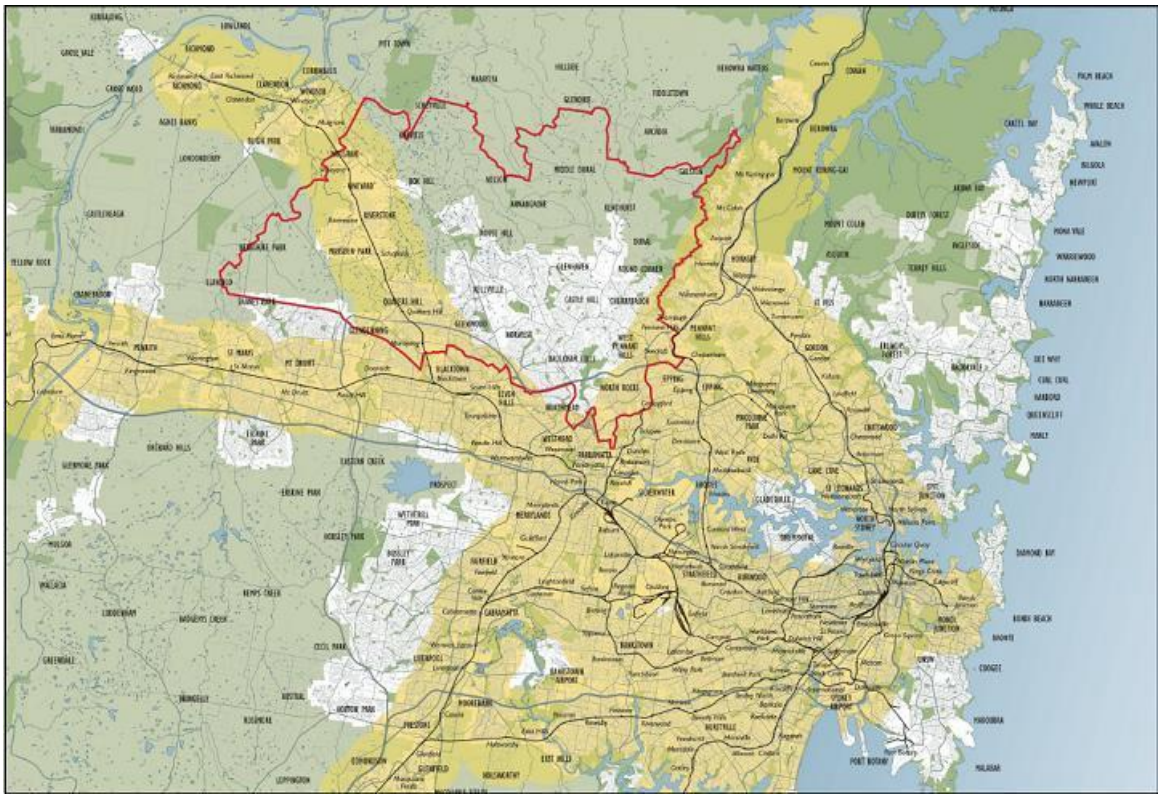

Figure 5.6 Three kilometre catchments of existing rail network

Source: SKM, 2006

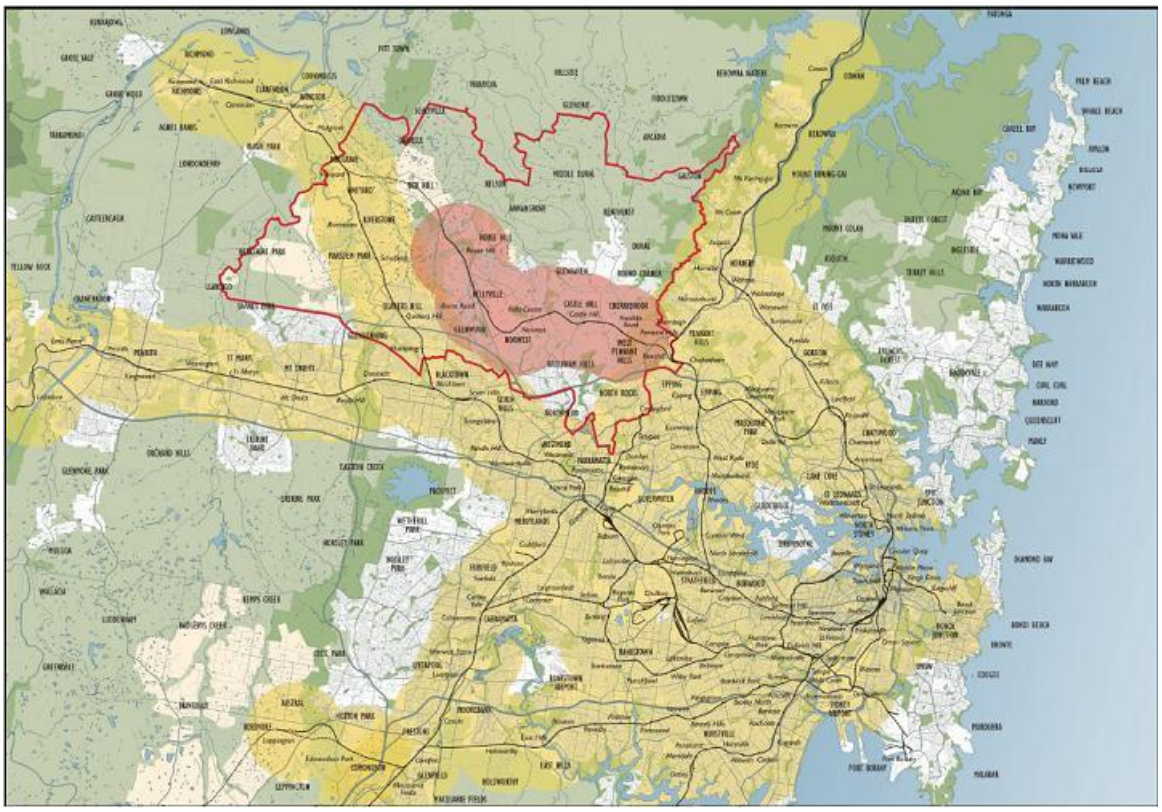

Figure 5.7 Three kilometre catchments of rail network including the project

Source: SKM, 2006

The patronage study undertaken by Parsons Brinkerhoff (2005) concluded that with the project, the average distances to a rail station in North West Sydney would decrease by approximately 50%, from an average of 12 kilometres to an average of 6 kilometres. Access times would be reduced by up to 30 minutes as people are able to walk to stations or travel via a short bus or car trip.

This would be an important factor in moderating the growth in vehicle kilometres in North West Sydney.

5.3 Patronage forecasts

The main patronage study for the project was undertaken by Parsons Brinkerhoff between 2002-2005 (with the study report prepared in 2005). A Government working group, made up of representatives from a number of agencies and a specialist peer reviewer, reviewed the study and findings. Several other patronage studies and reviews have also been undertaken. TIDC engaged PPM Consultants/Kilsby Australia (2006) to review the patronage study and associated documentation.

The various patronage studies undertaken have resulted in a range of patronage estimates, from 15 million to 24 million trips per annum. This range reflects the different assumptions that

have been made in the studies such as differences in surrounding land uses, accessibility, population and employment growth. Patronage studies have not incorporated increases in mode shift.

5.4 Anticipated benefits of the project

The main benefits of the project are summarised below.

Improve access to employment opportunities, education and health facilities

The project would provide people from North West Sydney direct access to employment, shopping and community facilities in the global arc. Predicted destinations are shown in Figure 5.8. Students would add to the peak hour trips by travelling to the Hills Network TAFE, Macquarie University, the city universities near Central Station, and the schools accessed directly by the route, as well as the broader Sydney rail network.

There would also be improvements to access to major shopping centres located at Castle Hill, Macquarie Park, Chatswood and the Sydney CBD, and future facilities planned at Rouse Hill.

Major health facilities, such as the Royal North Shore Hospital, would be more accessible to patients, staff, and visitors alike. There would also be easy connections to the centres of Strathfield, Burwood, and Hornsby via one change of train at Epping.

Figure 5.8 Predicted destination of passengers from the North West Rail Link

Source: PB, 2006a

Note (1): 16% go to a wider variety of destinations

(2) The figure does not provide an accurate depiction of the project

Improve travel time

Public transport

The project would provide an alternative mode of transport with shorter travel times. Analysis of travel times has shown that the project would result in significant savings in travel time, most notably for those currently travelling by public transport between North West Sydney and the northern centres of the global arc, such as Macquarie Park, Chatswood and St Leonards.

Figure 5.9 shows four example journeys by public transport in the morning peak, assuming 2008 train timetable (with the Epping to Chatswood Rail Link operational):

» In example journey 1, a commuter travelling via public transport from Rouse Hill to Chatswood in the morning peak would travel by bus to Parramatta and then by train to Chatswood via the CBD. This equates to an estimated travel time of 86 minutes. With the project, this trip would take 39 minutes, that is, a travel time saving of 47 minutes per one-way trip.

» In example journey 2, a commuter travelling from Castle Hill to the CBD via the M2 Motorway on the Westlink CityExpress Bus Service would take 70 minutes. Travel times with the project would be 45 minutes, providing a travel time saving of 25 minutes per one-way trip.

» In example journey 3, a commuter travelling from Castle Hill to the CBD would travel by bus from Castle Hill to Parramatta and then by train to the CBD. This equates to an estimated travel time of 72 minutes. With the project, this trip would take 45 minutes, providing a travel time saving of 27 minutes.

» In example journey 4, a commuter travelling from Cherrybrook to the CBD would travel by car from Cherrybrook to Pennant Hills and then by train (via the ECRL) to the CBD. This equates to an estimated travel time of 59 minutes. With the project, this trip would take 45 minutes, providing a travel time saving of 14 minutes.

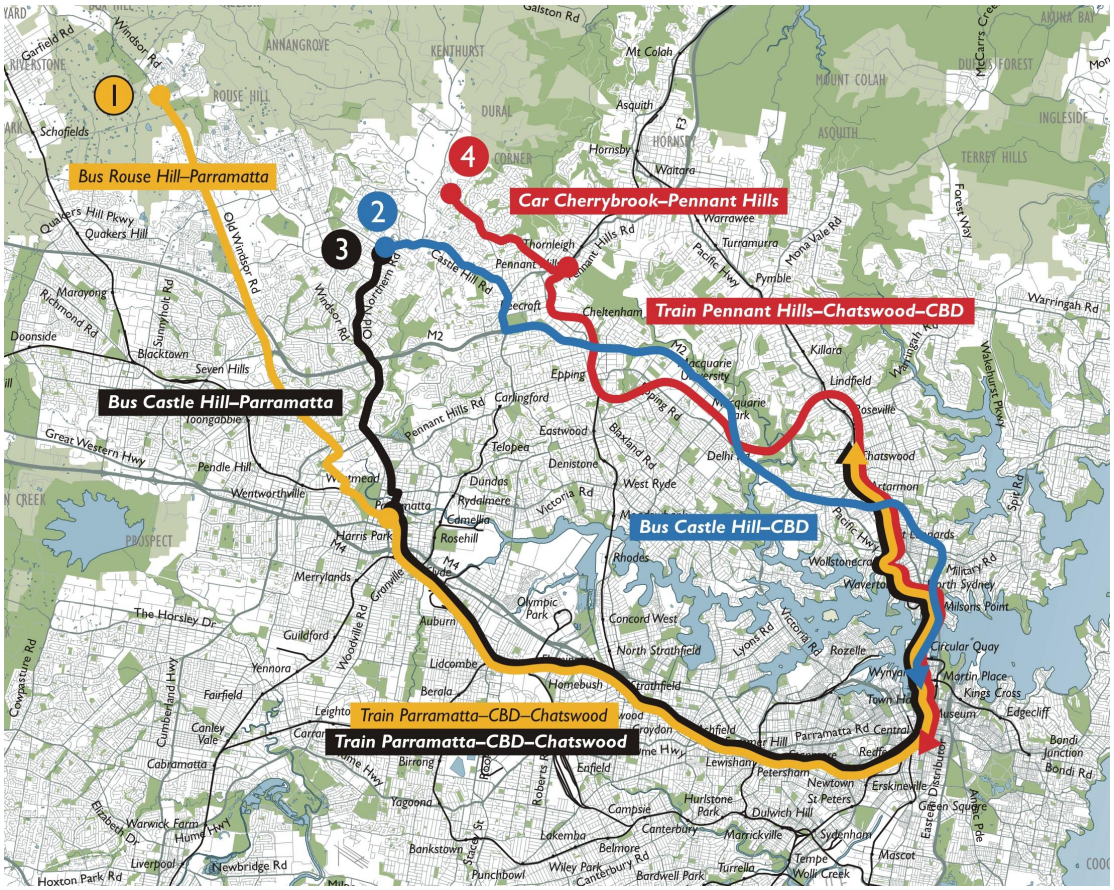

Figure 5.9 Travel scenarios from North West Sydney to key centres

Source: SKM, 2006

Reduce car dependency

As noted in section 5.2.4, the North West region of Sydney has a significantly high level of car ownership and daily car use compared to eastern Sydney. In the majority of the northwest region of Sydney, more than 74% of employed residents travel to work by car only (PB, 2006a). The car dependency would be influenced by the fact a significant proportion of residents of North West Sydney currently live outside of the three-kilometre zone of the existing rail network.

Improving access to public transport, and reducing journey times (as noted above) is likely to assist in increasing the attractiveness of alternative modes of travel and therefore reducing car dependency and the number and length of car journeys.

Reduction in road congestion

Traffic congestion of local and regional roads is expected to reduce as a result of:

» Shorter access trips to nearby rail stations; and

» Diverting trips from car and bus to rail.

The project would also provide a significant benefit to areas located in close proximity to the existing Northern Line.

Residential areas surrounding stations such as Beecroft, Thornleigh and Pennant Hills currently experience high levels of on-street parking by commuters travelling from areas to the west and north-west of the line. The project would reduce the need for commuters from the northwest area to park at Beecroft, Thornleigh and Pennant Hills by providing a direct rail service from many of these areas, or by diverting these travellers to stations along the North West Rail Link where appropriate commuter parking facilities would be provided.

Other benefits

The project is also expected to:

- Alleviate the current crowding problems predicted on the Western Line when commuter demand exceeds peak rail service capacity;
- Contribute to the decongestion of roads by linking into regional park-and-ride facilities and bus interchanges, and by offering a fast direct route connecting population centres at strategic locations between North West Sydney and the CBD;
- Encourage business growth in the northwest region and (combined with proposed residential developments at Rouse Hill, the Balmoral Road Release Area and Castle Hill), encourage growth of public transport commuters to the Sydney CBD; and
- The reduced congestion and reduced travel lengths for car access to stations would also have flow-on benefits in the form of reduced air pollution.