

5 Sydney's Westlink M7



A successful road project that delivered assets that linked strategic traffic corridors

Project summary

Sydney's Westlink M7 (previously called the Western Sydney Orbital) is a 40 kilometre motorway that connects the M2, M4 and M5 motorways. It is a fully electronic, distance-based toll road. At the time, it was Australia's biggest urban road project. The Westlink M7 is part of the Auslink National Transport Link and as such received Commonwealth funding. It is considered to be a highly successful example of a true PPP.

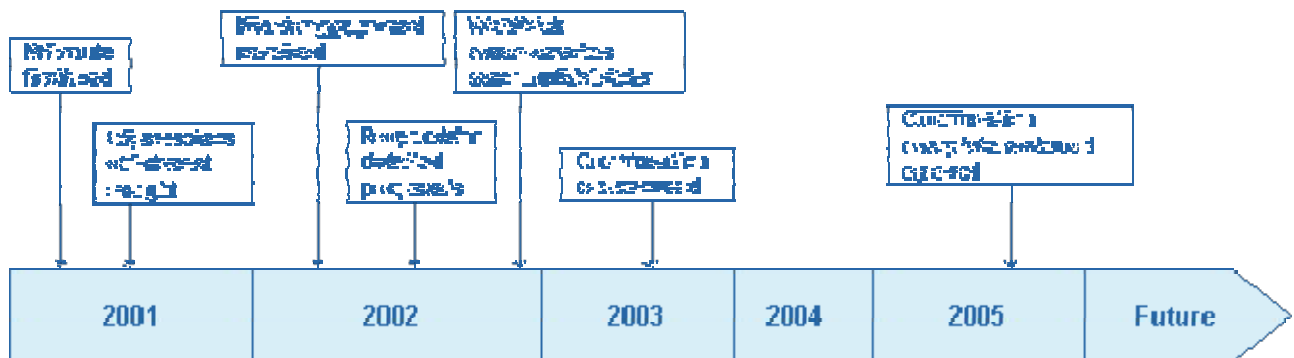
Details relating the project are outlined in Table 7.

Table 7: Project overview: Sydney's Westlink M7

Key features	Sydney's Westlink M7
Project specifications	<p>Financing, design, construction, operation and maintenance of a 40 km long, four-lane, dual carriageway motorway between the M5 motorway in Prestons and the M2 motorway (via the M4 motorway), as part of the Sydney orbital freeway and motorway circuit.</p> <p>Financing, design and construction of associated improvements to surface roads and intersections.</p> <p>Construction of pedestrian and cyclist facilities.</p> <p>Development and delivery of electronic tolling system.</p>
Procurement strategy	<p>A BOOT PPP between the NSW Government and a consortium of private sector service providers.</p> <p>The successful bidder was WestLink Motorway Group, comprised of Transurban, Macquarie Infrastructure Group, Leighton Holdings and</p>

Key features	Sydney's Westlink M7
	Abigroup.
Financial cost	\$1.54 billion for design and construction of the Westlink M7 \$690 million for connecting road works and financing \$2.23 billion total cost

Figure 5: Timeline of milestones for the M7 Motorway



Delivery process

Inception, planning and approval

The planning of what was to become the Westlink M7 has a long history, with the concept of a north-south freeway in Sydney's west first raised in the 1960s. In 1974, the *Sydney Area Transportation Study* proposed the need for an outer-metropolitan highway and identified the corridor for its route. In 1993, the report *Liverpool to Hornsby Study Final Route* identified a preferred route to link the M5 to the F3.

In 1994, The Commonwealth Government announced the extension of the National Highway, identifying existing roads to link the F5 and F3 until a superior route was made available. The National Highway system is funded by the Commonwealth Government.

Action for Transport 2010 was released by the NSW Government in 1998, and provided an integrated transport plan for Sydney. This included the construction of the M7 by 2007. The M7 was to link sections of the National Highway to the north and south of Sydney and to provide a high quality orbital road linking major employment and residential areas.

A feature of the planning and inception stage for the M7 was the degree of community consultation that was undertaken. In 1998, consultation was undertaken regarding preliminary designs and features. Changes to the route aimed at minimising environmental impact were made as a result of these consultations.

It was not initially envisaged that the M7 would be a toll road. This possibility was raised by the Commonwealth Minister for Transport and Regional

Services in 1999. While the M7 was to form part of the National Highway system, and therefore funded by the Commonwealth, funding was not available in the short to medium term. As a result the RTA commenced exploration of tolling options and the impact a toll may have on traffic flows.

An Environmental Impact Statement for the M7 was publicly exhibited by the RTA from 8 January 2001 to 5 March 2001. Over 260 submissions were received. A number of modifications were made to the proposed route and design of the project. These were announced by the NSW Minister for Transport in November 2001.

Planning approval from the NSW Minister for planning was sought in September 2001 and granted in February 2002. Commonwealth approval from the Department of Environment and Heritage was received in July 2002. Approval was also required from a number of other NSW and local Government agencies with responsibility for heritage, water resources, utilities and planning.

Construction and operation

Registrations of Interest (ROI) were sought by the RTA in July 2001 from private sector parties interested in financing, designing, constructing, operating and maintaining the M7. ROI were received from three consortia by the end of August 2001.

After evaluating these ROI the RTA sought detailed proposal from all three interested consortia. Proposals were submitted by 19 March 2002.

After an interim evaluation report was prepared and the list of potential bidders was reduced to two, additional information was sought from remaining proponents. The WestLink Motorway consortium was selected as the preferred bidder as it represented better value for money.

The selection of the WestLink consortia as the preferred bidder was announced by the NSW and Commonwealth Ministers on 28 October 2002. Contracts were signed in February 2003 — within 17 months of the initial request for ROI.

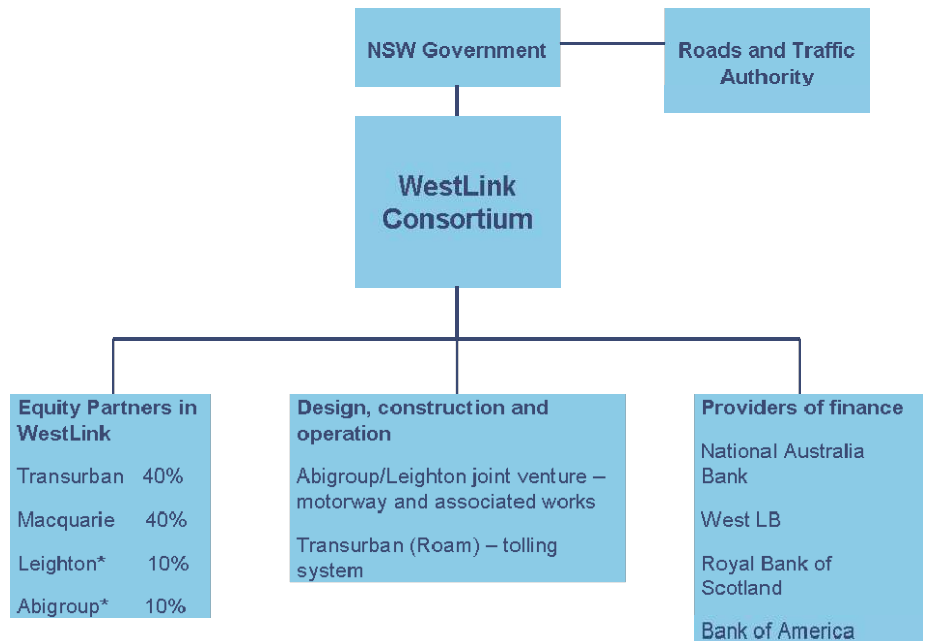
Major construction commenced on the Westlink M7 in July 2003. Construction of the motorway was completed in December 2005, eight months ahead of schedule. The M7 was opened to traffic on 16 December 2005.

Governance

The RTA coordinated the project's development, environmental assessment and planning approval phases. During the implementation phases, the RTA administered the project deed to ensure the consortium delivered the M7 according to the agreed scope and approval conditions.

It was the responsibility of the consortium to ensure that it was able to deliver the project, to specification, by ensuring it had access to appropriate financing and arrangements in place to construct and maintain the motorway, including the tolling system. A summary of the parties involved in the delivery of the project and their roles is provided in Figure 6.

Figure 6: Parties involved in the construction of the M7



Under the terms of the contract the consortium remains the owner of the M7 until 14 February 2037. At this time the ownership of the M7 will be handed over to the NSW Government.

Key project risks and risk allocation

Under the project deed the private sector consortium accepted the majority of the risks associated with the project, including:

- construction costs;
- traffic volumes or projected revenues below expectations;
- traffic management during construction;
- tax; and
- works or operational and maintenance activities may be disrupted by the lawful actions of other Government authorities.

The Project Deed expressly acknowledges that the RTA made no representations or promises concerning traffic levels. Independent traffic models were developed and tested by the consortium.

In some cases risks associated with the project were shared between the RTA and WestLink or allocated to the RTA. Essentially where delays or cost increases result as a result of requests made by the RTA, the costs were to be incurred by the RTA. If changes were made that resulted in savings the savings were to be shared equally by the consortium and the RTA. For example:

- changes in scope of work – if scope change initiated by the RTA it would pay additional costs, if initiated by WestLink cost incurred by WestLink unless otherwise agreed by the RTA. Similarly if scope

change, proposed by RTA, decreases scope or reduces costs RTA receives 75% of cost savings. If changes suggested by Westlink RTA to receive 50% of savings; or

- amendments or challenges to planning approval – if amended, and not as a result of a breach by WestLink, and changes to works are required costs to be borne by RTA as if change in scope initiated by the RTA. If legal challenge RTA to meet reasonable costs incurred by WestLink should work be halted.

However, while the consortium did hold the majority of the risk, they also receive most of the benefits if the project was a success. For example, early completion of the M7 entitled the operators to several months of additional toll revenue. It would also benefit from higher than project traffic usage.

Under the lease arrangements there are provisions to share the benefits of performance above projections. If toll and administration fee revenue is more than 5% higher than forecast six years or more after completion the RTA is entitled to a share of the additional revenue.

In terms of process, the private sector partner for this project learned valuable lessons on communicating with the public from other less successful road projects. It engaged in extensive market research that ensured it understood its potential customer base and devised pricing strategies around this. For instance:

- to encourage use by freight vehicles, differential pricing was not used for cars and freight vehicles;
- infrequent users were able to pay for one-off use within 24 hours to avoid having to purchase credit cards; and
- a toll free period was offered to encourage use.

Outcomes and value delivered

Utilisation

Reporting from both Transurban and Macquarie Infrastructure Group (MIG) on vehicle usage of the M7 is summarised in Table 8.

Table 8: Traffic usage for Westlink M7

	September Qtr 2008	September Qtr 2007	% change
Average daily revenue - net GST (Transurban)	429,533	381,742	12.5
Average daily revenue - GST inclusive (MIG)	495,033	446,019	12.5
Average workday trips	133,689	126,135	6.0
Average daily trips	119,592	112,145	6.6
Average daily tolled VKT	1,528,351	1,435,529	6.5
Average daily total VKT	1,837,026	1,736,356	5.8

Sources: Transurban and Macquarie Infrastructure Group

Benefits of operation

A number of social, environmental and economic benefits of the Westlink M7 have been identified by the RTA. They include:

- safer and more efficient road transport for both passenger vehicles and freight in western Sydney;
- good access to employment opportunities for the people of western Sydney by linking existing / future industrial and residential areas;
- stronger economic growth within western Sydney by encouraging further investment in the area due to potential savings in transport costs;
- 1500 jobs during construction alone and encouraging further employment opportunities in western Sydney;
- reduced numbers of heavy vehicles using local roads, resulting in better air quality and less noise in key residential areas;
- improved access to other growing cities and regions, including the Central Coast, Newcastle, Canberra and the Illawarra; and
- faster travel times between key western Sydney suburbs.²²

²² Roads and Traffic Authority, <http://www.rta.nsw.gov.au/constructionmaintenance/completedprojects/westlinkm7/benefits.htm> | accessed on 7 November 2008.

It is considered that the M7 has provided significant economic benefits to the Australian economy by increasing the efficiency and productivity of the freight and distribution industries. Business has been quick to realise the benefits of Westlink M7. Major companies such as Woolworths, Coles, Coca Cola, TNT, Bluescope Steel and LG Electronics have already relocated to industrial areas close to the M7 to take advantage of proximity to the motorway.²³

Infrastructure Partnerships Australia's M7 case study highlights market research conducted by CB Richard Ellis which concluded that the Westlink M7 is responsible for the huge surge in industrial development in Sydney. Across Sydney more than 2 million square meters of industrial land is being developed in 285 separate projects. Two thirds of this development is occurring in the M7 corridor.²⁴

In December 2005 the NSW Government announced the release of land at the M7 / M4 intersection for employment purposes. Known as the Western Sydney Employment Hub, this industrial precinct will be the biggest in Australia and is expected to create up to 36,000 jobs when fully developed.

Westlink M7 also links the two largest residential developments in NSW – the north-west and south-west growth centres.

By providing improved transport efficiency the Westlink M7 should improve air quality in Sydney by reducing interrupted progress of heavy vehicles.

Cost – Benefit Analysis

The RTA evaluated the likely economic performance of the project taking account of initial and recurring capital costs, operation and maintenance costs, road user benefits (savings in vehicle operating costs, travel time savings, and savings in accident costs), pedestrian benefits and environmental externalities. The results of these evaluations are summarised in Table 9.

Table 9: RTA estimates of likely economic performance of Westlink M7

Discount rate	PV of costs	PV of benefits	NPV	Benefit:cost ratio		NPV / initial capital cost
				Benefits – O&M D&C	Benefits D&C + O&M	
4%	\$2,014 m	\$10,450 m	\$8,437 m	5.7	5.1	4.7
7%	\$1,750 m	\$6,374 m	\$4,625 m	3.6	3.4	2.7
10%	\$1,607 m	\$4,332 m	\$2,725 m	2.8	2.7	1.8

Source: RTA 2003, Westlink M7 motorway: Summary of contracts, p. 5.

²³ Infrastructure Partnerships Australia, *Case Study: Westlink M7*.

²⁴ Ibid.

Time and cost

The Westlink M7 was delivered on budget. It was estimated that design and construction of the motorway would cost approximately \$1.54 billion and that with the inclusion of connecting roadworks and financing the entire project would cost \$2.23 billion. The Commonwealth Government provided \$356 million towards the project. Remaining costs were met by the private sector consortium.

Westlink M7 was delivered eight months ahead of schedule. This enabled operators to open the motorway early and to begin receiving toll receipts.

Transurban, a member of the WestLink consortium, was also responsible for the delivery of the tolling system and delivery of customer service through a company within the Transurban Group, Roam. The electronic tolling system was also delivered ahead of schedule as it was operational 2 months prior to the completion of the motorway.

Key success factors

Successful community engagement, targeted pricing to reflect customer base, and provision of infrastructure to link strategic corridors

Thorough and comprehensive planning of the project, planning of the M7 route started many years before the project commenced. Strong patronage also indicates that the project met an identified need.

Responsive and successful community relations were a hallmark of the Westlink project through all stages. Prior to construction five Community Liaison Groups (CLGs) were established to ensure that the members of the community closest to the construction were fully informed and to assist in mitigating any adverse impacts. There were over 120 CLG meetings that contributed to a better project.²⁵

The introduction of a toll system that met the needs of the road operator and was also considered 'fair' by road users. The toll on the Westlink M7 is the only distance-based electronic toll in Australia. Under the project deed with the RTA the elements of the tolling system were specified. This included a set 'per kilometre' rate and a cap on total toll that could be charged. Both increase with CPI on a quarterly basis.

Furthermore Roam, Transurban's tolling business, developed its business plan using comprehensive market research and community and stakeholder consultation to ensure needs were understood and met. Products and pricing were publicly released two months prior to the motorway opening and received endorsement from the NRMA.²⁶

The relationship between Government and the private sector also worked well. Project specifications and expectations were clear and private sector

²⁵ Ibid

²⁶ Ibid

partners were given sufficient flexibility to manage project and associated risks with limited involvement from Government.

The M7 is also considered to be a success from a design and engineering perspective. The M7 is a roadway made of simple, well-designed and executed elements that is consistent for its entire 40-kilometre length. It is considered that this is because design was integrated in the bid and urban design was specified alongside engineering, management and legal requirements. Design became a serious pursuit, requiring serious commitment from the proponent.²⁷

Key areas for improvement

This project had a long inception period. It is possible that the needs of the community and benefits of project could have been realised much earlier with shorter period between inception and construction.

Lessons learned

Key lessons include the following.

- The relationship between (co-funding) State and Federal Government agencies appeared generally collaborative and flexible and this helped make for a successful project. For instance, the agreed redirection of surplus funds to investments in access roads helped to improve utilisation.
- Private sector parties can bring innovative ideas to projects, such as the design for the intersection with the M4, which was superior to prior designs.
- Extensive market research was important to help sell the project to the client base, as well as ensure that the pricing strategy suited their expected use patterns (i.e. allowing infrequent users to pay toll within 24 hours rather than signing up to credit arrangements, having a toll free period, and offering undifferentiated pricing for trucks to encourage their use).
- Effective stakeholder engagement by both the Government and the private sector partner should be key part of project planning and delivery.
- Large greenfields projects offer opportunities to obtain economies of scale, and allow concurrent construction of various project segments.
- Projects with predictable site access and standard construction techniques are more likely to achieve successful outcomes.
- Projects that provide a missing link in a strategic corridor have more likelihood of success than those that do not.

Strategic road project, advantages of a Greenfield site, and good community liaison helped project success

²⁷ Mould P 2007, Review of Westlink M7, Architecture Australia, <http://www.archmedia.com.au/aa/aaissue.php?issueid=200701&article=11&typeon=2>, accessed 7 November 2008.