

8 Assessment of key issues

This chapter provides an assessment of the key environmental issues that are expected to be associated with construction and operation of the project, as identified in the Director General's requirements. These key issues are:

- *Traffic and transport.*
- *Noise and vibration.*
- *Biodiversity.*
- *Visual impacts, urban design and landscaping.*

Where relevant, this chapter also identifies impact mitigation and management measures for these issues.

8.1 Traffic and transport

Director General's requirements	Where addressed
Traffic and transport – the Environmental Assessment must address the operational traffic impacts of the project, including impacts (volumes, speeds, intersection performance, freight volumes etc) on the M5 Motorway and the surrounding local and regional road network, including the Newbridge Road, Milperra Road, Canterbury Road route.	Section 8.1.4
The assessment must address induced traffic and operational implications for public transport (particularly with respect to strategic bus corridors and bus routes) and consider opportunities to improve public transport patronage.	Section 8.1.4
The assessment must address impacts on cyclists and pedestrian access and safety (for those ancillary works around the Motorway corridor, as relevant) and consider opportunities to integrate cycleway and pedestrian elements with surrounding networks.	Section 8.1.4
The assessment must address construction traffic impacts, including a considered approach to route identification and scheduling of transport movements, the number, frequency and size of construction related vehicles (both passenger, commercial and heavy vehicles), the nature of existing traffic on construction access routes (including consideration of peak traffic times), and the need to close, divert or otherwise reconfigure elements of the road network associated with construction of the project.	Section 8.1.3 Section 8.1.7

8.1.1 Assessment approach

A detailed specialist assessment of the traffic and transport implications of the project is provided in the traffic and transport working paper included at Appendix E. This chapter summarises the findings of that paper.

Population and employment growth are broader sources of travel demand and these are reviewed more fully as part of the strategic justification for the project, which is presented in Chapter 3, as have a number of wider transport interactions.

Construction traffic impacts

The assessment of construction traffic impacts has involved a review of the types of construction activities proposed, staging of works, working hours and the need for road occupancy. Conclusions are then drawn about impacts on general traffic, localised traffic and access issues, impacts on bus operations and the potential for diversionary effects during construction.

Operational traffic and transport impacts

The effect of the project on road transport was evaluated using a strategic traffic model supplemented by micro-simulation modelling. Modelling utilises information about land use changes, key development sites, trip demand and future transport infrastructure improvements to make predictions about traffic volumes, speeds and travel times. This allows the situation with and without the project to be considered – that is, a comparison between the future ‘base case’ and the future ‘project case’ (2016 and 2026).

The future base case includes a number of anticipated network upgrades (see section 6.2 of the traffic and transport working paper at Appendix E), but does not include an expansion of the M5 East; the effect of an expansion of the M5 East was considered separately (see section 8.1.6). The M5 East expansion was not considered in the traffic modelling to ensure that the assessment reflected anticipated traffic numbers at the time of commencement.

The outcomes of traffic modelling allowed conclusions to be drawn about the performance of the project, induced traffic and the operational implications for public transport. Conclusions about impacts on cyclists and pedestrians were drawn by considering the effect of the project on access and connectivity.

8.1.2 Existing traffic and transport environment

This section presents a description of local and regional transport infrastructure, and considers the existing performance of the road network with reference to both the M5 South West Motorway and the regional road network (including a parallel route comprising Canterbury Road from Wiley Park to Bankstown, Milperra Road to Milperra, Newbridge Road to Liverpool, and the Hume Highway to Casula).

The following performance measures are used:

- Level of service on road links.
- Level of service at intersections.
- Travel speeds and times.
- Crash rate.

Population and employment growth

The strategic justification for the project – which includes a consideration of population and employment growth as drivers of transport demand – is discussed in Chapter 3. A key finding is that Sydney’s population (including the Central Coast) is forecast to grow from 4.3 million in 2006, to 5.7 million in 2031, and to six million in 2036. This corresponds to 770,000 extra houses and apartments, and 760,000 extra jobs by 2036. About 70 per cent of housing growth is forecast to be in existing areas, with the other 30 per cent primarily in the North West and South West growth centres.

With reference to south-western Sydney, it is noted that:

- The South West Subregion (which is mainly in the Liverpool and Camden local government areas) is expected to experience the highest level of population growth at 113 per cent.
- Employment lands have already been rezoned for Hoxton Park Aerodrome Industrial Area (88 hectares), Oran Park and Turner Road (114 hectares), and Yarrunga/Prestons Industrial Area (140 hectares), and employment lands are proposed for North Leppington.
- Revitalising the Campbelltown–Macarthur Major Centre and strengthening the Liverpool Regional City are elements of the government’s Metropolitan Strategy.

With reference to North West Sydney, the Metropolitan Strategy recognises the Global Economic Corridor – from Macquarie Park through North Sydney to Sydney Airport and Port Botany – as a major source of employment and activity.

The existing road network

The M5 and F5 corridor is the main road freight, commercial and passenger route between Port Botany and Sydney Airport, and south-western Sydney. It is part of the National Highway Network connecting Sydney, Canberra and Melbourne.

The existing M5 and F5 corridor can be divided into three sections:

- M5 East Freeway – a 10-kilometre road connecting the M5 South West Motorway with General Holmes Drive/Eastern Distributor. The M5 East Freeway currently includes two four-kilometre tunnels between Bexley Road, Earlwood and Marsh Street, Arncliffe. Each tunnel contains two lanes of traffic. It is operated by the RTA.
- M5 South West Motorway – a 21-kilometre tolled road with two lanes in each direction between Camden Valley Way, Casula, and King Georges Road, Beverly Hills. It is operated by Interlink Roads.
- F5 Freeway from the interchange of the M5 South West Motorway and the Westlink M7 Motorway at Casula, south towards Campbelltown and then on to Mittagong.

Principal arterial road routes parallel to the M5 South West Motorway include:

- Canterbury Road, Milperra Road and Newbridge Road – from Roselands to Liverpool.
- Campbelltown Road and Hume Highway – from Casula to Liverpool.

Principal arterial routes intersecting with the motorway are listed in Table 8.1.

Table 8.1 Arterial roads intersecting the M5 South West Motorway

Route/location	Interchange arrangement
King Georges Road	Full diamond interchange
Belmore Road	West-facing ramps
Fairford Road	Full diamond interchange
The River Road	Full diamond interchange
Henry Lawson Drive	Full diamond interchange
Heathcote Road	Diamond interchange
Moorebank Avenue	Full diamond interchange
Hume Highway	East-facing ramps
Camden Valley Way	North-facing ramps

The freight network

The M5 South West Motorway traverses and indirectly services several significant industrial areas, including:

- Kingsgrove (just east of King Georges Road).
- Riverwood (near Belmore Road).
- Padstow (off Fairford Road).
- Milperra (between Fairford Road and Henry Lawson Drive).
- Moorebank (off Moorebank Avenue).

Further, as it is part of the Sydney Orbital Network, the motorway carries freight traffic from Sydney Airport, Port Botany, the Western Employment Lands at Eastern Creek (via the Westlink M7 Motorway), and other significant freight generators in the metropolitan, regional NSW and interstate areas.

Rail freight is primarily carried on the South Line through Glenfield, Liverpool, Cabramatta and Sefton. As noted in Chapter 3, work is currently underway to construct an extra freight-only track over this length (the Southern Sydney Freight Line). From Sefton junction, freight trains can access the rail freight yards at Chullora, Enfield, and Clyde.

Public transport

Rail

In the vicinity of the M5 South West Motorway, there are three passenger rail lines:

- South/Inner West Line – from Redfern to Glenfield via Lidcombe and Regents Park. This line has four trains per hour in the AM peak. The busiest stations in the study area are Cabramatta and Liverpool.
- Bankstown Line – from Sydenham to Bankstown and on to Regents Park (where it joins the South Line). This line has six trains per hour in the AM peak. Bankstown is the busiest station.
- East Hills Line – from Turrella to Campbelltown. This line has eight trains per hour from Glenfield to East Hills, with an additional four trains per hour after East Hills. The busiest stations are Glenfield, Holsworthy and Padstow.

On all three lines, the principal destination in the AM peak is the Sydney CBD, accounting for around 48 per cent of all AM peak period trips. Other significant destinations are the Inner West and Lower North Shore (Cityrail, 2008).

Buses

With the exception of one State Transit Authority bus route from Canterbury to Bankstown, private sector operators provide all bus services in the study area. These services are focussed on the activity centres of Roselands, Bankstown, and Liverpool. Most services connect with railway stations if they are on the route, thus facilitating connections from homes, workplaces and education facilities. On most routes, there are two services per hour during peak periods, and one service per hour during the off-peak and on weekends. However, a limited number of routes have four services per hour during peak periods and two per hour at other times. Some routes operate Monday to Friday only because they service workplaces and education institutions.

The government has identified a series of 'strategic bus corridors' within the Sydney metropolitan area. These are shown in Figure 8.1. Some of these corridors have been implemented. The main purpose of the strategic bus corridors is to provide high frequency, reliable links between key major centres. They also provide an important service for demand generated along the routes and provide key, cross-regional transport links. Several of these corridors run either parallel to the M5 South West Motorway, or cross the motorway.

Of these corridors:

- Corridor 25 is affected by traffic conditions at the King Georges Road interchange.
- Corridor 23 is affected by traffic conditions at the Fairford Road interchange.
- Corridor 31 is affected by traffic conditions at the Hume Highway interchange.
- Corridor 28 is not directly affected by the motorway.
- Corridor 33 could be impacted by traffic conditions at the intersection of Canterbury Road, Milperra Road and The River Road, which is very close to the interchange of The River Road with the motorway.

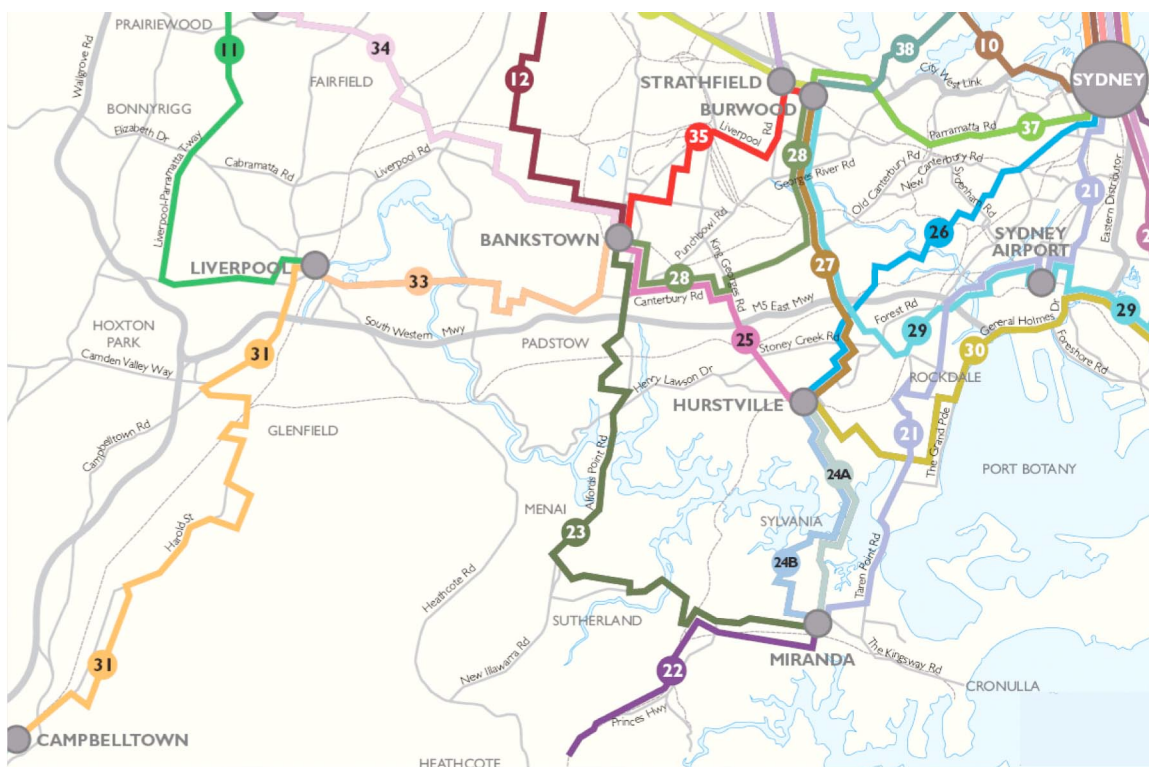


Figure 8.1 Sydney strategic bus corridors

The associated Metrobus network (including route M90 connecting Liverpool, Moorebank, Bankstown, Strathfield and Burwood) provides high-frequency bus services running seven days a week. Services run every 10-minutes during peak periods, every 15 minutes during the weekday off-peak, and every 20 minutes in the evening and on weekends.

The M5 South West Motorway is not recognised as a major bus route. It does not form part of a strategic bus corridor and is not on the Metrobus network.

Pedestrians and cyclists

Because it is a high-speed environment, pedestrian access is prohibited along the length of the M5 South West Motorway.

Pedestrian crossing facilities are provided at all of the motorway's interchanges with the surface road system. However, not all pedestrian movements are catered for at these sites.

Parallel (off-motorway) shared pedestrian and bicycle paths exist in sections of the motorway between Welfare Avenue South in Narwee and Salt Pan Creek; and Moorebank Avenue and the Hume Highway.

Bicycle access along the motorway and its parallel routes varies in level of quality and provision. The motorway has a primary shoulder lane designed for confident commuting and recreational cyclists. In addition, there are some cyclist facilities parallel to the motorway – both formal and informal.

Mode share

Mode share is a term that describes the percentage of travellers using a particular type of transportation.

In Sydney, mode share is largely determined by:

- Population density. Population density increases with proximity to the CBD. It also increases with proximity to major public transport corridors – notably rail lines. Consequently, the western end and fringes of the M5 corridor have low population densities, as shown in Figure 8.2. A low population density will generally have a high car mode share (for trip origins). Figure 8.3 shows the car mode shares for the

start point of the journeys to work for Sydney residents in 2006 (from 2006 Census, Australian Bureau of Statistics). With the exception of the areas along the East Hills and Southern rail lines, car mode share in the M5 corridor is generally more than 80 per cent.

- Location of employment. Because of the radial nature of the public transport services to and from the CBD – and because these services pass through other major centres, such as Parramatta and North Sydney – commuter trips are predominantly destined for one of these centres. However, there are other important employment areas, as illustrated by Figure 8.4 (which shows employment density in Sydney). Commuters with employment outside of the major employment centres have a high car mode share as shown in Figure 8.5. In the M5 and F5 corridor, the only centres with car mode share less than 90 per cent are Liverpool, Bankstown and Roselands.

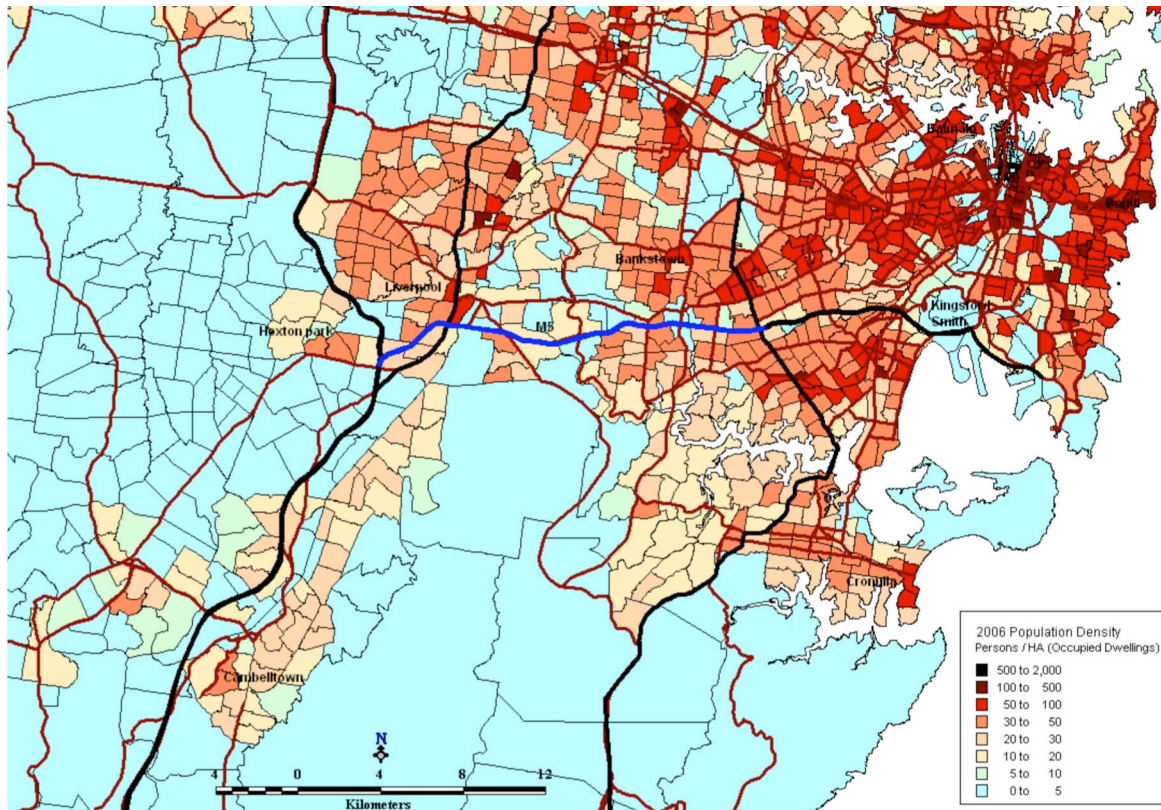


Figure 8.2 2006 population density