



WestConnex

Business Case Executive Summary

September 2013



biggest
transport project
in Australia



\$20b
economic
benefits
to NSW



33km
corridor
linking Sydney's west, city, south and airport

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Figure 1: WestConnex – Building for the future



Executive Summary

WestConnex is the largest transport project in Australia, linking Sydney's west and south-west with the city, airport and port in a 33 km continuous motorway. It will transform Sydney and be the trigger for urban revitalisation that will beautify the Parramatta Road corridor and make it a more attractive place to live, work and socialise.

1.0 Strategic overview

Key features

WestConnex is the largest integrated transport and urban revitalisation project in Australia, linking Sydney's west and south-west with the CBD, airport and port in a continuous 33 km motorway that is completely free of traffic lights.

It will be the trigger for urban revitalisation providing new opportunities for residential and commercial development along the Parramatta Road corridor, beautifying streetscapes, adding green corridors and parkland and making it a more attractive place to live, work and socialise.

WestConnex will transform Sydney by making it easier for cars and trucks to move between employment hubs and the vast residential suburbs and growth centres that house millions of people.

It will:

- cut forecast travel times between Parramatta and Sydney Airport by up to 40 minutes
- effectively halve bus travel times between the Inner West and the CBD

- create 10,000 jobs during the construction phase, including hundreds of apprenticeships
- bypass up to 52 sets of traffic lights
- remove 3,000 trucks a day from Parramatta Road and put them underground, leading to revitalised neighbourhoods on the surface
- improve north-south travel times across Parramatta Road for public buses accessing the Western Rail line at Burwood and other stations
- provide the environment for 25,000 new jobs and 25,000 residences to be created over the next 20 years along Parramatta Road
- deliver more than \$20 billion in economic benefits to NSW.

The need for action is clear.

Poor infrastructure investment decisions over the past decade have contributed to a \$30 billion infrastructure backlog, leading to the state's relatively poor economic performance compared with the rest of Australia during that time.

Sydney's population is set to increase by 1.3 million over the next 20 years¹, and the city's transport infrastructure needs to improve in order to cater for this growth.

Currently, congestion costs the NSW economy an estimated \$5.1 billion each year or nearly \$1,100 for every person living in Sydney. By 2020 the cost of congestion is expected to rise to \$8.8 billion as Sydney's population grows and travel demand increases².

WestConnex will be a major driver in meeting these demographic challenges by:

- easing congestion
- connecting communities
- creating jobs.

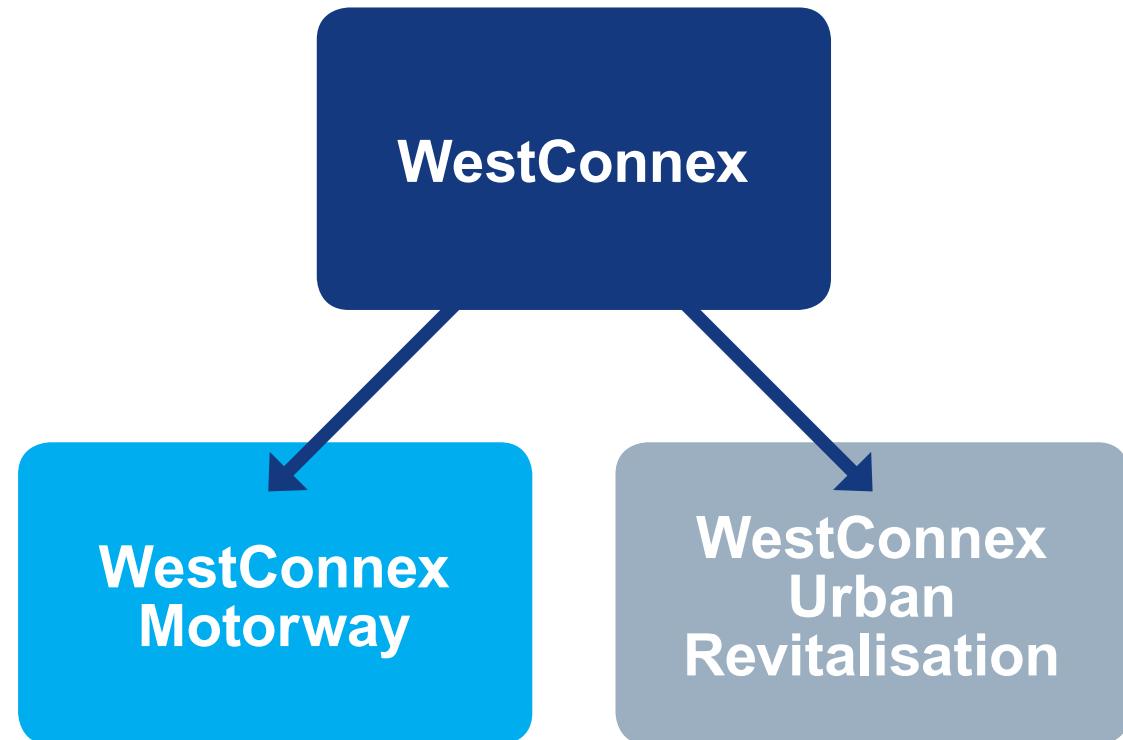
1.1 Building for the future

WestConnex is the largest integrated transport and urban revitalisation project in Australia.

A key recommendation of the *State Infrastructure Strategy*, WestConnex will deliver more than \$20 billion worth of economic benefits into the state's economy and provide the physical infrastructure required to build NSW's future capacity as the leading economic, social and cultural hub within the Asia Pacific region.

In developing this Business Case, WestConnex was measured against four key transport planning principles:

- serves key market and customer needs
- integrates with the existing transport system
- transforms the city and reshapes local travel
- future proofs long term growth and change, by allowing for future extensions, connections and access points to and from Sydney's north, south, southern CBD and Port Botany areas.



Private sector global specialists have combined with the WestConnex Project Team to develop a robust Reference Scheme for WestConnex that will reshape Sydney over the next two decades.

Key areas of consideration included urban revitalisation, engineering design and construction, traffic modelling and investment, heritage and environmental planning, and innovation.

1.0 Strategic overview (continued)

1.2 Scope

WestConnex has two key interdependent features:

- a 33 km motorway, linking Sydney's west with the CBD, Port Botany, Sydney Airport and the south west, to be built over 10 years
- a 20 km urban revitalisation corridor to be developed progressively between Camperdown and Parramatta over 20 years.

Delivered in three stages over the next decade, the WestConnex motorway project will augment and extend the M4 to the inner city, duplicate the existing M5 East and provide an airport link for journeys to Sydney's international gateways.

In combination with the recent announcement to source a construction price for the F3-M2 motorway link, WestConnex will complete key 'missing links' in Sydney's motorway network, helping the city take its place as a leading global city with a modern, integrated transport system.

The revitalisation of suburbs such as Redfern and Surry Hills over the last decade was achieved by constructing the Eastern Distributor which removed large numbers of trucks, buses and cars from inner-city streets, improved accessibility to the inner suburbs and increased their appeal as places to live and work.

So too, WestConnex will help transform Sydney's inner west suburbs, reconnecting communities across Parramatta Road, and linking the population and employment hotspots of Parramatta with Sydney's CBD, airport and south-west in an uninterrupted motorway for the first time.

WestConnex will remove 3,000 trucks a day from surface roads and put them in a tunnel without traffic lights, reducing the typical motorist's travel time from Parramatta to Sydney Airport by up to 40 minutes.

This will fundamentally change the surface conditions on Parramatta Road, reducing traffic and noise and providing the conditions for urban revitalisation.

Improving connectivity with public transport, including trains, light rail and bus services in the inner west, and creating up to 10 km of additional bus lanes to Sydney's CBD, will make the Parramatta Road corridor an even more attractive place to live, work and socialise.

Bus travel times between Burwood and the CBD are expected to be cut by up to 20 minutes.

With Sydney's population expected to grow by 1.3 million people over the next 20 years, the revitalisation of Parramatta Road is expected to create 25,000 new residences and 25,000 new jobs over this period.

The NSW Government is investing \$282 million for enabling works to address well known pinch points in and around Port Botany and Sydney Airport to be undertaken in parallel to stage 1 of WestConnex.

By introducing smart infrastructure technologies, WestConnex will deliver innovative solutions to improve real-time traffic management.

Technologies include sensors, ramp metering, variable speed limits and message signs to ease congestion and improve the management of traffic demand throughout the inner west and greater Sydney basin.



1.3 Current challenges

The cost of congestion to the NSW economy is estimated at \$5.1 billion each year, rising to \$8.8 billion within seven years as Sydney's population grows.

The expected doubling of the annual NSW freight task to nearly 800 million tonnes by 2031³ highlights the importance of this critical driver. Efficient freight and logistics networks reduce the cost of everyday goods and services, underpin the strength of our export industries and generate jobs.

Savings are greatest for freight and commercial users cutting the cost of household goods and services.

In NSW, 67 million tonne kilometres of freight is moved annually and the value of the products transported exceeds \$80 billion. In 2011 freight and logistics contributed approximately \$58 billion (13.8 per cent) of the NSW Gross State Product.

Without significant improvements in motorway infrastructure, the burden of congestion will continue to cost the state billions of dollars

and contribute to cost of living increases for Sydneysiders.

Key infrastructure challenges include:

- The M4, which begins at Penrith and terminates at North Strathfield, creates unreliable travel times through the inner west to the city and airport.
- Parramatta Road is heavily congested, with traffic speeds reduced to an average 21 km per hour as trucks, vans, cars and buses fight for space on a crowded corridor interrupted by 25 sets of traffic lights.
- As a result, large sections of Parramatta Road have become an urban blight, characterised by failing retail businesses, heavily congested, polluting traffic and an absence of pedestrians. Urban decay is prevalent in many areas.
- Both the M5 East and M4 are heavily congested for more than 13 hours a day.

Motorway	Hours of congestion
M5 West	10
M4	13
M5 East	13

1.4 Current opportunities

Sydney is Australia's global city. Its performance affects national prosperity with the metropolitan area generating 24 per cent of Australia's economic output⁴, with 2.2 million jobs⁵.

In the last decade, however, Sydney's economic performance has declined and impacted the state's economic growth. State growth has been slower than the Australian average, and behind the state's closest competitor, Victoria⁶.

Within Sydney, economic activity is highly focused along the Global Economic Corridor running from Port Botany through the harbour and CBD to Macquarie Park, Norwest and Parramatta.

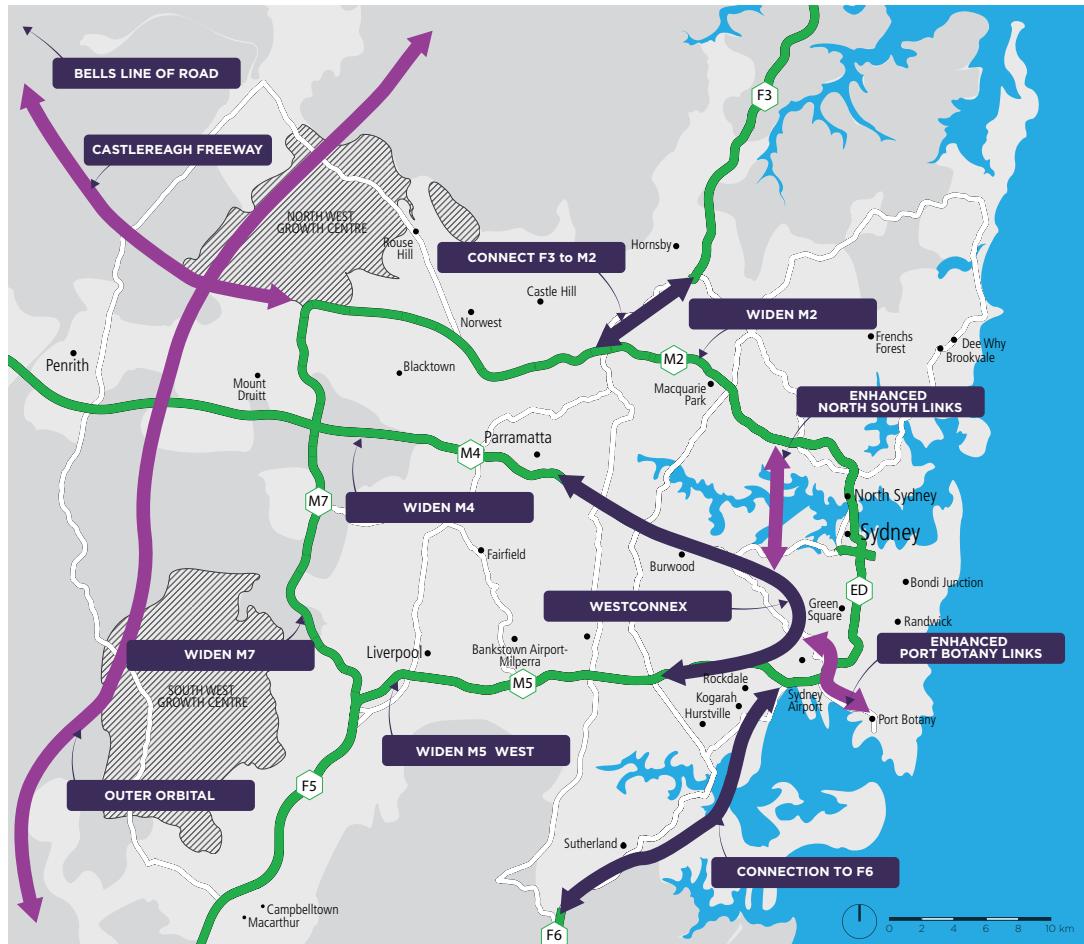
About 50 per cent of the state's entire economic output is generated from more than 700,000 jobs⁷ located along this narrow corridor.

Jobs and output are particularly concentrated in the southern half of the Global Economic Corridor. Unique among major world cities, Sydney co-locates its major port and airport together, within 10 km of the country's largest employment centre.

About 530,000 jobs⁸ are located in the corridor between Sydney's CBD and the airport and Port Botany.

1.0 Strategic overview (continued)

**Figure 2: The NSW Long Term Transport Master Plan
20-year vision for the Sydney motorway network**



Source: NSW Long Term Transport Master Plan, p.140.

1.4.1 Long term road vision

Sydney's population is expected to grow by 1.3 million people over the next 20 years. The city's roads network needs to adequately cater for the subsequent increase in traffic volumes.

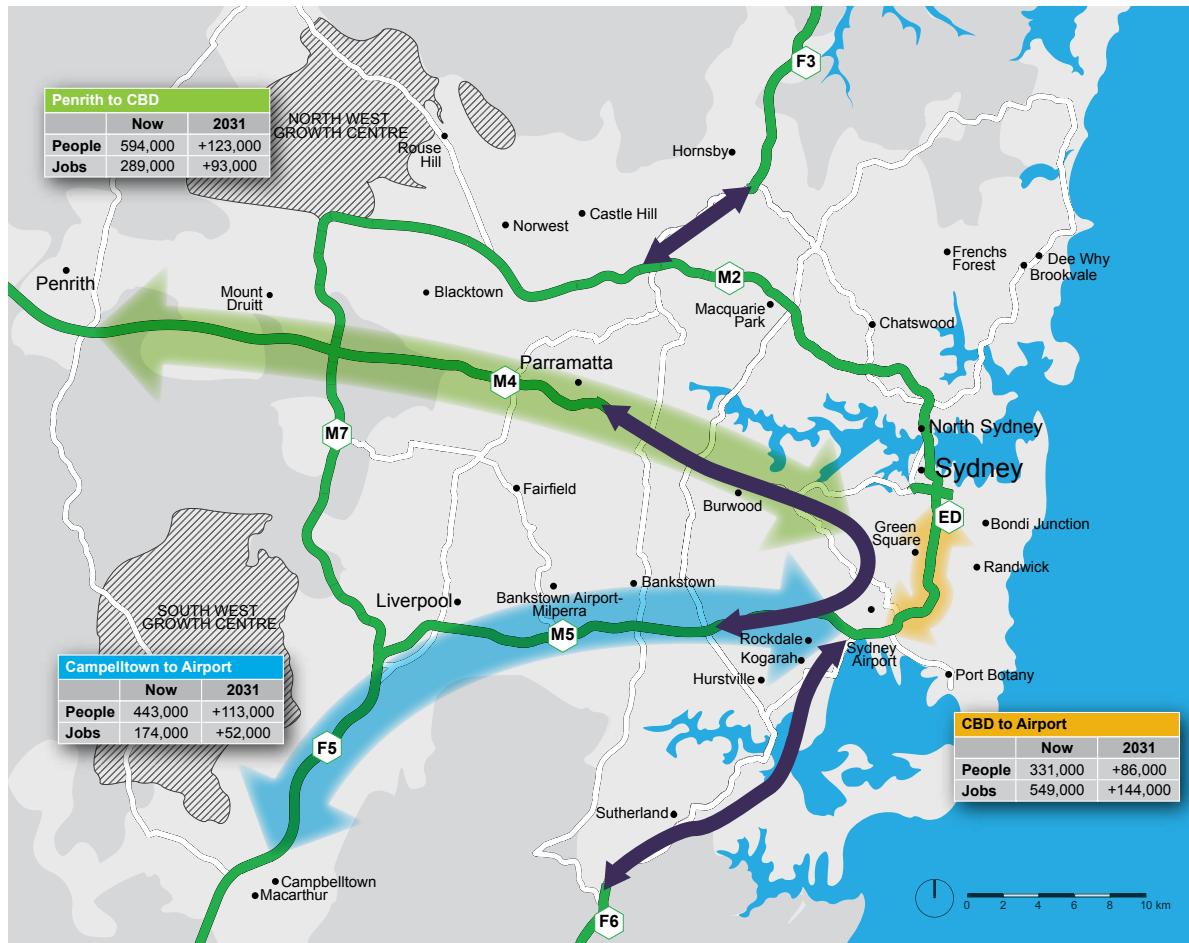
WestConnex provides a vital 'missing link' in Sydney's overall road capability, providing city access from the M4 corridor and enhanced accessibility from an upgraded M5.



Parramatta to Sydney Airport

- Motorways and freeways
- Major metropolitan roads
- Major centres
- Missing Orbital Motorway connection
- Corridors for investigation
- Growth centre

Figure 3: Population and jobs growth in Western Sydney



1.4.2 Jobs growth

WestConnex has the ability to link Sydney's population centres and employment corridors like never before. More than one million people currently live along the M4 and M5 corridors, supported by 460,000 local jobs. Over the next 20 years, almost a quarter of a million more people are likely to live along the M4 and M5 corridors than do so today, with the addition of 145,000 jobs.

In contrast, the CBD to Sydney Airport corridor currently supports 330,000 residents and 550,000 jobs. Over the next 20 years the addition of 144,000 new jobs is expected to outstrip the rise of 86,000 new local residents.

What this means is that residents of Western Sydney will need enhanced transport options to access employment opportunities across the west and east of the city.

Western Sydney 
3rd biggest economy in Australia

Source: Transport for NSW, Bureau of Transport Statistics, Population and Employment Forecasts 2006–2046, August 2012 Release.

1.0 Strategic overview (continued)

1.4.2 Jobs growth centres (continued)

About 55 per cent of Western Sydney residents currently travel to jobs east of Parramatta by car, and this is likely to change significantly in the foreseeable future.

The economic significance of Sydney's international gateways spans well beyond the immediate sites. Sydney Airport and Port Botany generate more than \$10.5 billion of output and handle close to \$100 billion of freight each year⁹, supporting 19,000 direct jobs and a further 45,000 in their immediate surrounds¹⁰.

Over the next 20 years, jobs growth is forecast to be particularly strong between Sydney's CBD and the airport, including Rosebery, Green Square and Redfern.

Other robust employment markets include the suburbs surrounding Sydney Airport, taking in Mascot followed by Sydney's south-east suburbs of Kensington and Randwick.



WestConnex is designed to meet these challenges.

Each day, about 500,000 people access the CBD, 100,000 passengers travel through Sydney Airport and 5,000 containers are moved through Port Botany¹¹.

Peak weekday demand for air travel and commuter journeys is largely coincident and primarily by road, leading to high levels of congestion.

Demand for transport in the CBD/Sydney Airport/Port Botany corridor is growing rapidly because:

- jobs in the CBD/Sydney Airport/Port Botany corridor are forecast to grow by 26 per cent by 2031 to 674,000 jobs¹²
- demand for air travel and container freight is forecast to grow much faster than the economy as a whole. By 2036, passenger numbers through Sydney Airport are forecast to more than double, to 79 million per annum¹³
- by 2030, container movements through Port Botany will more than triple to 7 million per annum¹⁴
- population in the CBD/airport/port corridor is forecast to grow by 30 per cent to 349,000 by 2031, as major areas are redeveloped¹⁵

A high proportion of demand for travel to the port and the airport originate in either the CBD/Sydney Airport/Port Botany corridor or Western Sydney. For example, 36 per cent of trips to the airport start in the CBD and inner Sydney¹⁶, and about 60 per cent of import containers are delivered to areas serviced by the M4, M5 and M7 corridors¹⁷.

The NSW Government has long recognised that investment in transport infrastructure supports movements to and around the global economic corridor and Sydney's international gateways will have significant economic benefits. For example:

- the Draft *Metropolitan Strategy for Sydney* prioritises the global economic corridor as a focus for sustained economic development over the next 20 years
- the Draft *NSW Freight and Ports Strategy* noted that NSW has critical international gateways at Port Botany and Sydney Airport, and that optimal performance of the network is critical for the efficient movement of passengers and cargo across the State.

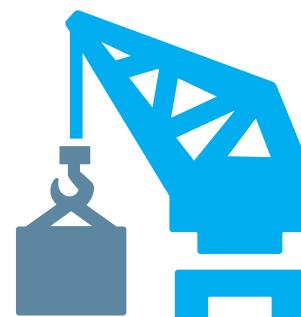
1.4.3 Freight, service and business trips are core to Sydney's economy

Freight and logistics are indispensable to economic activity. The Strategy estimated that in 2011¹⁸:

- about 128,000 people were directly employed in freight transport in NSW, representing 3.6 per cent of NSW employment. A further 500,000 were employed in logistics, accounting for almost 14 per cent of NSW employment
- NSW freight transport has a gross value added figure of \$13 billion, or 3.1 per cent of gross state product. Combined with logistics these figures increase to \$58 billion or 13.8 per cent of Gross State Product.

Sydney's freight, service and business task is much larger than the port task. While there are about 16,000 traffic flows across the three port gates at Port Botany per day,¹⁹ there are about 280,000 heavy commercial vehicle trips per day across Sydney, and 976,000 light commercial vehicle trips²⁰.

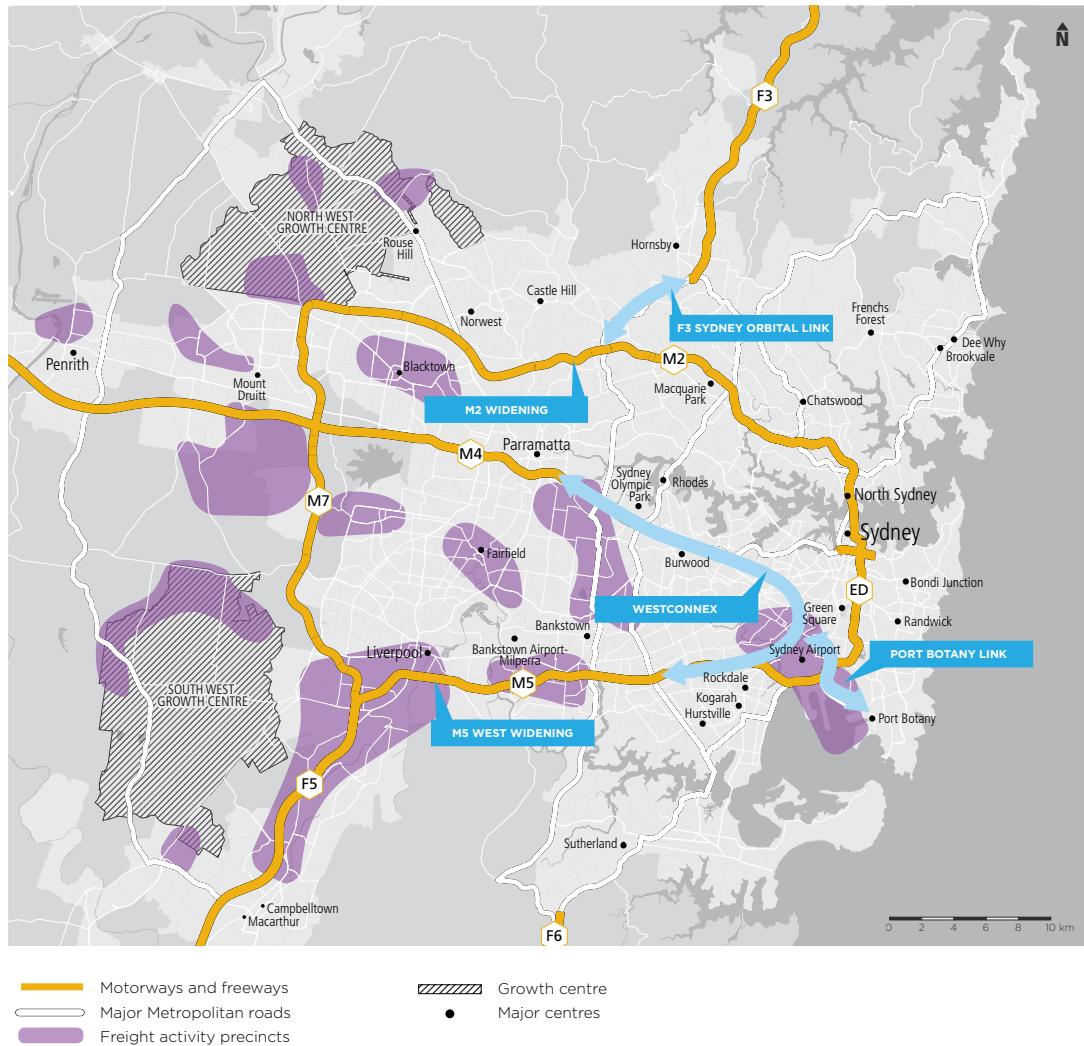
Light commercial trips are far more dispersed than heavy commercial ones, and this trend is forecast to continue well into the future. In simple terms, heavy commercial trips require a primary network with high quality connections between major freight hubs, while light commercial ones depend on a multi-layered network with many connection points to serve more diverse markets.



\$58b
freight and logistics
worth to NSW economy each year

1.0 Strategic overview (continued)

Figure 4: Major heavy freight generating activities



The nature of truck usage means they tend to form clusters and hubs, notably around Sydney's motorway, the highway network and the airport and port precincts.

The M7 and associated land use changes are a prime example of this. This pattern will be reinforced over the next 20 years.

There are around four times as many light commercial vehicle trips on the network as there are heavy truck trips.


Better and more
reliable trips
for people, businesses and freight

Source: Draft NSW Freight and Ports Strategy p84

1.4.4 Population growth and transport use

Sydney's population is forecast to grow by 1.3 million over the next 20 years from 4.3 million to 5.6 million people²¹. To meet this challenge, a greater range of housing and transport options is needed.

While greenfield development will continue to occur in the North West and South West Growth Centres, new housing will also be delivered through the renewal of established urban areas around existing and planned transport and infrastructure.

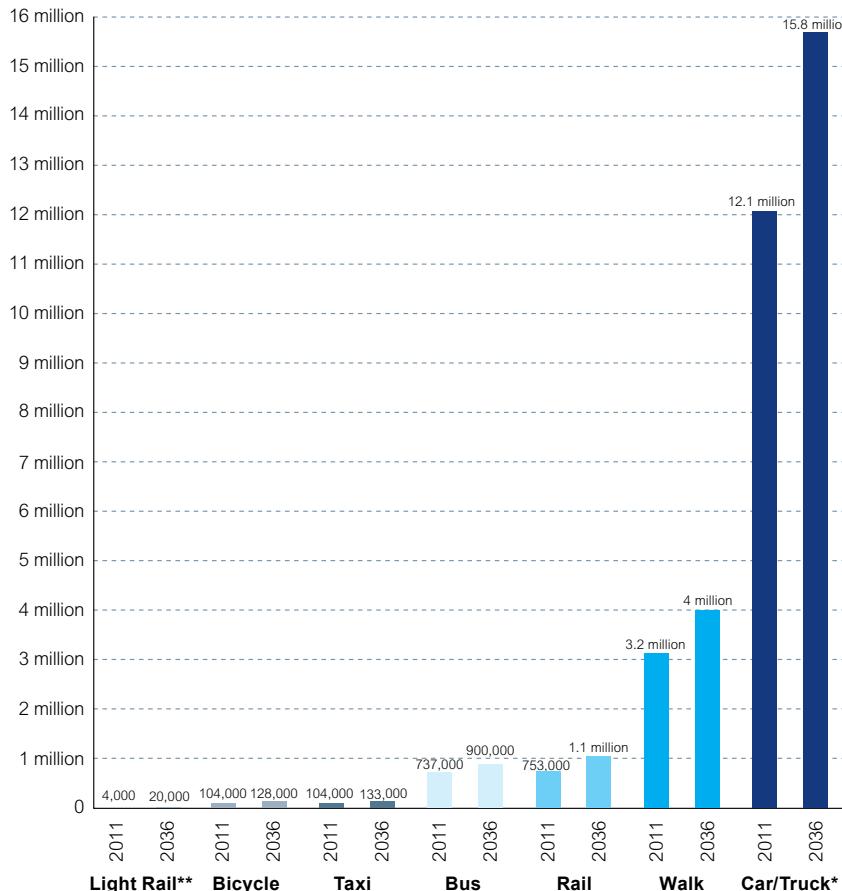
Jobs are also forecast to grow from 2.2 million today to 2.8 million by 2031²². As a result of these factors, the total number of daily trips in Sydney will increase by about 30 per cent from 16 to 21 million by 2031²³.

Population and jobs growth will produce strong demand for road travel on a network that is already heavily constrained. Over the next 20 years, the road network is forecast to accommodate about three quarters of total trip growth.

Sydney's transport network needs to serve a larger number of long distance trips between the cities west and east. For journeys to key employment centres, such as the CBD or North Sydney, travel will continue to be predominately by public transport.

However, with a significant number of jobs located outside these centres, private cars will remain popular as public transport is less suited to more dispersed trips.

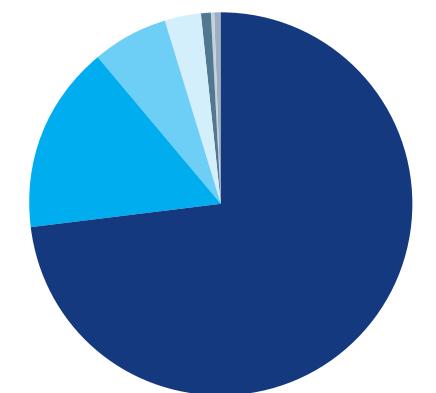
Number of Sydney trips by main mode for a 24 hour average work day



* Includes motorcycles, cars, 4WDs, vans, utes and trucks.

** Forecast includes the Inner West and the CBD Light Rail extensions and not the South East Light Rail.

Proportion of increased travel demand in Sydney 2011 – 2036



By main mode for a 24 hour average work day

Car* – 73.9%	Taxi – 0.6%
Walk – 16.0%	Bicycle – 0.5%
Rail – 6.5%	Light Rail** – 0.3%
Bus – 3.2%	

the motorway

The WestConnex
motorway is the missing
link in Sydney's road
transport network.

For the first time, cars and trucks will be offered a motorway free of traffic lights from Penrith through Parramatta to the city, the airport and to the city's south-west past Campbelltown.

WestConnex will change the face of Sydney for the better. With the city's population expected to increase by 1.3 million people over the next 20 years, this \$11 billion investment is vital to the city's prosperity.

As the largest transport project in Australia, it will create 10,000 jobs, including hundreds of apprenticeships for young people, during the construction phase.

2.0 WestConnex Motorway

Key points

WestConnex will link Sydney's west and south west with the city, airport and port for the first time in a 33 km continuous motorway that is free of traffic lights.

It will cost \$11-\$11.5 billion (\$2012) to build and will be delivered in three stages over 10 years.

- **Stage 1:** M4 East – Parramatta to Haberfield
- **Stage 2:** M5 Airport Link – Beverly Hills to St Peters
- **Stage 3:** M4 South – Haberfield to St Peters

The 33 km route includes about 14 km on the surface and up to 19 km of tunnels.

It will take thousands of cars and trucks off surface roads, and provide a motorway free of traffic lights for the first time from Parramatta to the city, the airport and to the city's south-west.

It will provide three lanes across most of WestConnex, with four lanes in some sections.

Up to 52 sets of traffic lights will be avoided on a journey from Parramatta to Sydney Airport, while trucks and cars will be able to avoid the congested Parramatta Road corridor completely.

During the construction phase alone, WestConnex is expected to generate up to 10,000 jobs, including hundreds of apprenticeships for young workers in western Sydney.

WestConnex is expected to generate economic benefits to NSW of more than \$20 billion.

The \$11-\$11.5 billion investment will require tolling on the new and upgraded roads to be financially viable and will include a \$1.8 billion contribution from the NSW Government.

The Australian Government has committed \$1.5 billion over the next four years starting with \$250 million in 2013–14.

WestConnex is designed to:

- ease congestion
- connect communities
- create jobs.



Up to
52
traffic lights
bypassed

2.0 WestConnex Motorway (continued)

2.1 Introduction

Since the NSW Government's endorsement of the strategic concept in the *State Infrastructure Strategy*, the Sydney Motorways Project Office has worked with a range of public sector agencies and private-sector partners from across the globe to further develop the WestConnex Motorway Program.

Through this broad industry engagement, the Sydney Motorways Project Office has developed a Reference Scheme that defines the scope, funding arrangements and a delivery strategy for WestConnex.

After consultation with industry experts, the scope of WestConnex varies from the previous concept in the *State Infrastructure Strategy* in that the M4 extension will be predominantly in tunnels rather than a mix of tunnels and road cuttings or slots. This decision is based on construction cost, community impact and urban renewal considerations.

The Sydney Motorways Project Office has used the reference scheme to verify the economic and transport benefits of the overall WestConnex motorway program.

The reference scheme segments the overall program into three stages. A detailed implementation plan is now being developed for Stage 1 (Parramatta to Haberfield), with further planning work for Stages 2 and 3 continuing in parallel.

2.2 Funding WestConnex

Financial modelling prepared for the Business Case, based on the *Reference Tolling Strategy*, has confirmed the initial assumption in the *State Infrastructure Strategy* that a high proportion of the funding requirement for WestConnex can be sourced from user charges.

The NSW Government announced the *Reference Financing Strategy* as part of the 2013–14 budget, which will allow the initial stages of WestConnex to be funded through public capital contributions. Private sector capital can then be raised against tolling revenue from Stage 1 to fund subsequent stages. This approach draws on successful international funding structures to make WestConnex achievable.

The NSW Government has committed \$1.8 billion over four years from its Restart NSW fund, while the Australian Government has committed \$1.5 billion over the next four years starting with \$250 million in 2013–14.



2.3 Tolling strategy

The NSW Government is providing an upfront commitment of \$1.8 billion in funding for the \$11–\$11.5 billion WestConnex while the Australian Government has committed \$1.5 billion over the next four years starting with \$250 million in 2013–14. As a result, tolling will be required to fund the bulk of this critical missing link in Sydney's road network.

While exact tolling details will not be confirmed until construction starts on the M4 widening from Church Street to Homebush Bay Drive, it is likely the minimum toll will be about \$1.50 and the maximum about \$3.90 (2013 dollars).

The average motorist will pay about \$3.00 (2013 dollars) for this section, making it one of the cheapest tolls in Sydney, and lower than the average for the M2, Cross City Tunnel, M7, and M5.

Table 1: Average toll comparison

Transport route	Average toll (June 2013)	Length
M2 (Main Plaza)	\$4.95*	21 km
Cross City Tunnel	\$4.87	2.1 km
M7	\$4.67	40 km but toll capped at 20 km
M5	\$4.40	22 km
Lane Cove Tunnel	\$3.00	3.6 km
WestConnex M4 widening	\$3.00	7.5 km

* M2 toll increased to \$6.05 in August 2013.

Table 2: WestConnex tolling principles

Principle	Rationale
1. Minimum and maximum tolling	<ul style="list-style-type: none"> A minimum toll will apply to mitigate underpricing of short distance/high value trips Tolling on the 33 km WestConnex will be capped after motorists have travelled about 16 km, to ensure equity for people travelling longer distances each day This is consistent with the M7
2. Distance based	<ul style="list-style-type: none"> Distance-based approach already operates on the M7 Longer trips provide greater benefits
3. Cars pay less than heavy trucks	<ul style="list-style-type: none"> Cars will pay one third of the heavy truck toll, reflecting the greater wear and tear trucks have on the motorway This is consistent with the M2 and M5

2.0 WestConnex Motorway (continued)

2.4 WestConnex investment timetable

As would be expected for a major infrastructure program, there is more certainty around the scope of work that is scheduled for earlier construction, and more options available for work that will be

constructed at later stages. WestConnex will be built in three stages over 10 years.

The entire 33 km motorway corridor is expected to cost between \$11 billion and \$11.5 billion (\$2012).



\$20b
economic
benefits
to NSW

Table 3: Staging description

Stage	Location	Key features	Estimated Capital Cost (including contingency)
1	Parramatta to Haberfield	M4 <ul style="list-style-type: none">● Widening 7.5 km of the existing M4 to 2x4 lanes between Church Street, Parramatta and Homebush Bay Drive.● Widening 1 km and new 5 km 2x3 lane tunnels to extend the M4 from Homebush Bay Drive to Parramatta Road and the City West Link.	\$3.4 billion – \$3.6 billion
2	Beverly Hills to St Peters	M5 East Airport Link <ul style="list-style-type: none">● Widening the existing M5 East to 2x4 lanes between King Georges Road, Beverly Hills and Bexley Road.● An up to 6 km tunnel from St Peters to join the widened M5 East surface section.● A 2x3 lane surface and viaduct connection to St Peters and Sydney Airport.	\$3.6 billion – \$3.8 billion
3	Haberfield to St Peters	M4 South <ul style="list-style-type: none">● A new 8.5 km 2x3 lane tunnel from Haberfield to St Peters, near Sydney Airport via Camperdown.● This will link Stages 1 and 2 and complete the 33 km WestConnex network.	\$4.0 billion – \$4.1 billion
	Total		\$11 billion – \$11.5 billion

2.5 WestConnex construction timetable

Each stage of WestConnex involves three steps:

- route development
- pre-construction
- construction activities.

Stage 1 – Route development has been finalised and work can now proceed on detailed environmental assessment, community

consultation and planning approval, before moving to land acquisition and the awarding of construction contracts.

Construction on Stage 1 is expected to begin in 2015 and be completed by 2019.

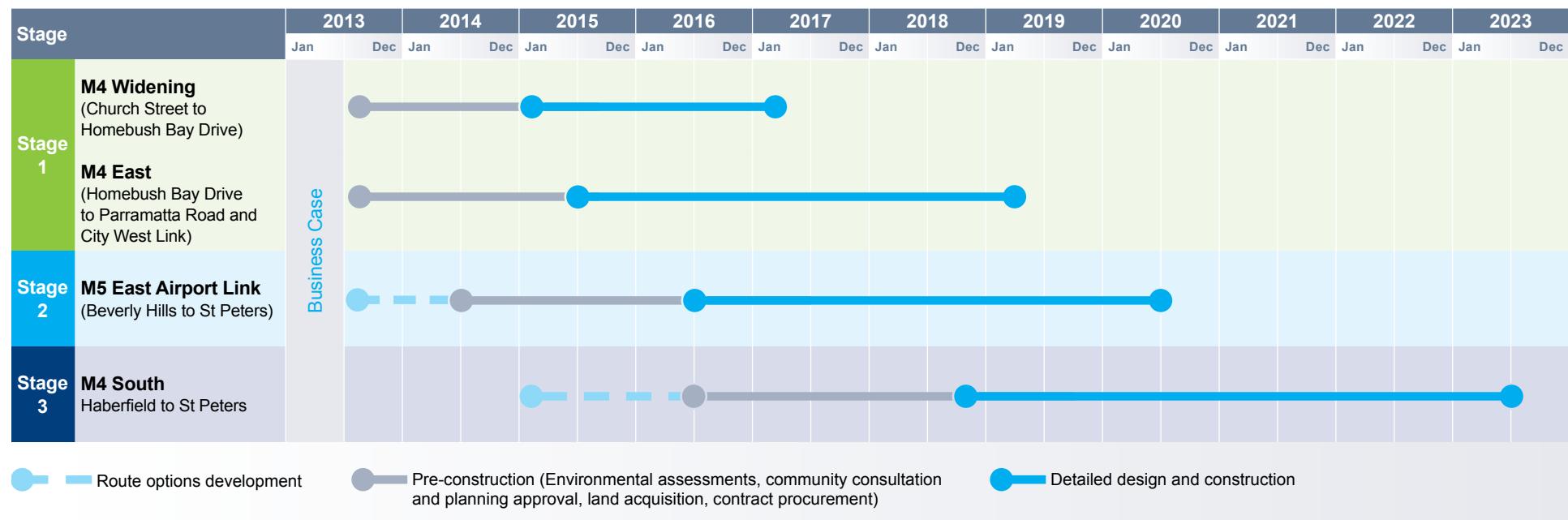
Stage 2 – Route development is continuing and is expected to be concluded by the middle of 2014, before progressing to the pre-construction phase.

Construction on Stage 2 is expected to begin in 2016 and be completed by 2020.

Stage 3 – Route development is in its early stage and will continue until late 2015, before progressing to the pre-construction phase.

Construction on Stage 3 is expected to begin in 2018 and be completed by 2023.

Figure 5: WestConnex timeline



2.0 WestConnex Motorway (continued)

2.6 Economic appraisal

WestConnex will deliver benefits of more than \$20 billion to NSW, with a benefit-cost ratio of 2:55.

The economic appraisal in the business case was based on standard NSW and Federal guidelines for the consideration of major transport projects.

Identified benefits include:

- travel time savings
- travel time reliability improvements
- savings in vehicle operating costs
- reductions in air pollution, greenhouse gas emissions, noise pollution
- reductions in road accidents
- reductions in local road maintenance
- removal of surface traffic, enabling improvements to public transport.

The appraisal highlights the benefits across the Sydney road network, both within the immediate corridor and across the wider region through improved travel times and reliability.

The economic appraisal has taken a conservative approach and does not capture additional benefits such as those arising from the urban renewal potential provided by WestConnex.

The economic appraisal highlights the potential the WestConnex Motorway has to unlock business and industrial development in the Western Sydney through improved access and travel times for freight and heavy vehicles which will improve reliability and productivity outcomes.

**Western
Sydney**
3rd biggest
economy in Australia

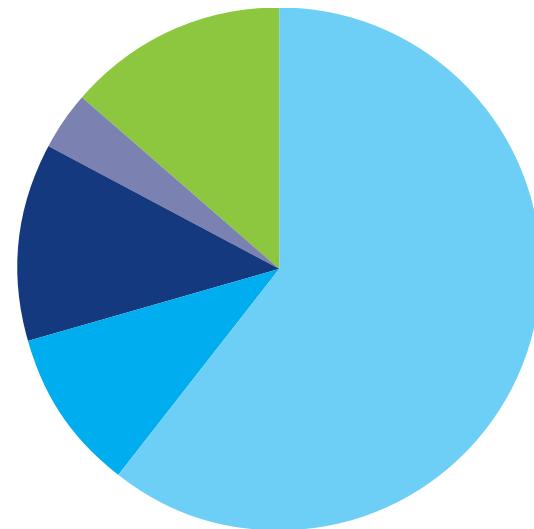


Better and more
reliable trips
for people, businesses and freight

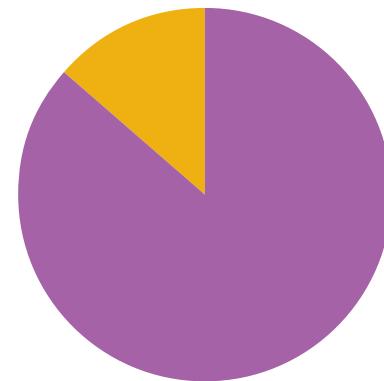
Table 4: Benefit Cost Analysis results

Benefit – Cost outcomes	Discounted (\$m)
Benefits	
Time travel savings	15,410
Reliability benefits	2,603
Vehicle operating cost savings	3,099
Environmental and indirect benefits and residual value	931
Productivity benefits	3,402
Total benefits	25,445
Costs	
Capital expenditure	9,402
Operating expenditure	1,465
Total costs	10,867
Results	
Benefit cost ratio	2.55
Net present value	14,578

Benefit analysis results



Cost analysis results



- Time travel savings
- Reliability benefits
- Vehicle operating cost savings
- Indirect impacts and residual value
- Environmental and indirect benefits residual value

- Capital expenditure
- Operating expenditure

2.0 WestConnex Motorway (continued)

2.7 Environmental review

A key part of the planning and development of WestConnex has been a consideration of potential environmental issues and preparation of a *Strategic Environment Review*.

This analysis has indicated that WestConnex will provide significant benefits and can be delivered within acceptable levels of social and environmental impact. The *Strategic Environment Review* identifies the likely social and environmental challenges presented by the construction of WestConnex and how they can be minimised and managed during its development and delivery.

Detailed environmental assessment will be undertaken for each project as part of the environmental planning and approval process required under NSW and Commonwealth legislation.



2.7.1 Air quality and tunnel ventilation

A strategic air quality assessment was undertaken to evaluate the potential impact of WestConnex on regional and local air quality and air quality both within and adjacent to the Scheme's proposed tunnels. Key findings were:

- transferring vehicles into tunnels is likely to improve air quality along existing surface roads, however measuring of local effects will need further, more detailed assessment based on the project-specific features and detailed traffic modelling
- regional air quality is unlikely to change as a result of the WestConnex scheme
- air quality criteria will guide ventilation design
- the adoption of performance based targets would deliver the required air quality outcomes.

Tunnel ventilation systems for WestConnex will be designed and operated to provide safe in-tunnel, local and regional air quality. Ventilation designs will be based on air quality criteria set by independent regulatory agencies (Environment Protection Authority and Department of Planning and Infrastructure in consultation with the Department of Health).

Extensive detailed traffic and air quality modelling will be undertaken to ensure designs and operating strategies are effective and meet relevant air quality criteria.

Well designed ventilation stacks are effective at dispersing tunnel emissions. Experience from previous motorway tunnel projects has demonstrated that modelling of air dispersion is robust and conservative and that tunnel emissions do not measurably impact on local and regional air quality.

2.7.2 Energy efficiency

The *NSW State of the Environment 2012* indicates that transport emissions are growing at a slower rate than electricity generation and industrial processes.

A key challenge for WestConnex will be to minimise energy use over its design life.

The *Strategic Environment Review* reviewed the potential energy use of both traffic and the operation of tunnel infrastructure. Preliminary findings were:

- the net energy use from traffic with WestConnex compared to current use will be relatively unchanged
- tunnel ventilation represents the largest energy consuming activity for a tunnel. For example, Melbourne's CityLink has estimated that 65 per cent of energy use is for tunnel ventilation²⁴.

2.7.3 Noise and vibration

The *NSW State of the Environment 2012* indicates noise pollution is the second most common type of complaint received by the Environment Protection Authority (EPA).

The key findings of the Strategic Environmental Review are:

- construction noise is temporary but could impact on adjacent residences for significant periods of time due to the size of the WestConnex construction task.
- a large component of WestConnex will involve tunnelling, therefore the potential for noise and vibration issues from tunnelling techniques is anticipated. This is normal for tunnelling projects and well established methods will be applied to reduce impacts on affected residents.

Construction noise impacts would be managed in accordance with the EPA's *Interim Construction Noise Guidelines*. Broad community and stakeholder consultation will be undertaken as part of the overall management and mitigation of noise impacts throughout the life of the project.

2.7.4 Socio-economic considerations

A socio-economic assessment has been prepared as part of the *Strategic Environment Review* and considers the potential impact of WestConnex on the following key strategic indicators: productivity of business and industry, community health and safety, amenity and liveability, community facilities, community values, access and connectivity.

Key findings indicate WestConnex will:

- impact positively on employment and economic growth across Sydney
- generally improve access and connectivity to local centres and within and between suburbs. Improve safety for road users, pedestrians and cyclists
- improve access to social infrastructure and key community facilities including health, emergency services, open space and recreation facilities
- improve liveability, amenity and public transport access where traffic is transferred from existing roads to WestConnex.

2.7.5 Impact on communities during construction of WestConnex

The nature and scale of the WestConnex Motorway will result in temporary impacts on residents and businesses from traffic disruption and other amenity impacts during construction. Such impacts are typical of all major road projects.

2.7.6 Other important project level issues

Other environmental issues identified at a strategic level include biodiversity, resource management, Aboriginal heritage, non-Aboriginal heritage, soil and water, landscape and visual impact, land use and property impacts and climate change risk and adaptation.

These are important issues for the WestConnex scheme, but it is considered they are most effectively identified and addressed at a project level during the environmental assessment of each project when further design detail is available.

Urban revitalisation

WestConnex is the trigger for Parramatta Road to become an urban, people-friendly corridor, alive with activity and enterprise.

By removing through traffic from Parramatta Road, WestConnex can reconnect communities north and south as well as east and west, and better link them with the harbour and parklands.

Parramatta Road should be a destination; a place to live, work and enjoy the best of Sydney.

This process is expected to see 25,000 new homes built and allow the private sector to create 25,000 jobs over the next 20 years.

The value of new businesses and residential developments is expected to reach \$12 billion over the same period.

Communities will get a real say in how this is achieved.



3.0 Urban revitalisation

Key points

Currently long stretches of Parramatta Road are characterised by:

- heavy congestion
- high traffic noise
- failing retail businesses
- low quality commercial premises
- an absence of pedestrians.

The Parramatta Road corridor needs to be fixed. Currently it is a physical barrier and an eyesore.

Urban revitalisation will be achieved by:

- fixing transport – putting trucks and cars underground and improving above ground public transport in the inner west
- investing up to \$200 million to improve the living environment in the Parramatta Road corridor
- amending planning controls to encourage new investment in residential, retail and commercial enterprises
- working with the private sector to deliver high quality new development projects.

Options could include planting rows of trees, widening footpaths, removing power poles and providing on-street parking in some sections.

The 20 km corridor from Broadway to Parramatta could be flanked by clusters of new shops, cafes, apartments, commercial offices and community buildings.

The NSW Government will work with local councils to reinvigorate Parramatta Road and make it a more attractive place to live, work and socialise.

A consultative process will be entered into with local communities and the 10 councils that exist along the 20 km corridor to work out the best way to achieve this.



3.0 Urban revitalisation (continued)

3.1 Current problem

Currently, long stretches of Parramatta Road are a blight on Sydney, characterised by chronic traffic congestion, loud noise and low quality commercial premises. Large sections are devoid of public life.

Traffic is now so badly choked that average speeds during peak hour are about 21 km per hour.

Parramatta Road was never designed to carry the number of vehicles it does today and to be a major arterial route between Sydney's CBD and Parramatta in its current form.

In recent years, there has been very little renewal activity.



New housing starts and investment along the corridor is low and inconsistent. Some areas have a strong housing market but with little new supply, whereas other locations provide higher numbers of new homes. There are a number of reasons for this:

- urban planning decisions along the Parramatta Road corridor are fragmented across 10 different council areas and new housing is often discouraged or prevented by current controls
- the amenity of Parramatta Road is very poor, with up to 100,000 vehicle trips per day²⁵ in parts. Traffic noise levels are above acceptable limits, there are almost no trees, and the road is cluttered and unsightly
- the road does itself not function well with traffic congested for more than eight hours per day. Parramatta Road is also a barrier to cross connections and an impediment to efficient public transport operations.

3.2 New Parramatta Road vision

The NSW Government will work with local councils to reinvigorate Parramatta Road and make it a more attractive place to live, work and socialise.

A consultative process will be entered into with local councils to work out the best way to achieve this.

Options could include planting rows of trees and widening footpaths in some sections. Cafes, restaurants and social and community facilities could be attracted back to Parramatta Road.

New walking and cycle trails can be considered, and natural waterways can be reinstated as green corridors that reach deep into residential communities.

The 20 km corridor from Broadway to Parramatta could include sectors of new apartments, commercial offices, institutional, recreation and community buildings of six to eight storeys with higher rise in some other areas.

Key locations may also be points for new public spaces, squares and parks, as well as focal points for retail and office development.

Critically, the character of Parramatta Road changes along its 20 km course, and development will need to reflect local needs and opportunities.

By removing through traffic from Parramatta Road, WestConnex can reconnect communities north and south as well as east and west, and better link them with local waterways, the harbour and parklands.

3.3 Demand for urban revitalisation

Significant demand for housing exists along the Parramatta Road corridor owing to:

- pent up demand for housing from a range of market segments, most notably younger purchasers seeking affordable property options close to Sydney's CBD
- demand for housing close to employment
- demand for housing along main transport corridors
- Sydney's population is expected to increase by 1.3 million people over the next 20 years.

3.4 Four triggers for urban revitalisation

Working with local communities and local councils, the NSW Government will revitalise this 20 km corridor in four ways:

1. Fixing transport
2. Investing heavily in selected locations
3. Planning partnerships
4. Demonstrating high quality new development



3.0 Urban revitalisation (continued)



1. Fixing transport

Parramatta Road is performing too many functions, mixing heavy through traffic with heavy local traffic. There is little space to allocate to public and active transport which means that people rely on their own cars.

WestConnex will take noisy and congested traffic off the surface and put it into tunnels, making neighbourhoods quieter and more attractive, returning Parramatta Road to local communities.

This will allow the NSW Government to complement public transport improvements including:

- a new bus system on Parramatta Road connecting east-west and to centres and services and better connections to centres north and south
- up to 10 km of new bus lanes between Burwood and the city, almost cutting travel times in half
- the Inner-West Light Rail extension which will begin services in early 2014
- enhanced connections to the Western Rail Line as buses will be able to cross Parramatta Road more easily on Burwood Road.

Table 5: Travel time savings by bus with WestConnex (AM peak, inbound)

	Burwood to CBD		Burwood to Leichhardt		Leichhardt to CBD	
	2011	2031	2011	2031	2011	2031
Time (mins)	47	26	30	17	17	10
Time saving (mins)		21		13		7
% saving		44%		44%		44%

Table 6: Travel time savings by car with WestConnex at completion

Entry Point	Exit Point	Lights avoided	Time taken (mins)	Time saved (mins)	% time saved
James Ruse Drive	Sydney Airport	52	20	40	66%
CBD	James Ruse Drive	25	25	25	50%
James Ruse Drive	CBD	25	25	25	50%
CBD	Silverwater Road	25	20	20	50%
CBD	Homebush Bay Drive	25	19	20	51%
CBD	Concord Road	25	15	20	57%
Silverwater Road	CBD	25	22	20	48%
Homebush Bay Drive	CBD	25	20	20	50%
Concord Road	CBD	25	18	15	45%
CBD	City West Link	14	13	10	43%
City West Link	CBD	14	15	10	40%



Remove through traffic from local areas

2. Investing heavily in selected locations

The NSW Government has set aside up to \$200 million over 10 years to make the Parramatta Road corridor a more attractive place to live, work and socialise. The first \$100 million of improvements will be delivered during Stage One of the project from 2015–2019.

Work could include things such as:

- planting trees
- fixing, widening and repaving footpaths
- decluttering the road by removing power poles and unnecessary signage
- creating new pedestrian and cycle crossings
- creating new bus stops and bus lanes
- providing car parking close to shops and services
- reinstating some right turn bays on Parramatta Road.



3. Planning partnerships

For the most part, planning controls along the corridor currently prevent or restrict residential development. The administration of planning is also split between 10 different councils along the length of the 20 km corridor, making it difficult to develop a holistic plan for the road's future.

To coordinate good corridor-wide and regional outcomes, the NSW Government will work closely with local councils and communities, examining opportunities for new residential, commercial and retail developments, and the jobs they create.



4. Demonstrating high quality new development

Despite the strength of the inner west housing market, limited quality development has occurred along the Parramatta Road corridor recently.

Redevelopment is largely expected to be financed and developed by the private sector on repurposed privately owned land. In order to set the benchmark for quality development, the Government will work with the private sector to enable exemplar demonstration projects for development.



3.0 Urban revitalisation (continued)

3.5 Three potential urban revitalisation zones

Parramatta Road has been a transport route since European settlement. Construction of the road commenced in 1794 and since that time it has been a critical link from the west of Sydney to the CBD. The history of Sydney has been written along this road.

However, for 50 years, the road has progressively deteriorated under the pressure of growing traffic volumes to a state where, today, it is no longer possible to engage in conversation on the footpath, local residents struggle to cross the street, and traffic congestion is sustained throughout the day.

Historically, development has occurred in an ad hoc fashion, leaving some sections of Parramatta Road with some commercial and retail appeal, while other sections have been neglected.



Better and more
reliable trips
for people, businesses and freight



Parramatta Road around Auburn, circa 1930

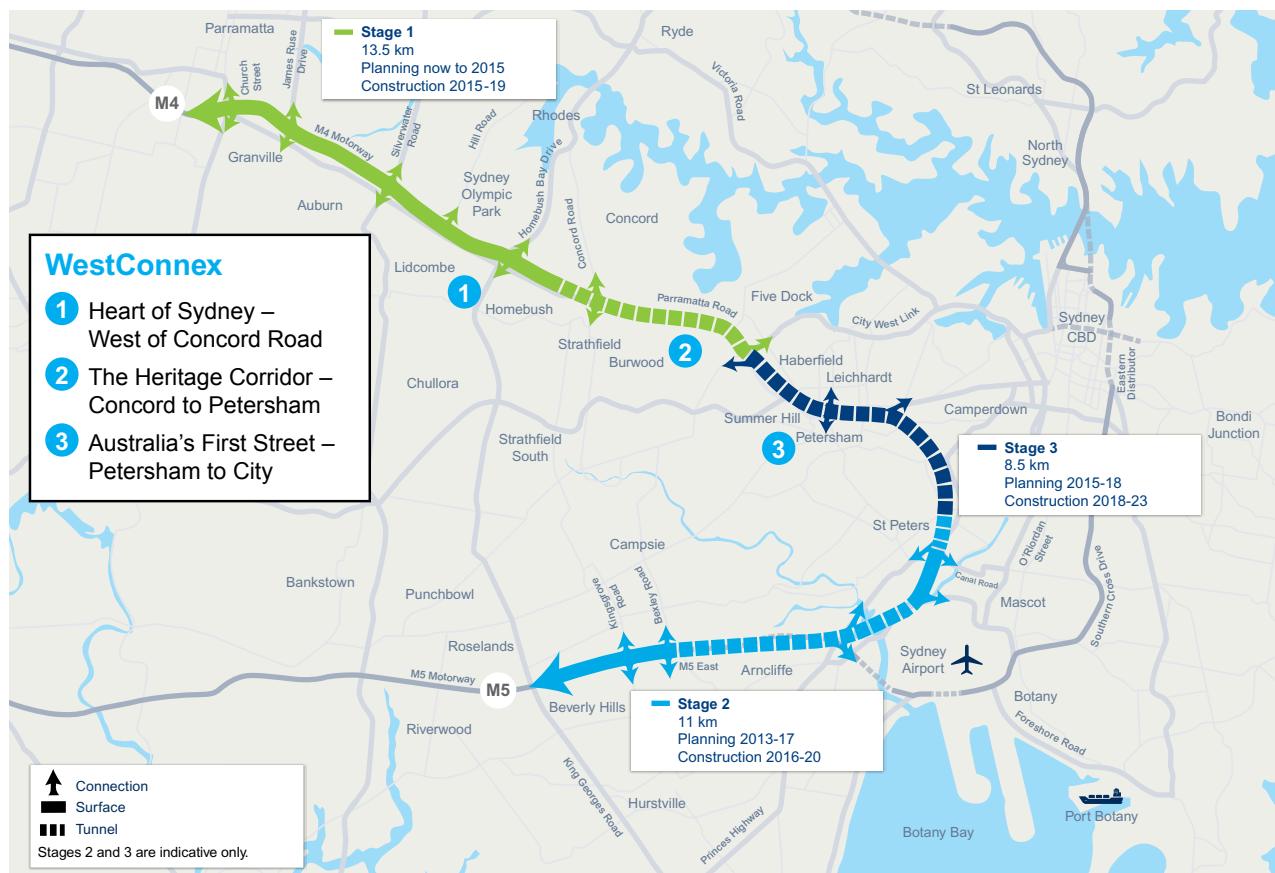
As a result, three distinct character zones have emerged.

- 1 Heart of Sydney – West of Concord Road**
- 2 The Heritage Corridor – Concord to Petersham**
- 3 Australia's First Street – Petersham to City**

Each character zone has the potential to be significantly improved, offering greater appeal to local homeowners, visitors and businesses.

The following images show how urban revitalisation could potentially improve Parramatta Road. Several images show different configurations of traffic lanes. This is because no decisions have been made on how many lanes Parramatta Road should have at different locations.

Local councils and local communities will be consulted before any decisions are made.



3.0 Urban revitalisation (continued)

1 Heart of Sydney – Flemington, Parramatta Road

Existing location



1

Heart of Sydney – Flemington, Parramatta Road

Visualisation of location, subject to community consultation



Potential future



3.0 Urban revitalisation (continued)

2 The Heritage Corridor – Burwood, Parramatta Road

Existing location



2

The Heritage Corridor – Burwood, Parramatta Road

Visualisation of location, subject to community consultation

» Potential future



3.0 Urban revitalisation (continued)

2 The Heritage Corridor – Five Dock, Parramatta Road

Existing location



2

The Heritage Corridor – Five Dock, Parramatta Road

Visualisation of location, subject to community consultation



Potential future

3.0 Urban revitalisation (continued)

3 Australia's First Street – Leichhardt, Parramatta Road

Existing location



3

Australia's First Street – Leichhardt, Parramatta Road

Visualisation of location, subject to community consultation



Potential future

Stage 1

bringing the motorway and urban revitalisation together

Stage 1 Bringing the motorway and urban revitalisation together

The first 13.5 km stage of WestConnex involves the widening of the M4 and the creation of a new tunnel to Parramatta Road and City West Link from east of Homebush Bay Drive.

Crucially, this will be the trigger for the revitalisation of the Parramatta Road corridor as it will take thousands of trucks and cars off the surface and put them underground.

The streets flanking Parramatta Road will be transformed, allowing activity to return with the addition of new cafes, retail shopping, apartment blocks and community activities.

WestConnex brings together a motorway and urban revitalisation to help improve Sydney.

4.0 Stage 1 details

Bringing the motorway and urban revitalisation together

Key points

WestConnex is a 10 year 33 km motorway to be delivered in three stages, and a 20 year 20 km urban revitalisation program.

Stage 1 construction will begin in 2015 and be completed by 2019 at a cost of \$3.4 billion to \$3.6 billion (\$2012). It will include widening 7.5 km of the existing M4 to 2x4 lanes between Church Street, Parramatta and Homebush Bay Drive and widening 1 km and new 5 km 2x3 lane tunnels to extend the M4 from Homebush Bay Drive to Parramatta Road and the City West Link.

By taking thousands of trucks and cars a day off Parramatta Road and putting them in tunnels, WestConnex will enable sections of the 20 km Parramatta Road corridor from Broadway to Parramatta to be revitalised with new retail shopping, cafes, residential buildings and commercial operations.

Urban revitalisation occurred in Sydney's inner-city suburbs of Redfern and Surry Hills after the Eastern Distributor was constructed, returning local streets to local traffic, and allowing a vibrant café culture to emerge.

Over the next 20 years similar improvements are expected to occur along the Parramatta Road corridor, in consultation with local communities and councils, creating 25,000 jobs and 25,000 new homes and apartments.

Trees will be planted, powerpoles removed and green space created to make it a more attractive place to live, work and socialise.

The NSW Government has already committed \$282 million in WestConnex enabling works around Port Botany and Sydney Airport, which will occur at the same time as WestConnex Stage 1.

The NSW Government may also consider further WestConnex improvements if they contribute to better motorway access. These 'supporting works' could include better access to the Parramatta CBD to make it a more attractive place to work.

4.0 Stage 1 details

Bringing the motorway and urban revitalisation together (continued)

4.1 M4 widening (Church Street to Homebush Bay Drive)

The M4 widening will provide four lanes in each direction between Church Street, Parramatta and Homebush Bay Drive, Homebush.

By providing an extra lane for motorists using this section of the motorway, it will help to alleviate congestion around the James Ruse Drive ramps, and provide quicker and more reliable journeys for motorists and freight.



Better and more
reliable trips
for people, businesses and freight

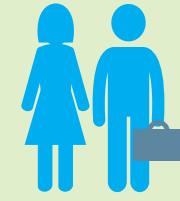
Key work includes:

- A new viaduct (or elevated road) on the southern side of the M4 between Church Street, Parramatta and Wentworth Street, Granville
- A new bridge over Duck River on the southern side of the M4
- Widening of the motorway in the existing corridor between Silverwater Road and Homebush Bay Drive, Homebush
- A new access ramp for southbound Homebush Bay Drive motorists wanting to access the M4 westbound, to help alleviate congestion and remove the need for a right hand turn at traffic lights

The M4 widening will take about two years to complete with construction work due to start in early 2015.

Further improvements to the M4, particularly those proposed by Parramatta City Council, are outside the scope of the WestConnex Business Case and will be considered separately.

Western Sydney
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A stylized icon of a blue woman and a blue man standing side-by-side. The woman is on the left, and the man is on the right, both facing forward. The man is holding a blue briefcase in his left hand.

4.2 M4 East (Homebush Bay Drive to Parramatta Road and City West Link)

Currently the M4 finishes at North Strathfield, and directs all traffic onto Parramatta Road, with its multiple stops for traffic lights every few hundred metres into the CBD.

This leads to traffic congestion and unreliable travel times.

WestConnex will continue the M4 to Parramatta Road and City West Link at Haberfield by providing a tunnel with three lanes in each direction under the Parramatta Road route.

It will help remove through traffic from Parramatta Road, including heavy vehicles, and ease congestion for local travel.

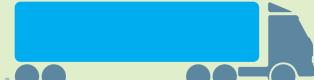
This will support urban revitalisation along Parramatta Road, making it a better place to live, work and socialise.

The M4 East tunnel will start about 800 metres west of Concord Road. The current M4 connections to Concord Road and Parramatta Road will be retained.

Key work includes:

- A road tunnel from the M4 to Parramatta Road and City West Link, Haberfield
- At Concord Road – a new access ramp to the WestConnex tunnel eastbound
- At Concord Road – a new exit ramp from the WestConnex tunnel westbound
- An entry to the WestConnex tunnel westbound, from Parramatta Road east of Wattle Street, Haberfield and from the City West Link at Haberfield
- An exit from the WestConnex tunnel eastbound, to Parramatta Road east of Wattle Street, Haberfield and to the City West Link at Haberfield.

The M4 East (Homebush Bay Drive to Parramatta Road and City West Link) will take about four years to complete, with major work due to start in 2015.


Estimated
3,000 trucks
a day off Parramatta Road
and into tunnel



**Remove through traffic
from local areas**

4.0 Stage 1 details

Bringing the motorway and urban revitalisation together (continued)

Figure 6: WestConnex – Stage 1: Parramatta to Haberfield

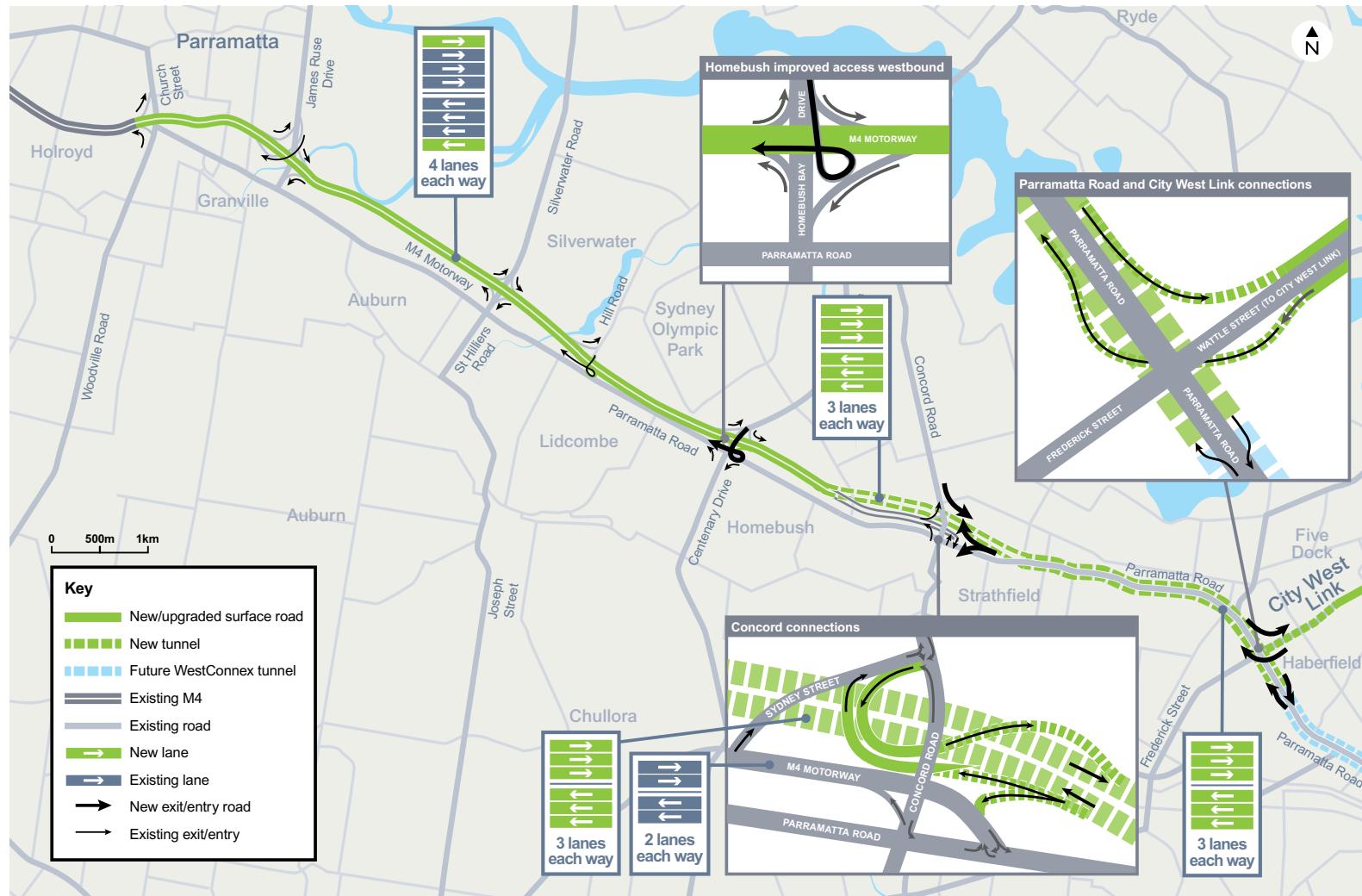
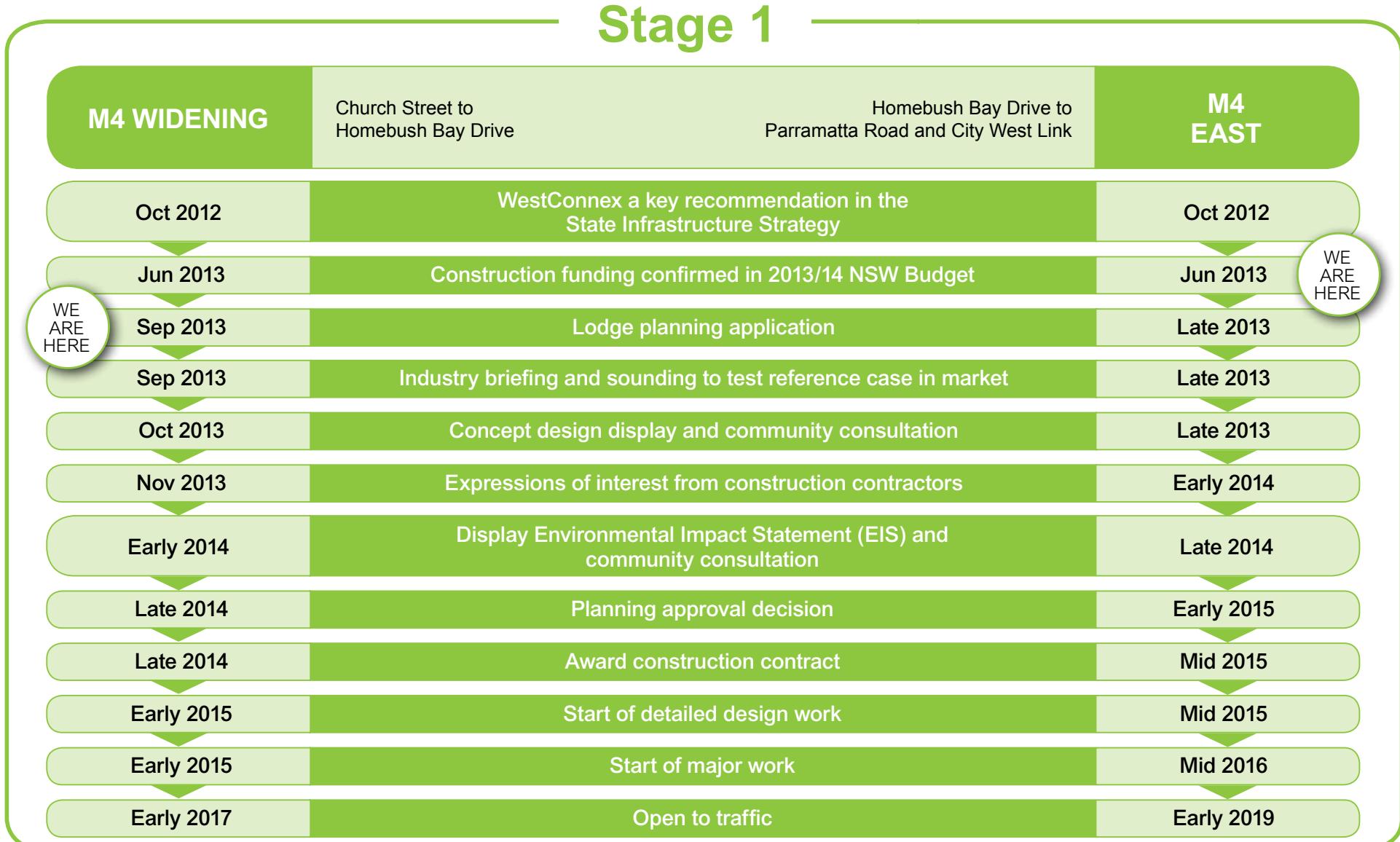


Figure 7: WestConnex Motorway – Stage 1 time line



4.0 Stage 1 details

Bringing the motorway and urban revitalisation together (continued)

4.3 How WestConnex will trigger urban revitalisation

WestConnex will connect communities like never before.

Currently, sections of Parramatta Road are an urban blight because traffic congestion and noise has made them relatively unattractive places to live, work and socialise.

Parramatta Road has become a barrier between communities north and south of it.

Travel speeds have fallen to as little as 21 km per hour for morning and afternoon peak periods while the M4 is congested 13 hours a day.

It needs to be fixed, and WestConnex will help enable that to happen by putting traffic underground and allowing the above ground landscape to be transformed into a quieter more appealing environment.

In consultation with councils and communities, sections of the Parramatta Road corridor will be rezoned to encourage construction of new apartments and homes, commercial and retail space, recreational, community and other civic and government buildings.

By taking a holistic approach, Parramatta Road can be truly transformed for the better.



**Remove through traffic
from local areas**



4.3.1 Public transport

In addition, public transport will become more appealing with the introduction of up to 10 km of bus lanes, which will cut travel times for commuters from the inner west to the CBD by almost half.

Connections to the Western Rail Line will be enhanced as buses will be able to cross Parramatta Road more easily on Burwood Road.

These public transport options will complement the nine new light rail stations being constructed in the inner west, which are due to open in 2014.



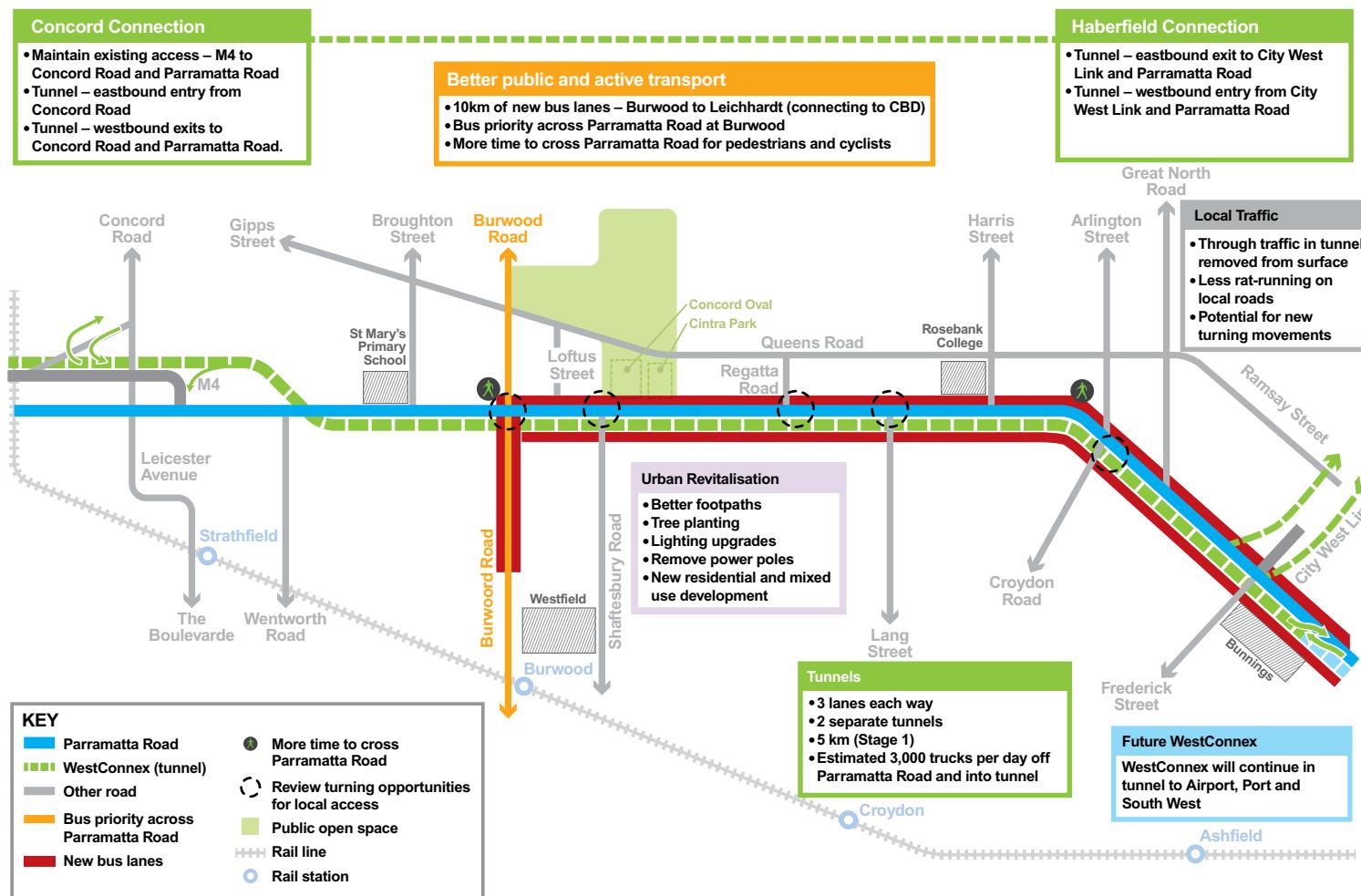
Line opens
2014

**9 new light rail
stations Inner West**

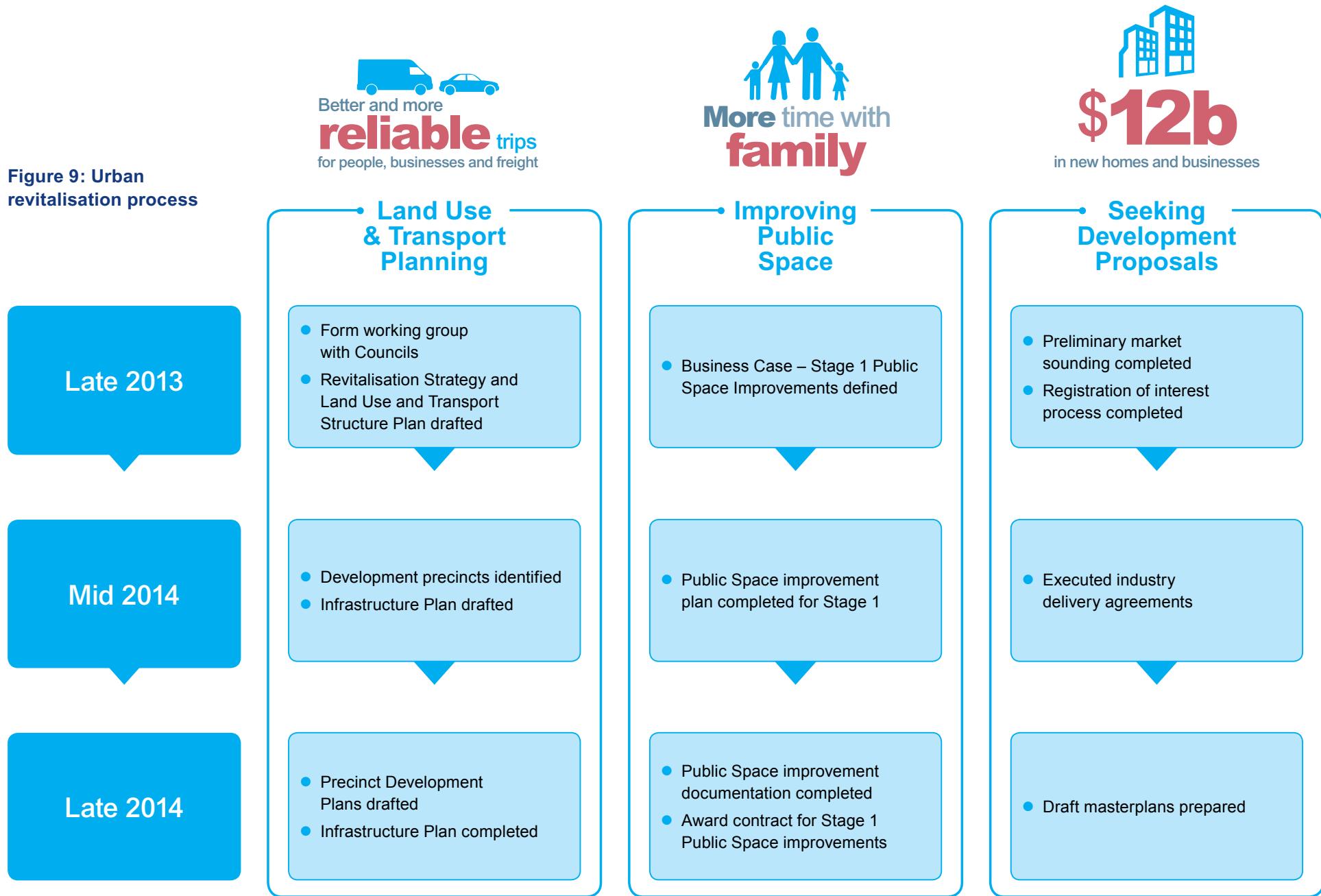


10km bus lanes
Almost halving bus travel times
Burwood - CBD

Figure 8: WestConnex and urban revitalisation



**Figure 9: Urban
revitalisation process**



Stages 2 & 3

WestConnex will be progressively built over 10 years.

Stage 2 will benefit those from south and south-west of Sydney, along the M5 corridor, and for those accessing Sydney Airport and the port precinct.

Stage 3 will complete the 33 km WestConnex route, providing a motorway standard corridor from Parramatta to the CBD, Sydney Airport and the city's south-west for the first time.

In addition the \$400 million widening of the M5 West will be completed in 2014, which will provide significant easing of congestion for motorists to and from the city's south-west.

Further to the WestConnex Business Case scope the NSW Government is currently undertaking planning for \$282 million worth of key enabling works that will address known pinch point areas in and around Port Botany and Sydney Airport.

This will be undertaken in parallel with Stage 1 of WestConnex.

5.0 Stages 2–3

5.1 Stage 2 – M5 East Airport Link

Stage 2 will provide increased capacity along the M5 East corridor and extend the motorway to St Peters. It will also include a new access link to the Sydney Airport area.

Work is due to start in the second half of 2016, after the final route alignment has been determined. Community consultation will be carried out on alignment and access in early 2014.

Stage 2 of WestConnex includes:

- Widening the existing M5 East to 2x4 lanes between King Georges Road, Beverly Hills and Bexley Road.
- An up to 6 km tunnel from St Peters to join the widened M5 East surface.
- A 2x3 lane surface and viaduct connection to St Peters and Sydney Airport.

The M5 East Airport Link is expected to take around four years to complete, with major work starting in 2016.



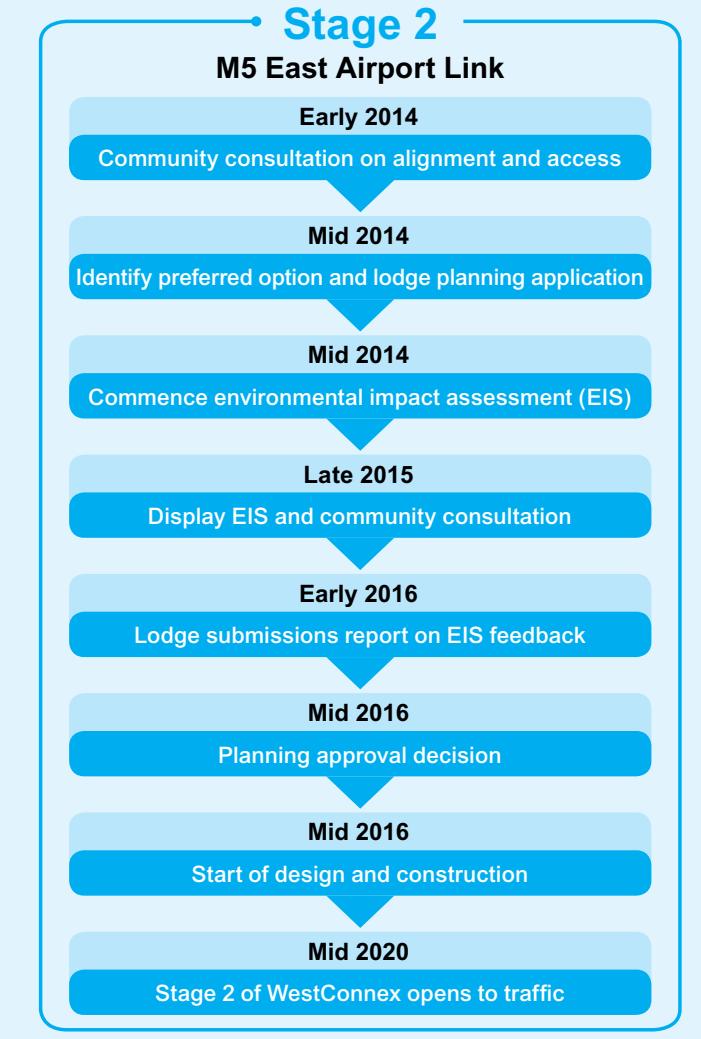
5.1.1 M5 East duplication

By doubling the number of lanes in each direction from two to four, the M5 East will improve travel times and reliability for the 100,000 motorists who use this corridor every day.

It includes providing four lanes on the M5 East, including a dedicated eastbound lane from King Georges Road, removing the need to merge at this point.

Key work includes:

- providing four lanes each way on the surface motorway of the M5 East in the existing corridor
- duplication of the M5 East twin tunnels, providing two lanes in each direction ending at St Peters, with the final route subject to further investigation and consultation.





5.1.2 Airport Link

The Airport Link will provide a motorway connection to the Sydney Airport precinct from the duplicated M5 East and M4 South, when completed.

It will allow for improved movement of freight to and from the Port Botany area and provide an express route between Western Sydney and Sydney Airport once WestConnex is completed.

Key work includes:

- a 1.5 km viaduct and surface motorway connection from WestConnex to the Sydney Airport precinct
- a connection near Canal Road, St Peters.

5.2 WestConnex supporting works

5.2.1 M5 West widening

Motorists will save up to an hour a week in travel times when the M5 West widening is completed in 2014.

The \$400 million project, funded by Interlink Roads and the NSW Government, widens 21 km of the M5 West motorway from Camden Valley Way at Prestons to King Georges Road at Beverly Hills with an additional lane in both directions.

The M5 West widening will save the 100,000 motorists who use the road each day up to an hour a week while its construction has supported up to 500 jobs.

The project includes:

- 22 new electronic message signs on the motorway and at critical intersections to provide better information for motorists
- 18 km of new and improved noise walls.

The M5 Motorway carries a mix of passenger vehicles across the city, and freight and commercial vehicles accessing the airport and port precincts. As a result, it is congested for 10 hours a day.

Expanding the M5 corridor (M5 West and M5 East motorways) will result in approximately \$6 billion in travel time savings over a 30 year period.

For the majority of motorists who use the motorway for shorter trips, such as those getting off at Fairford Road, as much as 10 minutes could be saved when heading east in the morning.

5.0 Stages 2–3 (continued)

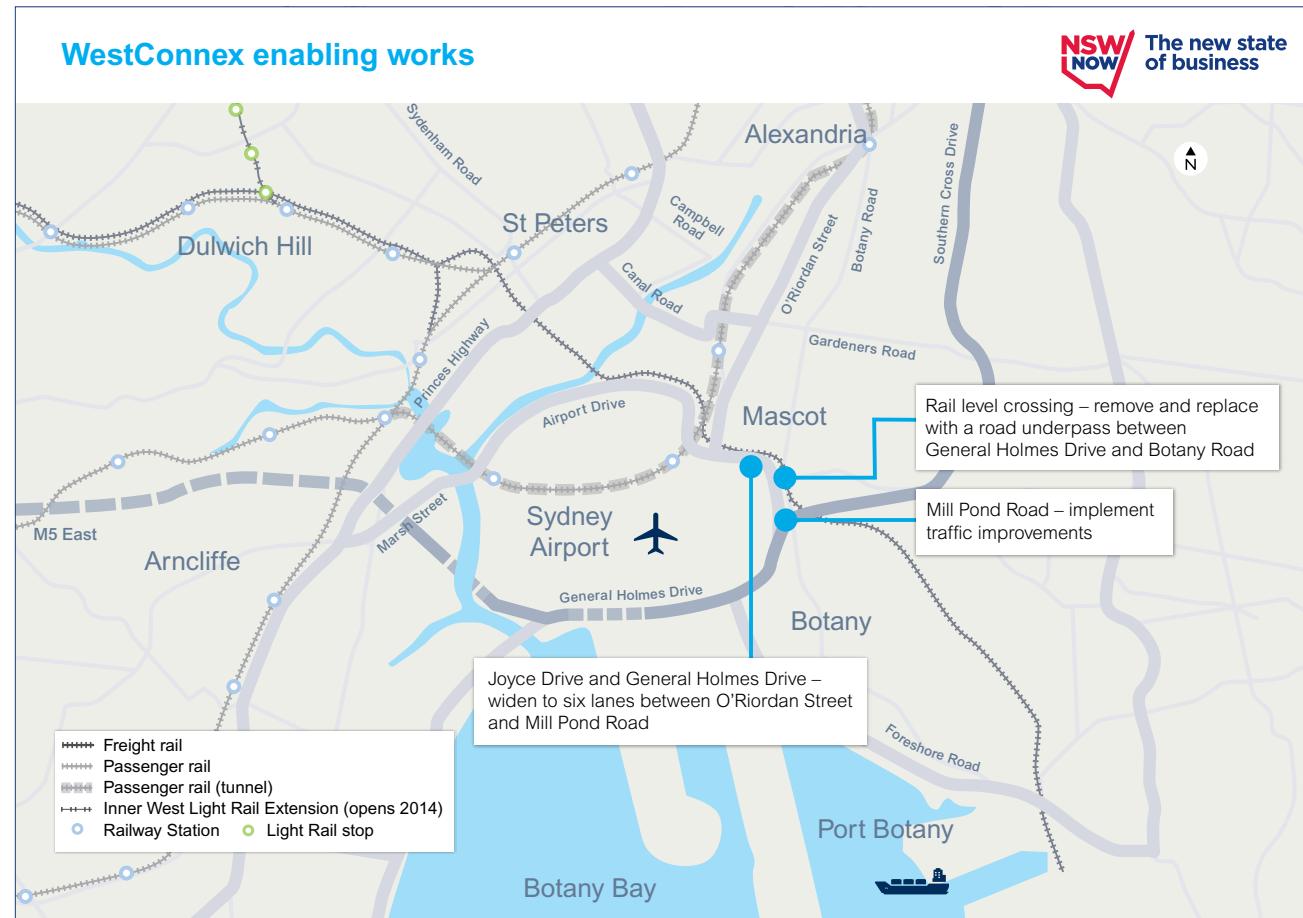
5.2.2 Port Botany and Sydney Airport enabling works

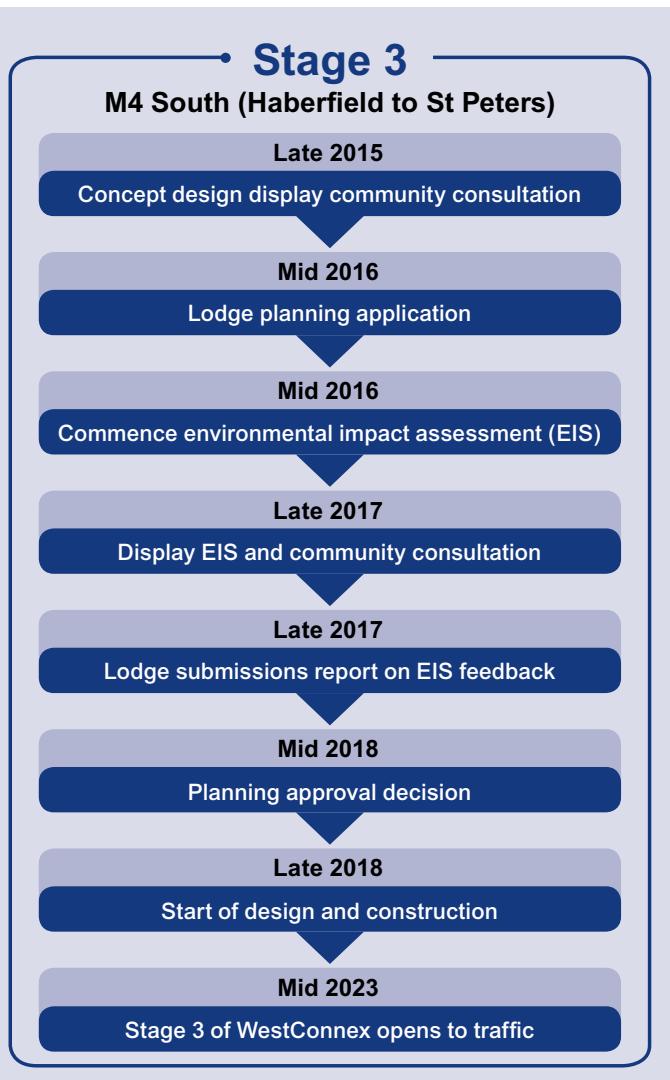
Roads and Maritime Services is currently undertaking planning for key enabling works largely in parallel with Stage 1 of WestConnex.

These upgrades will particularly benefit freight vehicle access between WestConnex and Port Botany.

Key work includes:

- General Holmes Drive rail level crossing removal – planning to replace the rail level crossing with a road underpass between General Holmes Drive and Botany Road to remove an operational slow point in the rail freight network
- Mill Pond Road traffic improvements to support increased taxi volumes and private bus operators accessing the Airport precinct and enhance connectivity for freight and commercial vehicles
- Joyce Drive and General Holmes Drive widening – to three lanes between O'Riordan Street and Mill Pond Road to improve vehicle movements to and around the airport.





5.3 Stage 3 – M4 South (Haberfield to St Peters)

Stage 3 will deliver a motorway tunnel with three lanes in each direction between Stage 1 and Stage 2.

It will generally follow the Parramatta Road corridor before heading south near Camperdown. Further design work is being carried out to develop the route and connection locations.

Major work is due to start in 2018.

Key work includes:

- a new 8.5 km 2x3 lane tunnel from Haberfield to St Peters, near Sydney Airport via Camperdown
- this will link Stages 1 and 2 and complete the 33 km WestConnex network.



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References

- 1 NSW Long Term Transport Master Plan, p74
- 2 NSW Long Term Transport Master Plan, p105
- 3 Draft NSW Freight and Ports Strategy p19
- 4 Infrastructure NSW, NSW State Infrastructure Strategy, p30
- 5 Draft Metropolitan Strategy for Sydney, p43
- 6 Infrastructure NSW, State Infrastructure Strategy, p19
- 7 Draft Metropolitan Strategy for Sydney, p20, 42 and 43
- 8 Bureau of Transport Statistics, Travel Zone Employment Forecasts, August 2012 Release
- 9 Ernst and Young, Port Botany – Sydney Airport Precinct Scoping Study, Prepared for Infrastructure NSW, December 2012
- 10 Bureau of Transport Statistics, Travel Zone Employment Forecasts, August 2012 Release
- 11 NSW Long Term Transport Master Plan (p168), Joint Study on Aviation Capacity in the Sydney Region (p158) and Draft NSW Freight and Ports Strategy p24
- 12 Bureau of Transport Statistics, Travel Zone Employment Forecasts, August 2012 Release
- 13 NSW Long Term Transport Master Plan, p117
- 14 Draft NSW Freight and Ports Strategy, p29
- 15 Bureau of Transport Statistics, Travel Zone Population and Dwelling Forecasts, August 2012 Release
- 16 NSW Long Term Transport Master Plan, p117
- 17 Sydney Ports Corporation, Origin Destination Import Container Comparisons and Forecasts – Working Paper 3 March 2011
- 18 Draft NSW Freight and Ports Strategy p7
- 19 Transport for NSW, Commercial Number Plate Survey, August 2011
- 20 Bureau of Transport Statistics, Light Commercial Vehicle Forecasts (September 2012). Sydney is defined as the Sydney Statistical Division excluding Central Coast. Light Commercial Vehicles (LCVs) are defined as a broad range of vehicles that includes direct movements of goods for commercial purposes ('Light Goods Vehicles') and movements of goods which are used for commercial operations but are not themselves for sale e.g. tools of trade ('Service Vehicles').
- 21 NSW Long Term Transport Master Plan, p74
- 22 Draft Metropolitan Strategy for Sydney, p43
- 23 Bureau of Transport Statistics, Transfigures February 2012, p4
- 24 Transurban 2012, Energy Efficiency Case Study: Overnight Tunnel Ventilation Shutdown – CityLink Domain Tunnel
- 25 Roads and Maritime Services, Average Daily Traffic Counts



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