4 Need for the Proposal

Chapter 4 describes the planning and transport context applying to the Proposal including relevant strategic transport objectives and current NSW Government initiatives aimed at achieving them including the Rail Clearways Program. Current operations on the East Hill Line are described together with anticipated passenger levels which future train services will need to accommodate and the alternatives to the Proposal available along the rail corridor. It concludes with a discussion of the need for the Proposal, the objectives it seeks to achieve and the benefits it would bring.

4.1 Strategic transport context

The Metropolitan Strategy, *City of Cities A Plan for Sydney's Future* (Department of Planning 2005) identifies a number of key transport objectives including:

- improving transport between centres by extending rail and bus networks to connect centres and regions and to service new growth (North West and South West Rail Links and expansion of the strategic bus corridor network);
- improving the existing transport system through the completion of existing transport projects, through improvements to the reliability and capacity of rail services (Rail Clearways), through better integration of public transport (integrated ticketing, interchanges, station upgrades, park and ride increases, more integrated bus networks) and through improvements to the operational management of existing networks (new rail timetable, CBD operations, improved traffic management systems); and
- influencing travel choices to encourage more sustainable travel through improvements to walking and cycling networks, implementation of the metropolitan parking policy and implementation of the Travel Smart program.

The particular historic and geographic configuration of metropolitan Sydney produces its own constraints on transport planning in addition to the challenges faced by an expanding modern city. These challenges can be characterised as:

- the diverse travel needs of a global city;
- forecast population growth of more than one million over the next 25 years, located in both new and existing areas;
- current and increasing road and rail congestion in both peak and traditionally non-peak periods that are affecting the ability of trains, cars and bus services to meet Sydney's travel needs; and
- highly constrained road and rail capacity to accommodate forecast growth in passenger, private vehicle and freight movements.

The CBD is the most concentrated employment centre in Sydney with more than 300,000 jobs (13 percent of the total) and even with the growth of other major centres, will continue to be a major attractor of work and recreation related trips.

The transport network (road and rail) has to accommodate a great complexity of travel demands. These have changed over the last two decades in terms of both the number and type of trip. In 1981, there were about 11.8 million trips made in Sydney on an average weekday. This is now about 15.5 million trips, an increase of more than 30 percent. Each person now makes on average 3.8 trips per day during the week and 3.3 trips per day at the weekend.

The number of non-work related trips has increased over the last 20 years. Between 1981 and 2002, the proportion of children driven to school, for example, has doubled to more than 50 percent while the proportion of children walking has almost halved to less than 25 percent.

Travel purpose has also considerably diversified with only 25 to 35 percent work related and approximately 15 to 20 percent commuting from home. The majority of trips are now for activities such as shopping, recreation and personal business. A quarter of all trips are over distances of less than two kilometres, another quarter between two and five kilometres and the remaining half, greater than five kilometres. Work related trips are generally in excess of five kilometres.

Sydney has the highest use of public transport of all Australian capital cities with more than one in five people using public transport to get to work. However, peak period trips to work are only part of total transport usage and changing work and lifestyle behaviour is exerting different and increasing pressures on the transport task. These demands are driven by a combination of factors including changes in recreational behaviour, growth in freight volumes being transported across the city and changes to business practices with many premises operating on a continuous basis.

Figure 4.1 provides an overview of the existing and planned public transport and road networks in the Sydney metropolitan area.

The City Metropolitan rail network covers the suburban area bounded by Emu Plains, Berowra, Macarthur and Waterfall. It comprises 775 track kilometres accommodating approximately 2,500 trips each weekday and approximately 1,600 daily trips at the weekend in the 2005 timetable. These travelled 106,000 kilometres each weekday and 68,000 kilometres per day at the weekend.

On a typical weekday, daily patronage is 900,000 with approximately two thirds travelling in the peak periods (06.00 to 09.30 hours and 15.00 to 18.30 hours). Annual passenger journeys have increased overall by about five percent since 1990. Journey numbers peaked in 2000 as a result of the Sydney 2000 Summer Olympic Games.

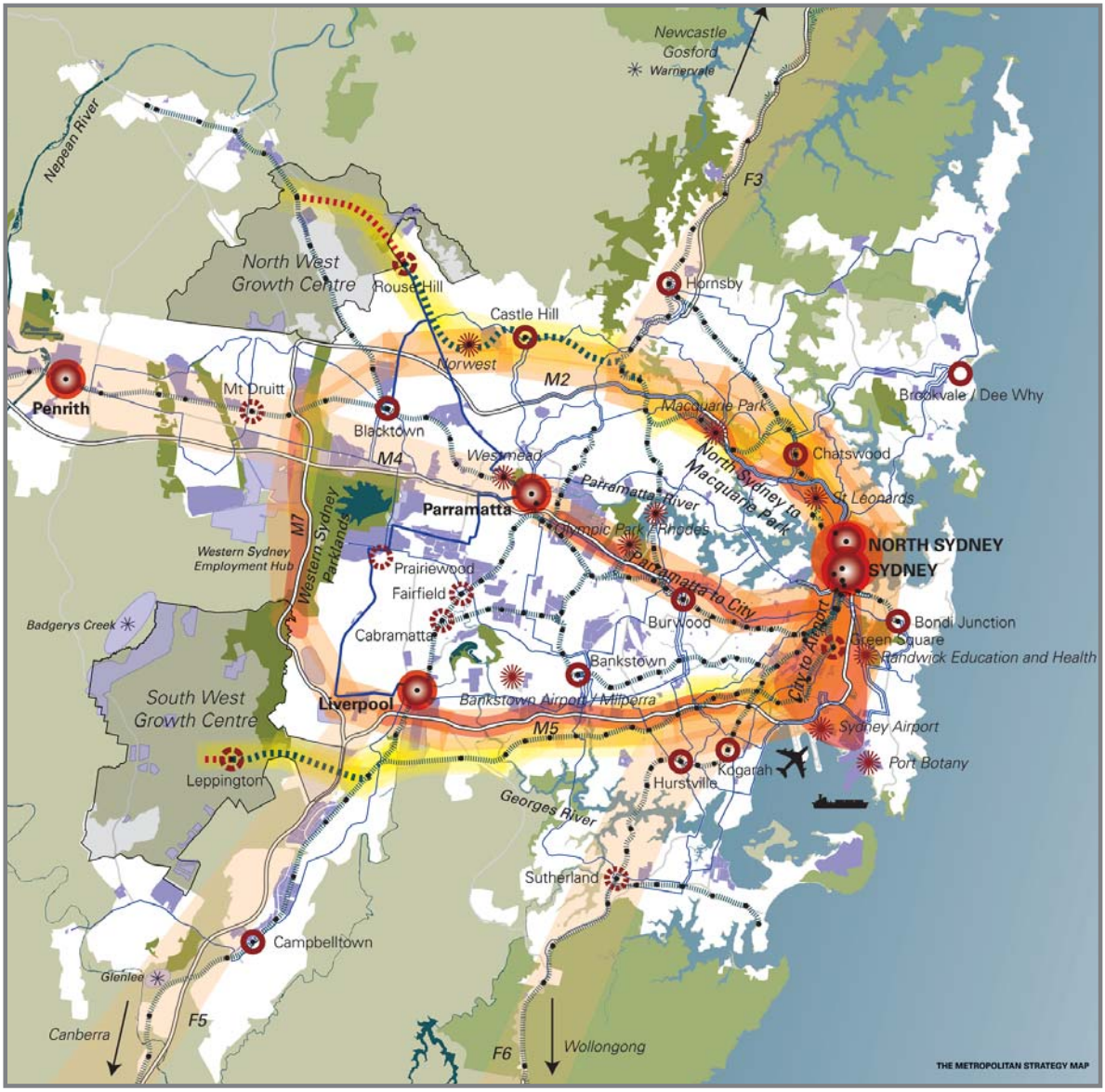

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Figure 4.1 **Planning and transport context**

Global Sydney
Main focus for national and international business, professional services, specialised shops and tourism. It is also a recreation and entertainment destination for the Sydney region with national significance

Global Economic Corridor
The corridor of concentrated jobs and activities in centres from North Sydney to Macquarie Park and from the City to Airport and Port Botany, will remain the powerhouse of Australia's economy

Regional City
Parramatta, Liverpool and Penrith will provide for more lifestyle and work opportunities close to the growing parts of Sydney

Specialised centre
Places such as hospitals, universities and major research and business centres that perform vital economic and employment roles across Sydney

Major centre
The major shopping and business centre for the district, usually with council offices, taller office and residential buildings, a large shopping mall and central community facilities

Planned Major Centre
These places are currently being planned to become major centres

Potential Major Centre
These places may grow to take on the role of major centres in future

Bus Transitway
Bus based rapid transit system providing fast, efficient bus services

Strategic Bus Corridor
New direct and frequent bus services linking larger centres across Sydney

Employment Lands (Planned)
Contain various employment activities such as factories, warehouses, high tech manufacturing, transport logistics or major storage operations with some associated offices. These places are vital to our economy and ability to service the city

Potential Employment Land for Investigation

Regional/State Park

National Park

Rural and Resource Land

Existing Urban Area

Growth Centre
North West and South West land release areas

Regional Link
Better connected and stronger regions linked to Sydney

Corridor
Areas around transport routes that connect centres containing related activities. Corridor types: Economic, Renewal, Enterprise

Rail Network and Station

Orbital Motorway Network
The motorway and freeway system including the Eastern Distributor, M7, M5, M4 and M7

New NW-CBD-SW Rail Link (Possible Extension)
Links the major new growth and employment areas of the city

Rail mode share of all trips, including walking, by residents of the Sydney Statistical Division on an average weekday was 4.7 percent in 2003 compared with 49 percent for vehicle driver plus 21.1 percent for vehicle passenger. Rail mode share varies considerably with the length of journey ranging from 2.3 percent for trips of less than 10 kilometres to 18.3 percent for trips in excess of 40 kilometres on an average weekday in 2003.

Journey to work trips to major centres are dominated by the Sydney CBD with rail mode share in excess of 53 percent. Rail's share of journey to work trips to the CBD grew by 14 percent between 1996 and 2001, substantially greater than the nine percent growth in the number of work trips by any mode. The rail share of journey to work trips to all major centres increased from 35 percent in 1996 to 37 percent in 2001.

Strategic transport objectives and actions

Strategic transport objectives and related actions are included in the Metropolitan Strategy (Department of Planning 2005).

Improve transport between Sydney's centres (D1)

- Extend the rail and bus networks to connect centres:
  - Plan, and as appropriate, construct the North West-CBD-South West Rail link.
  - Establish a network of strategic bus services to connect centres, consistent with the 2004 Review of Bus Services in NSW (the Unsworth Report). (D1.1)

- Extend transport networks to serve growth:
  - Implement the plans to extend and upgrade the strategic bus network and road network in the north west and south west growth centres.
  - Roads and Traffic Authority (RTA) to continue to coordinate road upgrades in existing areas.
  - Investigate higher capacity transport modes and protect corridors. (D1.2)

- Connect regions and economic gateways within the Greater Metropolitan Region:
  - Work with local government and the Commonwealth Government to plan connections between regions and economic gateways in the Greater Metropolitan Region. (D1.3)

Improve the existing transport system (D2)

- Complete major transport infrastructure projects underway:
  - Premier's Infrastructure Implementation Group to ensure timely delivery of major transport infrastructure projects under construction. (D2.1)

- Improve reliability and increase capacity of rail services:
  - Facilitate the Rail Clearways Program to improve reliability and increase capacity of rail services. (D2.2)

- Improve the integration of public transport:
  - Introduce Tcard integrated ticketing.
  - Improve interchanges, stations, bus stops and wharves, and improve trains and buses.
  - Meet the physical accessibility targets for transport set out in the Commonwealth *Disability Standards for Accessible Public Transport.* (D2.3)

- Improve operational management of existing transport networks:
  - Improve the operational management of the public transport and road networks to increase the effectiveness of existing transport infrastructure and services. (D2.4)

- Implement a Metropolitan Parking policy:
  - Develop and implement a metropolitan-wide parking policy to encourage use of public transport to centres and ensure a consistent approach across centres. (D3.2)

- Implement TravelSmart voluntary travel behaviour change programs. (D3.3)

4.2 Strategic planning context

Metropolitan Strategy, City of Cities-A Plan for Sydney's Future (the Metropolitan Strategy) released in 2005 by the Department of Planning is a broad framework for managing Sydney's urban growth over the next 30 years. It provides a framework for accommodating a population increase of 1.1 million people across the region. The current population is about 4.1 million. This is expected to reach five million by 2021 and could exceed six million by 2051. This increase will require the development of 640,000 new homes, 400,000 in western Sydney alone and the transport network will need to accommodate at least a 25 percent increase in daily trips.

The CBD is expected to remain the core generator of economic growth and jobs. However, the strategy also plans for the dispersal of employment across a number of strategic centres. These include Sydney, made up of the CBD and North Sydney (up 60,000 to 440,000 jobs by 2031), Macquarie Park (up 23,000 to 55,000 jobs), Sydney Airport and the surrounding area (up 21,000 to 55,000 jobs), Parramatta (up 20,000 to 60,000 jobs), Liverpool (up 15,000 to 30,000 jobs), Penrith (up 11,000 to 30,000 jobs) and Norwest (up 11,000 to 15,000 jobs).

The strategy also identifies the major existing and emerging economic and enterprise areas of Sydney where the greatest concentration of jobs and activities occur. The CBD is located in the centre of an economic corridor stretching from Macquarie Park through North Sydney and the City to the Airport/Port Botany accounting for more than half of Sydney's total employment. Proposed development at Green Square, Redfern-Waterloo and Barangaroo (East Darling Harbour) will consolidate the influence of the CBD as a generator of economic activity. Other significant economic corridors are along the M5 Motorway between Sydney Airport and Liverpool, along the M7 Motorway connecting the M5, M4 and M2 Motorways and from the CBD to Parramatta.

Population growth is planned to occur across the region, with around 30 percent in new release areas to the north west and south west and 70 percent in existing areas. While new transport infrastructure will be required for the new release areas, existing areas must be the focus of substantial transport improvements. The expected distribution of activities and land uses recognises the strengths of the existing transport system and builds on these assets to accommodate future growth around key centres and within various corridors focussed on the transport network.

The strategy includes separate components relating to housing, employment and economy, environment, transport, centres and corridors and parks and public places.

Relevant key elements include:

- continued growth of Sydney CBD and North Sydney with an increased role for Parramatta, Penrith and Liverpool;
- directed growth in jobs to regional centres and specialised centres in western Sydney, specifically concentrated along the M7/M4 corridors;
- containment of the urban footprint;
- strengthened major centres which will be the focus of regional shopping, health and tertiary education with some medium and high density housing;
- improved access to existing and planned centres through investment in rail and strategic bus corridors; and
- linked growth in housing and improved communication and transport connections.

The Metropolitan Strategy proposed a number of major urban and land use initiatives for the south west region of Sydney including:

- the South West growth centre;
- defining Liverpool as a regional city;
- defining Campbelltown as a major centre and hence highlighting the need for improved public transport access by road and rail, incorporating improvements in current Airport and East Hills line services through effective separation of Campbelltown express services from local and semi-fast services; and
- proposing Leppington as a planned major centre with commuter rail services that would link into the current CityRail network at Glenfield and travel to Sydney centre along the East Hills line.

The South West growth centre would have the potential to include 90,000 to 110,000 dwellings and accommodate 250,000 to 300,000 people.

Planning policies in the strategy emphasise the need to increase development intensity, both of use and density, at and adjacent to transport nodes, particularly railway stations.

4.3 Public transport initiatives

4.3.1 Rail Development Program

A significant investment in rail infrastructure is planned or underway in Sydney including the Rail Clearways Program and the Metropolitan Rail Expansion Program. The Premier of NSW released the *Urban Transport Statement* in November 2006. The main focus of this document is passenger transport, expanding on that component of the *State Infrastructure Strategy* of May 2006. The main initiatives of relevance are the extension of the Rail Clearways Program and the acceleration of the Metropolitan Rail Expansion Program. The provision of additional commuter parking at Revesby was also included for future investigation.

Linked and approved works included in the statement are:

- Metropolitan Rail Expansion Program-South West Rail Link;
- Rail Clearways Program-Revesby Turnback (currently under construction);
- Rail Clearways Program-Kingsgrove to Revesby Quadruplication;
- Rail Clearways Program-Sydenham to Erskineville Additional Tracks; and
- Rolling Stock Acquisition Program.

Metropolitan Rail Expansion Program

A number of major projects are included in the Metropolitan Rail Expansion Program. This will provide a continuous rail line from Rouse Hill in the north west through the Sydney CBD to Leppington in the south west. The program is split into three main proposals:

- North West rail Link: A new 20 kilometre rail line from Rouse Hill to Cheltenham via Castle Hill with longer term plans for an extension to Vineyard on the Richmond line;
- Harbour Rail Link (Chatswood to Eveleigh): A nine kilometre tunnel from the North Shore Line at St Leonards under Sydney Harbour and the CBD to the south of Central with additional tracks from Chatswood to St Leonards; and
- South West Rail Link: A new eight kilometre rail line from Glenfield to Leppington with a station at Edmondson Park with longer term plans to extend the line to Bringelly or Oran Park.

These proposals are shown on **Figure 4.2.**

Rail Clearways Program

The Rail Clearways initiative was designed to improve the capacity and reliability of the CityRail suburban network by dividing the existing 14 rail corridors into five clearways that could operate independently, managing the risk to reliable service delivery as it relates to infrastructure capacity and future travel demand. This is known as sectorisation.

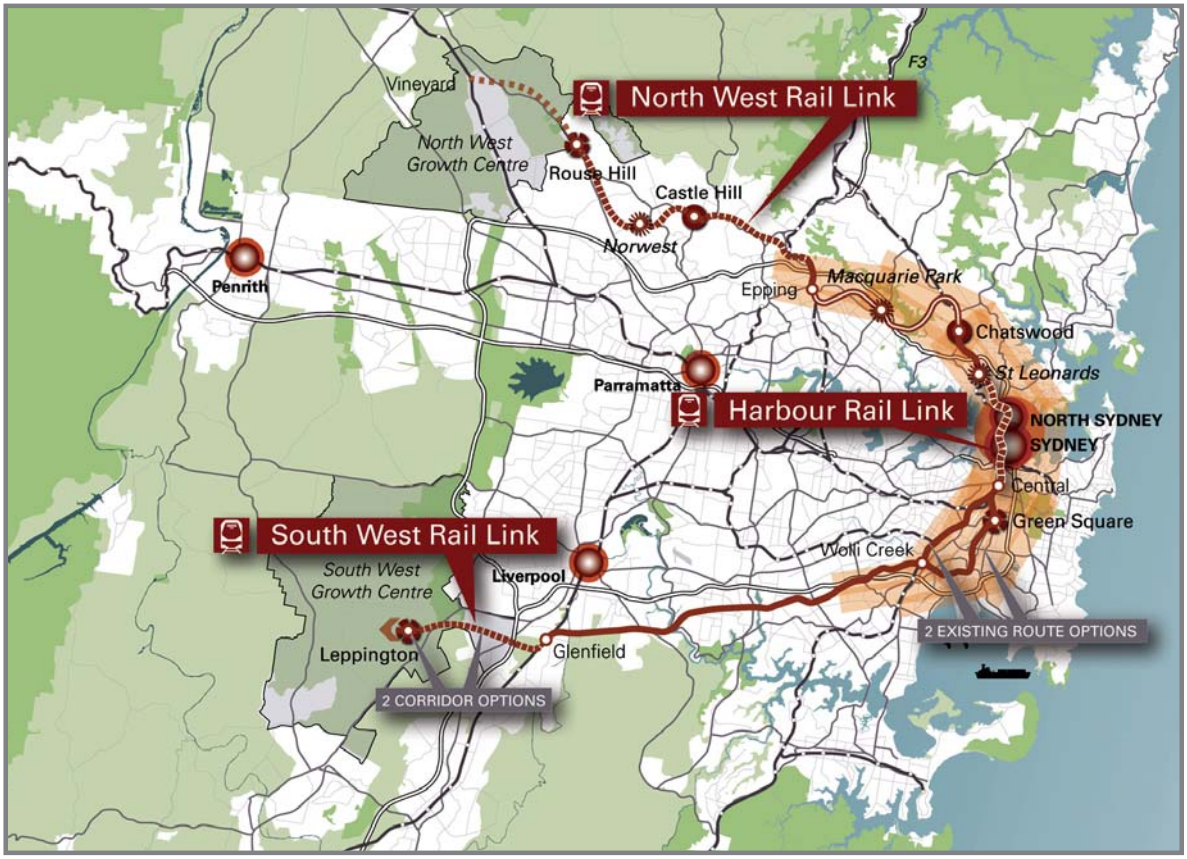

Figure 4.2 **Metropolitan rail expansion**

The five clearway routes established under the program are:

- Clearway 1-Illawarra and Eastern Suburbs;
- Clearway 2-Bankstown;
- Clearway 3-Campbelltown Express;
- Clearway 4-Airport and South; and
- Clearway 5-North West.

These clearways are shown on **Figure 4.3.**

The Proposal is an integral part of Clearway 3-Campbelltown Express and Clearway 4-Airport and South and would complete the physical separation of both clearways.

Rolling Stock Acquisition Program
A substantial program of acquisition of new and replacement carriages will add 72 new eight carriage sets to the CityRail fleet. In addition, 122 new outer suburban carriages on intercity routes will allow suburban Tangara sets currently operating these services to be redeployed for suburban services.

4.3.2 Strategic bus corridors

A network of 43 strategic bus corridors integrated with local bus services and linking Sydney's major centres, railway stations, hospitals, and education and other community facilities, improving access to important destinations has been identified by the Ministry of Transport. The RTA is implementing a staged program of improvements to these corridors. The network and its links with the metropolitan rail network are shown on **Figure 4.4.**

The East Hills Line interchanges with three planned strategic corridors:

- Corridor 23 linking Miranda and Bankstown passing through Padstow;
- Corridor 25 linking Hurstville and Bankstown passing through Beverly Hills; and
- Corridor 27 linking Hurstville and Burwood passing through Kingsgrove.

A number of more direct local services were also introduced as part of the overall bus planning process, including a number of service improvements between Revesby and Bankstown. Padstow is currently the only major bus/rail interchange with approximately eight percent of passengers arriving at the station by bus during the morning peak period.

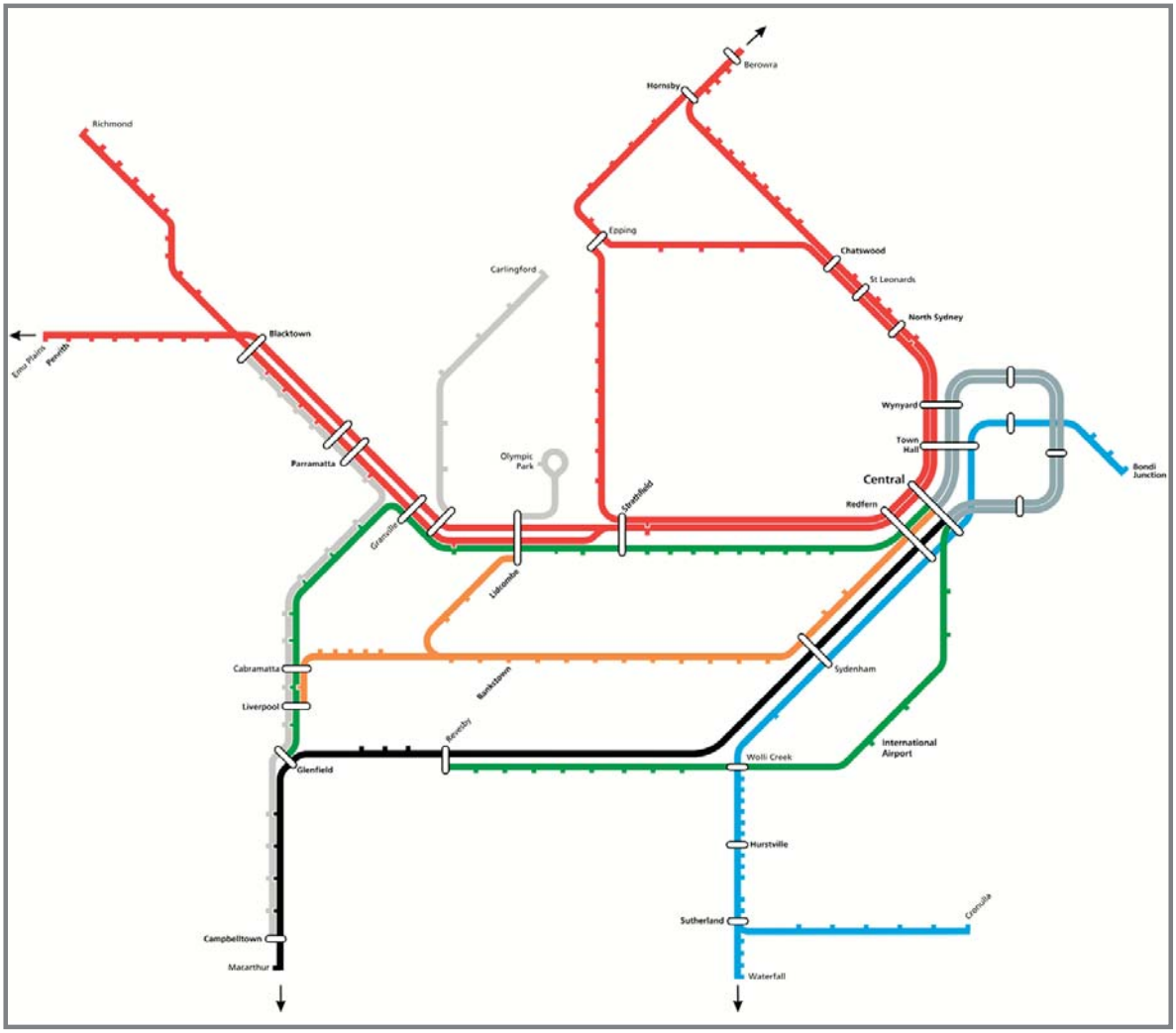

Figure 4.3 **Rail clearways**

Clearway 1: Illawarra and Eastern Suburbs
Clearway 2: Bankstown
Clearway 3: Campbelltown Express
Clearway 4: Airport and South
Clearway 5: North West

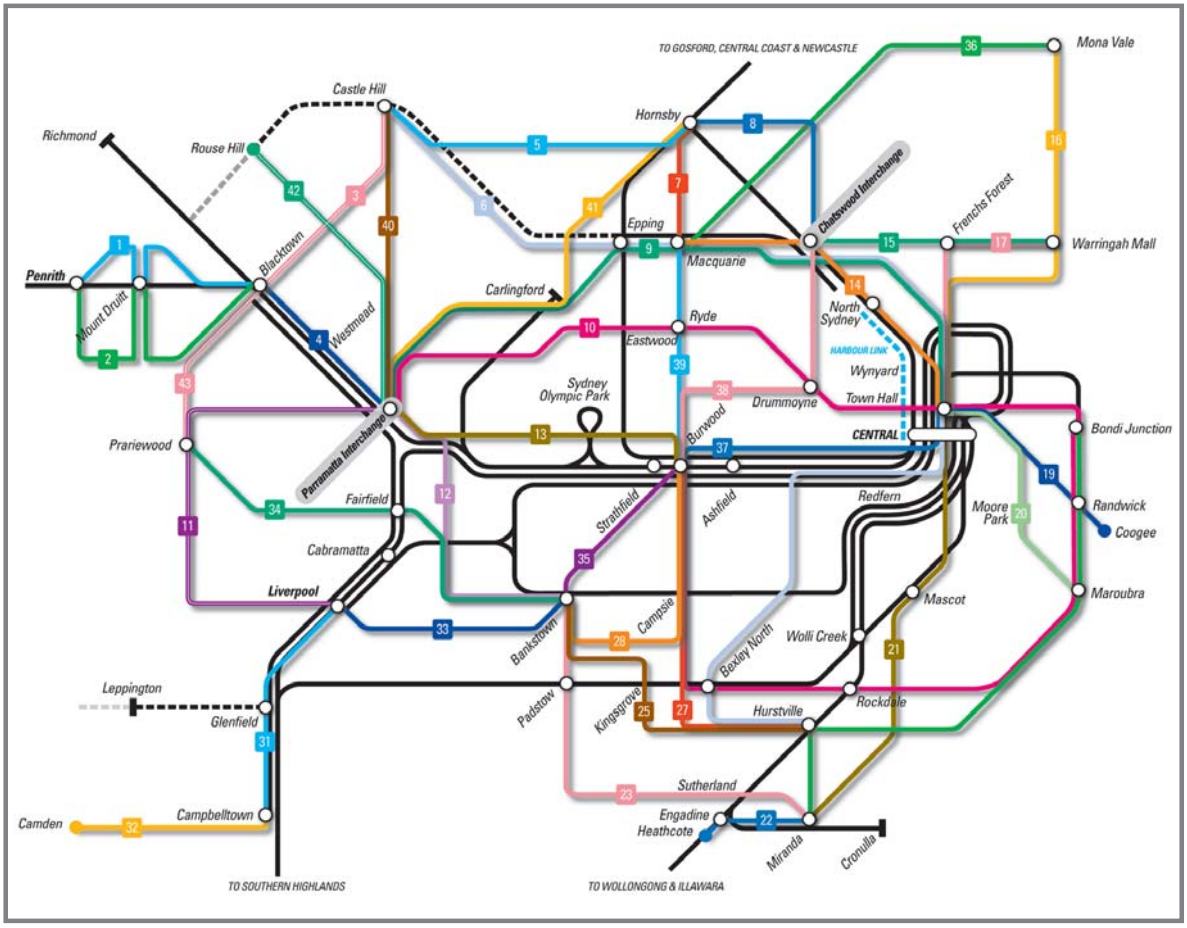

Figure 4.4 **Strategic bus corridors**

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- Strategic bus corridor
- Transitway bus corridor
- Interchange/major corridor
- Rail corridor
- Proposed rail corridor
- Future rail corridor

4.4 Rail Clearways Program

The Rail Clearways Program is a $1.5 billion initiative of the NSW government to improve capacity and reliability on the CityRail Sydney suburban network. The plan comprises 15 projects to remove bottlenecks and junctions, reduce congestion and delays and allow the introduction of simpler timetables for more reliable and frequent services. An incident on one part of the rail network would no longer affect services on other clearways following the implementation of the plan.

The Rail Clearways Program, when completed, would reduce the sharing of critical infrastructure and train paths among the various existing lines in the Sydney metropolitan area. The 15 key projects in the program would create five independent routes which feed the lines through the CBD. The location of these projects is shown on **Figure 4.5.**

Outcomes of the program would be:

More reliable train services:

- creating independent lines and improving system robustness;
- reducing bottlenecks and delays; and
- simplifying the operation of the network making it easier to recover in case of an accident.

More frequent and convenient train services:

- predictable and repeating pattern of train services; and
- key stations serviced every 6-10 minutes or better in the peak period.

More comfortable and less crowded trains:

- up to 15,000 extra seats on trains to the CBD each peak hour; and
- reduced overcrowding at congested stations.

Increased rail capacity to accommodate growth in demand:

- increased rail capacity into the CBD during peak periods by 20 percent.

The creation of the five major clearway routes would require the introduction of additional track and the construction of new platforms, turnbacks and train crossing loops. This would reduce the sharing of critical infrastructure and train paths between the various existing lines in the Sydney suburban area.

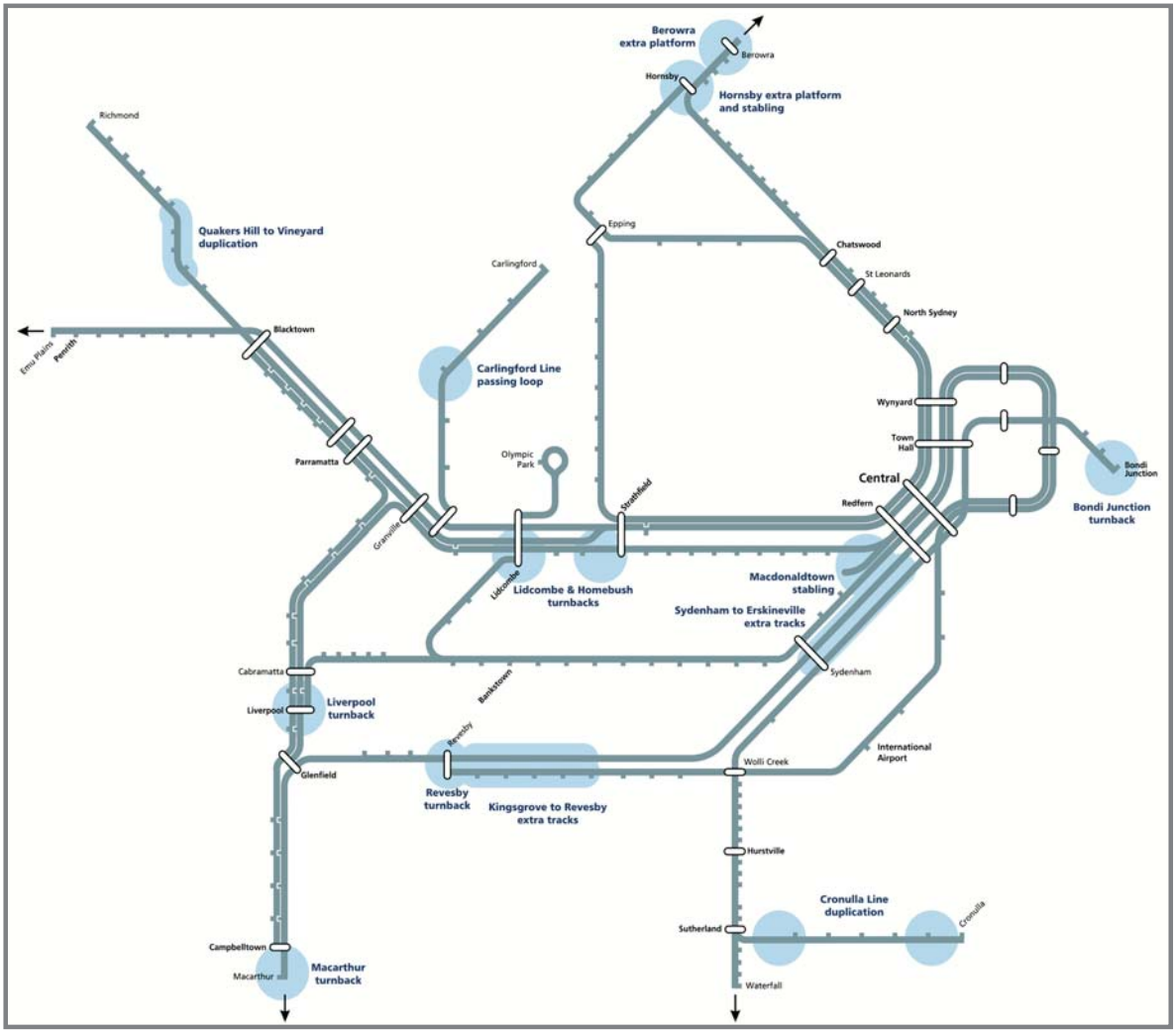

Figure 4.5 **Rail clearways and program projects**

Clearway 3 would provide capacity to facilitate express services from the Campbelltown area to the City via East Hills and include:

- additional tracks from Kingsgrove to Revesby (2008–2010) – (the Proposal); and
- an additional platform at Macarthur (2007–2009).

Clearway 3 is shown on **Figure 4.5.**

Clearway 4 would provide greater separation between express and local services to improve reliability and reduce journey times on express services from south west Sydney and would include:

- Macdonaldtown turnback (complete);
- Homebush turnback and platform (2006–2008);
- Revesby turnback and platforms (2006–2008); and
- Macdonaldtown stabling (2006–2007).

Clearway 4 is shown on **Figure 4.5.**

Revesby Turnback and Platforms

The Revesby Turnback Project is currently under construction for completion in 2008. It will provide an improved starting point for local services on the East Hills Line. It will remove the need to cross in front of the frequent Campbelltown express services which is currently necessary. This will improve reliability for both services especially once the four tracks, extended from Kingsgrove, are completed in 2010.

Revesby Station comprises an island platform with two sets of tracks used for both local services on the East Hills line and express services for Campbelltown. There are currently no turnback facilities at the station. At present trains terminate at East Hills Station. The turnback there is inadequate to manage the current rail task resulting in service delays.

The Revesby Turnback Project includes:

- new track on the southern side of the existing tracks from Wyreema Avenue to Tarro Avenue;
- a new platform on the southern side of the existing station;
- upgrade of the existing platform to provide easy access facilities, construction of access lifts and a new overhead footbridge;
- an additional rail bridge over The River Road;
- modifications to the northern side of Blamey Street including reconfiguration of parking arrangements; and
- new retaining walls and drainage works.

The Revesby Turnback will provide a new terminating platform for the all-stops services operating on the East Hills Line removing conflicting train movements. The project provides the capacity to hold terminating trains, improving recovery time from delays and overall service reliability. Construction is underway and will be completed in 2008.

Additional Tracks, Kingsgrove to Revesby
Trains from Campbelltown to the City via the East Hills Line currently experience congestion due to the necessity to share the existing double track with all station stopping trains. Extension of the existing four track configuration from Kingsgrove to Revesby would provide greater separation of express and local services to improve reliability and improve journey times on express services from south western Sydney. Service patterns on the Airport and East Hills line can be simplified and better structured.

4.5 Operations on the East Hills Line

4.5.1 Development of the line

The original East Hills Line was opened on 21 September 1931 as an electrified double track line from Wolli Creek Junction (between Tempe Station and Wolli Creek) to Kingsgrove, then a single track, non-electrified section to East Hills with a passing loop at Riverwood. The single line between Kingsgrove and East Hills was opened for electric services on 17 December 1939.

The line was duplicated between Kingsgrove and Riverwood in 1948 with points for terminating trains provided at both stations and a passing loop at Revesby opened in 1956. Services generally served all stations from East Hills via Tempe and Sydenham to the City Circle. Occasional services terminated at Riverwood, Kingsgrove and Padstow.

The line was duplicated to East Hills in 1987 and extended to Glenfield to join the main south line allowing through-services to be provided to Campbelltown. A new station was constructed at Holsworthy and a third platform added at East Hills Station. Initial services from Campbelltown were limited to peak hours but by 1988, an all day half hourly service was provided. Local (all stations) services generally ran to a 15 minute frequency from East Hills to the CBD.

Construction of the Airport Rail Link (originally the New Southern Railway) began in 1995 intended to provide improved access to Sydney Airport ahead of the Sydney 2000 Summer Olympic Games as well as increasing capacity on the lines serving the south west of the metropolitan area. The line opened on 21 May 2000. It included five new stations, two at the airport and one each at the newly developing residential area at Green Square, the commercial/industrial area of Mascot and an interchange station with the Illawarra line at Wolli Creek.

The quadruplication of the section of the East Hills Line from Wolli Creek junction to Kingsgrove brought about new running patterns with all stations services generally running from East Hills via the Airport and peak hour express services from Campbelltown using the original route via Sydenham along the new tracks between Kingsgrove and Wolli Creek.

The Airport and East Hills lines connect Macarthur, Campbelltown and Glenfield in the south west of the Sydney metropolitan area to the City Circle via Wolli Creek and the two stations at Sydney Airport (Domestic and International). Passengers using the East Hills Line between East Hills Station and Kingsgrove can transfer to the Cumberland Line (Campbelltown to Blacktown) at Glenfield and the Eastern Suburbs and Illawarra Line (Waterfall/Cronulla to Bondi Junction) at Wolli Creek. City bound commuters at Revesby can select local services to the City Circle via the Airport or express services via Sydenham.

Service characteristics at those stations from Beverly Hills to Revesby are summarised in **Table 4.1**

4.5.2 Existing service patterns

Frequency of daily services is 70 percent higher at Revesby, Padstow and Kingsgrove Stations compared with Riverwood, Narwee and Beverly Hills. The East Hills Line operates with eight trains inbound during the morning peak hour except Narwee Station with four services per hour. Revesby and Beverly Hills operate express services while Padstow, Riverwood and Kingsgrove include semi-fast services.

Express services provide 10 minute travel time savings over local services while semi-fast trains generally save about three minutes. The semi-fast services use the Airport Line.

There is little to differentiate alternative stations on the East Hills Line in relation to bus activity. Each station is served by three services typically operating at 15-20 minute frequencies in the morning peak period.

Narwee Station has the least daily and morning peak patronage along the East Hills Line. This station also has the fewest daily and peak hour train services with only moderate regional and local road access.

Padstow is the most attractive station for park and ride due to the availability of parking spaces which total 35 percent of all commuter parking on the East Hills Line in addition to good regional and local road access. Commuter parking is discussed in more detail in **Chapter 12.**

At present, bus services provide only a small percentage of total access with all stations with a similar level of routes, hours of service and hourly and daily frequency.

Beverly Hills Station

Beverly Hills Station mainly serves local trips. The station provides a total of 74 daily rail services (Monday to Thursday) to the CBD and 76 daily services on Friday (RailCorp 2006). The station is used by a total of 1,530 daily inbound passengers with 880 travelling during the morning peak period.

Walking is the main access mode (66 percent) followed by commuter parking (23 percent) and kiss-and-ride (9 percent). Feeder buses play only a minor role (1 percent).

Table 4.1 Current East Hills Line service characteristics

Station	Daily services				Frequency						Travel time to Central Station (minutes)					
	Monday-Thursday		Friday		Inbound[1]			Outbound[2]			Inbound[1]			Outbound[2]		
	In	Out	In	Out	Express	Semi express	All	Express	Semi express	All	Express	Semi express	Local	Express	Semi express	Local
Beverly Hills	74	78	76	80	4	-	8	4	-	8	20	-	27	18	-	25
Narwee	70	70	72	72	-	-	4	-	-	4	-	-	29	-	-	27
Riverwood	119	117	121	119	-	3	7	-	4	8	-	28	32	-	25	30
Padstow	119	118	121	120	-	3	8	-	4	8	-	31	34	-	28	33
Revesby	74	82	76	84	4	-	8	3	-	8	26	-	37	23	-	35

Note 1: Services to the CBD between 07.00 and 08.00 hours.
2: Services from the CBD between 17.00 and 18.00 hours.

Beverly Hills Station is located on the Hurstville to Bankstown strategic bus corridor (Number 25). Two bus routes serve the station in the morning peak hour (Punchbowl 450 and 451) at a 20 to 30 minute frequency. The Beverly Hills Station stops are located on King Georges Road.

Narwee Station

Narwee Station serves local trips and express services do not stop. The station provides a total of 70 daily rail services (Monday to Thursday) to the CBD and 72 daily services on Friday (RailCorp 2006). The station is used by a total of 1,320 daily inbound passengers with 890 travelling during the morning peak period.

Walking is the main access mode (67 percent) followed by kiss-and-ride (19 percent) and commuter car parking (13 percent). Feeder buses play a minor role and the station is not located on a strategic bus corridor.

Punchbowl operates three bus services (940,941 and 942) to Narwee Station during the morning peak hour at 20 to 30 minute frequencies.

Dedicated commuter parking is provided off-street to the north of the station.

Riverwood Station

Riverwood Station is served by a total of 119 daily rail services (Monday to Thursday) to the CBD and 121 daily services on Friday (RailCorp 2006). The station is used by a total of 3,120 daily inbound passengers with 2,060 travelling during the morning peak period.

Walking is the main access mode (52 percent) followed by commuter parking (24 percent) and kiss-and-ride (17 percent). Feeder buses play a minor role, contributing only six percent of total access demand (RailCorp 2006).

Three bus services (Punchbowl 940, 944 and 945) operate to Riverwood Station at varying frequencies. The bus stops are located on Belmore Road and Thurlow Street.

The majority of commuter parking is located to the north of the station where 54 unrestricted parking spaces are provided on William Road and 20 on Morotai Avenue. Eighteen unrestricted parking spaces are provided to the south of the station on Thurlow Street.

Padstow Station

Padstow Station is served by a total of 119 daily ail services (Monday to Thursday) to the CBD and 121 daily services on Friday (RailCorp 2006). The station is used by a total of 3,500 daily inbound passengers with 2,450 travelling during the morning peak period.

Commuter car parking serves 33 percent of total arrivals at the station, followed by kiss-and-ride (31 percent) and walking (28 percent). Feeder buses play a minor role, contributing eight percent of total access demand.

Padstow Station is located on the Miranda to Bankstown (Number 23) strategic bus corridor. Three bus services (Veolia 927, 948 and 962) operating at differing frequencies, provide links to the station during the morning peak hour. The station bus stop is located on Howard Road.

Revesby Station
Revesby Station currently provides predominantly local services. The station is served by a total of 74 daily rail services (Monday to Thursday) to the CBD and 76 daily services on Friday (RailCorp 2006). The station is used by a total of 1,910 daily inbound passengers with 940 travelling during the morning peak period.

Walking is the main access mode (39 percent) followed by commuter parking (36 percent) and kiss-and-ride (18 percent). Feeder buses play a minor role, contributing only two percent of total access demand (RailCorp 2006).

The station is an island platform with ticketing and public facilities contained within a building on the platform. Access is provided by footbridge which also serves as a major pedestrian link between each side of the railway. The station is currently undergoing redevelopment as part of the 2008 Clearways program.

4.5.3 Capacity and reliability issues

Current operations on the East Hills Line are constrained by the following factors:

- Kingsgrove to Revesby tracks are congested with express and local services competing for available train paths.
- Operations are complex with 34 differing stopping patterns needing to be accommodated.
- East Hills terminus is operating at capacity (This will be replaced in 2008 with the opening of the Revesby Turnback Project).
- Sydenham to Redfern tracks are congested accommodating trains from Illawarra, East Hills, Bankstown and intercity lines which converge on the four track corridor.

These circumstances result in rail infrastructure operating near capacity where service reliability suffers if a minor incident or delay occurs. The Proposal is required to add the necessary capacity to accommodate future increases in demand and enable a more reliable service to be provided. The need for the proposal is explained in more detail in **Section 4.7**.

4.6 Passenger growth projections

4.6.1 Passenger demand

Passenger demand on the CityRail network has grown steadily over the past 20 years from 208 million passenger journeys in 1980-81 to a peak of 303 million passenger journeys in 2000-01 (Olympic Games year). Demand has since returned to the previous pattern of steady growth with an average annual growth rate over the last 25 years of 1.1 percent.

Actual passenger demand on the East Hills Line over the 10 years from 1990 to 2000 grew by 15 percent from 8.9 to 10.2 million passenger journeys per annum at an average annual growth rate of 1.4 percent. (RailCorp 2005).

4.6.2 Patronage forecasts

Patronage forecasts were developed by the Ministry of Transport using a travel model assuming a population increase for Sydney of 19 percent between 2001 and 2021 (RailCorp 2005). It also assumed that the current distribution of residential development between fringe areas and existing suburbs would continue and that the current network would be expanded to include the Epping to Chatswood Rail Link. It did not include the North West Rail Line. Strategic planning policy commitments relating to the location of future population growth and future investment in rail infrastructure described in **Sections 4.1** and **4.3**, and announced by the NSW Government after the completion of the forecasts of usage, can be expected to influence future passenger demand. The new policies focus on improving the attractiveness and effectiveness of rail in contributing to the total transport task.

The existing forecasts for the East Hills Line expect passenger demand during the morning and evening peaks to grow from 11.1 million passenger journeys in 2005-06 to 14.8 million passenger journeys in 2021. This would represent an increase of 33 percent at an average annual growth rate of 1.2 percent suggesting a continuation of earlier increases in passenger demand (RailCorp 2005).

4.7 Need for the Proposal

The Proposal is needed to:

- increase capacity to run additional local and express services on the East Hills Line including provision for future services from the South West Rail Link;
- improve service reliability by separating service types and providing infrastructure to support out of course train running;
- achieve journey time improvements on trips to the south west region of the metropolitan area;
- encourage a reduction in the use of the private cars, the main mode of transport for journeys to and from the south west; and
- encourage integrated transport and land use planning in the south west which is necessary to achieve the appropriate levels of urban consolidation and commercial development around transport nodes.

A key component of the proposals set out in the Metropolitan Strategy is the distribution of future growth between new release areas (30 percent) and the existing urban area (70 percent). Investment in transport infrastructure will need to support this by strengthening the existing transport system to accommodate increasing demand generated within the already developed areas and providing the new facilities necessary to allow new residents a high degree of access to public transport and thereby, to employment, education, health, commercial services and retail and recreation facilities.

The Proposal is part of a package of transport infrastructure projects aimed at increasing the capacity of the existing rail system to accommodate increasing demands and

improving the efficiency and reliability with which these services are delivered to the public. The Rail Clearways Program would remove various impediments to more efficient working of the current rail infrastructure allowing increased service frequencies and increasing capacity for future network expansion such as the South West Rail Link to Leppington/Bringelly.

Anticipated project benefits

The Proposal is a major transport initiative that aims to promote the use of public transport in the south west by improving connections to the Sydney CBD and other parts of the metropolitan area and facilitating the provision of public transport at an early stage to cater for the predicted population growth in the South West Growth Centre.

The key benefits of the Proposal would be:

- improved access to public transport for existing and future residents of the south west of the metropolitan area;
- improved access to employment opportunities, educational and cultural facilities;
- reduced congestion on the road network;
- support for planned urban development as higher density residential development would become increasingly attractive as a result of the provision of good access to reliable public transport services;
- net travel time savings for car, bus and rail commuters;
- reduced motor vehicle costs due to a reduced reliance on cars; and
- reduction in accidents, noise/air pollution, greenhouse gas emissions and energy consumption due to the consequent reduction in car use.

Implications of not proceeding with the Proposal

Should the Proposal not proceed, train services on the East Hills Line would remain constrained by its current capacity which is close to being realised. Potential conflicts between express and local services competing for use of the same tracks would not be alleviated. Population growth in both existing and newly developing areas in the south west will increase demand for efficient and reliable train services leading to inevitably deteriorating services as line capacity is exceeded.

Commuters will seek alternative transport solutions placing additional pressure on the congested road network. Delays caused by capacity constraints on the East Hills Line are likely to continue to have flow-on effects on other parts of the network. Failure to improve capacity in part of the key public transport link to one of Sydney's major growth areas will prejudice the effective development of the growth centre hindering the economic development of the region. The benefits of the proposed South West Rail Link would not be achieved. Further overcrowding on the trains would occur with extended dwell times at stations and the slowing of services.

The full benefits derived from Clearway 3, the scheduled timetable and the Revesby Turnback, currently under construction, would not be achieved.

4.8 Objectives of the Proposal

A set of objectives for satisfying the need for and requirements of the Proposal has been developed. These can be viewed as defining what the Proposal needs to achieve and the best ways of achieving it.

Improvement of operational capacity, efficiency and reliability

- Increase capacity to run additional local and express services on the East Hills Line including provision for future services from the South West Rail Link.
- Improve service reliability by separating service types and providing infrastructure to support out of course train running.
- Provide journey time improvements on trips to the south west.
- Manage safe and reliable operations.

Improvements to the attractiveness of commuter rail transport

- Modify existing passenger facilities to provide a high level of customer service compatible with the improved services.

Achievement of acceptable environmental and economic outcomes

- Support State economic development by the provision of improved transport infrastructure.
- Enhance potential environmental effects and manage potential adverse environmental impacts.

The compliance of the Proposal with these objectives is considered in **Chapter 18**.