



## Australian Government

### Department of Infrastructure and Regional Development

Bureau of Infrastructure, Transport and Regional Economics



## Toll Roads in Australia

### Overview

The history of toll roads in Australia dates back to 1811 when the first toll road (Sydney–Parramatta) was built.<sup>1</sup> In 1932, the first toll bridge (Sydney Harbour Bridge) was built by the NSW government. Since the early 1990s, there has been increasing involvement of the private sector in toll road projects, causing a fundamental change to the traditional landscape of toll roads in Australia.

Currently there are 16 toll roads operating in Australia (Table 1) with a total length of 241 km. Most of these toll roads involve some form of Public Private Partnership (PPP). Of the 16, eight are in NSW, two in Victoria and six in Queensland. In terms of road length, NSW accounts for 41 per cent, Victoria 25 per cent and Queensland 34 per cent. Figure 1 shows the locations of toll roads in Australia.

The current toll roads in Australia can be broadly classified into three major categories (Table 1):

- *Harbour/river crossing*: bridges or tunnels that are short in length with a reasonable demand due to physical barriers (toll roads 1-3).
- *Tunnels or roads with tunnels*: short-distance routes (2–7 km) that are aimed at avoiding congestion within major urban areas (toll roads 4-8).
- *Intra-city links*: mostly long-distance routes connecting major traffic generating nodes (toll roads 9-16).

In Australia, fixed tolling (not changing with distance or time of day) is the main form of toll charge. Tolls on some roads vary by distance travelled, time of day and day of week. In general, travelling on intra-city long-distance link routes is cheaper on a cents/km basis compared with travelling on the other types of toll roads. All tolls are now collected electronically in Australia.

Traffic performance for each of the above three toll road categories has differed in the past. Toll roads involving tunnels experienced substantial difficulties in achieving their initial and future traffic targets. In contrast, traffic growth performance for most intra-city long-distance link routes was relatively good after the initial traffic level was established.

The toll road industry has seen significant restructuring over the past decade, leading to increased concentration in ownership and operation. Reduced competition among toll road operators may not be desirable from the viewpoint of the efficiency of the industry over the long run.

Congestion in the largest capital cities in Australia has been growing with rising population. Toll roads have helped ease this congestion by allowing road infrastructure to be provided earlier than would have been possible under the traditional model of road provision. Road users have benefited from toll roads in the form of reduced travel time and vehicle operating costs, and improved safety. Studies by consultants have found that toll roads have made a net positive contribution to the economic wellbeing of the country.

<sup>1</sup> KPMG (2015).

Development of new toll roads has been hampered by failures of toll roads in the recent past due to over-optimistic traffic forecasts. More flexible forms of PPPs may be required that are attractive to both the government and the private sector, especially for sharing traffic risks in the early years of toll road operations.

Table 1 Toll Roads in Australia by Type

| Type                               | Name                        | State | Length (km) | Original owner                    | Majority Owner        | Operator                |
|------------------------------------|-----------------------------|-------|-------------|-----------------------------------|-----------------------|-------------------------|
| Harbour/river crossing             | 1. Sydney Harbour Bridge    | NSW   | 1.1         | NSW Dept. of Public Works         | RMS                   | RMS                     |
|                                    | 2. Sydney Harbour Tunnel    | NSW   | 2.7         | Transfield Pty Ltd & Kumagai Gumi | Kumagai Gumi (50%)    | Tunnel Holdings Pty Ltd |
|                                    | 3. Go Between Bridge        | QLD   | 0.3         | Brisbane City Council             | Transurban            | Transurban              |
| Tunnels or roads with tunnels      | 4. Cross City Tunnel        | NSW   | 2.1         | CCT Motorways                     | Transurban            | Transurban              |
|                                    | 5. Lane Cove Tunnel         | NSW   | 3.8         | Connector Motorways               | Transurban            | Transurban              |
|                                    | 6. Clem7                    | QLD   | 6.8         | RiverCity Motorway                | Transurban            | Transurban              |
|                                    | 7. Airport Link             | QLD   | 6.7         | BrisConnections                   | Transurban            | Transurban              |
|                                    | 8. Legacy Way               | QLD   | 5.7         | Brisbane City Council             | Transurban            | Transurban              |
| Intra-city links - short<br>- long | 9. M1 (Eastern Distributor) | NSW   | 6.0         | Airport Motorway Pty Ltd          | Transurban            | Transurban              |
|                                    | 10. M2 (Hills)              | NSW   | 21.0        | Hills Motorway Pty Ltd            | Transurban            | Transurban              |
|                                    | 11. M7 (Westlink)           | NSW   | 40.0        | Western Sydney Orbital Pty Ltd    | Transurban (50%)      | Transurban              |
|                                    | 12. M5 (South-West)         | NSW   | 22.0        | Interlink Roads Pty Ltd           | Transurban (50%)      | Transurban              |
|                                    | 13. CityLink                | VIC   | 22.0        | Transurban                        | Transurban            | Transurban              |
|                                    | 14. EastLink                | VIC   | 39.0        | ConnectEast                       | Horizon Roads Pty Ltd | Horizon Roads Pty Ltd   |
|                                    | 15. Gateway Motorway        | QLD   | 23.1        | Queensland Investment Corp.       | Transurban            | Transurban              |
|                                    | 16. Logan Motorway          | QLD   | 38.7        | Logan Motorways Pty Ltd           | Transurban            | Transurban              |

Source: Compiled by BITRE based on various sources.

## Toll charges

Toll charges take a number of forms:

- Fixed
- Distance-based (M7 (Westlink))
- Time of day and day of week (Sydney Harbour Bridge and Tunnel)

Currently, 13 of the 16 toll roads in Australia use fixed tolling whereby there is a fixed toll for use of the whole or specific sections of the motorway, regardless of the distance or time of day and day of week travelled. The M7 uses distance-based tolling (cars 38.81 cents/km capped at \$7.76 and trucks 99.35 cents/km capped at \$19.87). Toll charges on the Sydney Harbour Bridge and Tunnel vary according to time of day and day of week. For people travelling outside of the peak periods or on weekends, a lower toll applies.

Table 2 shows charges for the 16 Australian toll roads. For toll roads that do not use fixed tolling or have multiple entries/exits, tolls refer to weekday peak-hour charges or maximum charges for the full distance travelled. Toll charges on intra-city links are generally lower on a cents/km basis (for cars, mostly in the range of 15-32 cents/km and for trucks 41-96 cents/km assuming they travel the full distance), compared with travelling on the other types of toll roads.

Table 2 Toll Charges (A\$ per full trip, excluding fees)

| Type                               | Name                        | State | Length (km) | Cars | Trucks | Notes                          |
|------------------------------------|-----------------------------|-------|-------------|------|--------|--------------------------------|
| Harbour/river crossing             | 1. Sydney Harbour Bridge    | NSW   | 1.1         | 4.0  | 4.0    | Cars=Class A<br>Trucks=Class B |
|                                    | 2. Sydney Harbour Tunnel    | NSW   | 2.7         | 4.0  | 4.0    | Cars=Class A<br>Trucks=Class B |
|                                    | 3. Go Between Bridge        | QLD   | 0.3         | 3.1  | 8.2    | Cars=Class 2<br>Trucks=Class 4 |
| Tunnels or roads with tunnels      | 4. Cross City Tunnel        | NSW   | 2.1         | 5.4  | 10.8   | Cars=Class A<br>Trucks=Class   |
|                                    | 5. Lane Cove Tunnel         | NSW   | 3.8         | 3.2  | 8.9    | Cars=Class A<br>Trucks=Class B |
|                                    | 6. Clem7                    | QLD   | 6.8         | 4.9  | 13.1   | Cars=Class 2<br>Trucks=Class 4 |
|                                    | 7. Airport Link             | QLD   | 6.7         | 5.3  | 14.0   | Cars=Class 2<br>Trucks=Class 4 |
|                                    | 8. Legacy Way               | QLD   | 5.7         | 4.9  | 13.1   | Cars=Class 2<br>Trucks=Class 4 |
| Intra-city links - short<br>- long | 9. M1 (Eastern Distributor) | NSW   | 6.0         | 6.8  | 13.6   | Cars=Class A<br>Trucks=Class B |
|                                    | 10. M2 (Hills)              | NSW   | 21.0        | 6.7  | 20.2   | Cars=Class A<br>Trucks=Class B |
|                                    | 11. M7 (Westlink)           | NSW   | 40.0        | 7.8  | 19.9   | Cars=Class A<br>Trucks=Class B |
|                                    | 12. M5 (South-West)         | NSW   | 22.0        | 4.5  | 13.0   | Cars=Class A<br>Trucks=Class B |
|                                    | 13. CityLink                | VIC   | 22.0        | 8.7  | 11.6   | Cars=Cars<br>Trucks=HCV        |
|                                    | 14. EastLink                | VIC   | 39.0        | 6.0  | 16.0   | Cars=Cars<br>Trucks=HCV        |
|                                    | 15. Gateway Motorway        | QLD   | 23.1        | 4.4  | 11.6   | Cars=Class 2<br>Trucks=Class 4 |
|                                    | 16. Logan Motorway          | QLD   | 38.7        | 2.7  | 7.3    | Cars=Class 2<br>Trucks=Class 4 |

Notes: Definition of cars and trucks across the three States is slightly different.

Source: Compiled by BITRE on 31 August 2016 based on the latest information available on the relevant websites.

## Traffic performance

Traffic performance just after opening was generally poor compared with the forecast traffic levels. According to Black (2014), the actual traffic volumes at the opening were only 32-45 per cent of the forecast values for tunnel projects and 48-82 per cent for selected intra-city link route projects (Table 3).

Table 3 Comparison of Daily Forecast and Actual Traffic on Australian Toll Roads

| Toll Facility               | Opening Volume<br>(Daily Forecast) | Opening Volume<br>(Daily Actual) | Ratio<br>(Actual/Forecast) |
|-----------------------------|------------------------------------|----------------------------------|----------------------------|
| Cross City Tunnel, Sydney   | 85,000                             | 27,000                           | 0.32                       |
| Lane Cove Tunnel, Sydney    | 104,786                            | 44,420                           | 0.42                       |
| Clem7, Brisbane             | 60,000                             | 26,711                           | 0.45                       |
| Airport Link, Brisbane      | 135,000                            | 47,000                           | 0.35                       |
| Eastern Distributor, Sydney | 33,000                             | 27,000                           | 0.82                       |
| M2 (Hills), Sydney          | 72,000                             | 40,000                           | 0.56                       |
| M7 (Westlink), Sydney       | 196,500                            | 94,808                           | 0.48                       |
| EastLink, Melbourne         | 259,000                            | 149,000                          | 0.58                       |

Source: Black (2014).

Traffic performance since opening has varied. Figure 2 reproduces the chart created by Loader (2016) showing traffic growth performance since 2006 for selected Australian toll roads. A number of observations were made by Loader:

- Most roads show a cyclical trend, with weak growth between 2008/9–2011/12 (possibly related to the Global Financial Crisis), and strong growth in 2013/4 and onwards.
- Growth in traffic has been much faster on non-radial roads (intra-city long-distance link routes):
  - Sydney's M7 (Westlink) and Melbourne's EastLink have been outstanding examples.
  - Melbourne's CityLink has seen fairly steady growth over the past 5 years.
  - More recently, traffic on Sydney's M2 (Hills) and M5 (South-West) has rebounded strongly.

## Industry ownership and operation

According to IBISWorld (Magner 2016), in the past 5 years, there has been an increased concentration in ownership and operation in the toll road operators industry. Altogether, there are only six enterprises now, a reduction from the nine enterprises that operated in 2010/11. The industry is now dominated by Transurban with a market share of 73 per cent (in revenue terms). The second largest toll road operator is Horizon Roads Pty Ltd, which manages EastLink (Melbourne) with a market share of 13.8 per cent. In recent years, the Australian Competition and Consumer Commission approved a series of acquisitions by Transurban on the grounds that there is adequate competition from non-toll roads and public transport, and that state governments have powers to regulate the industry. IBISWorld rated the level of competition in the toll road operators industry as 'medium'.

## Benefits of toll roads

Two studies have been undertaken by consultants<sup>2</sup> to show the net benefits of Australian toll roads. In 2008, Ernst & Young investigated the toll roads in Sydney and their economic contribution to NSW and Australia. The approach was to update earlier cost-benefit analyses (CBAs) with revised traffic forecasts and actual costs. The net present value (NPV) of the Sydney Orbital toll road projects was calculated to be \$22.7b (in 2007 dollar terms). The direct road user benefits were estimated to be \$30.8b, 80 per cent of which were travel time savings. The improved road networks were also expected to increase GSP in NSW by 0.89 per cent in 2020 compared with the no toll road development scenario.

KPMG (2015) assessed the net economic benefits of all toll roads in Australia. Congestion in the largest capital cities in Australia has been increasing and toll roads have enabled infrastructure projects to be delivered earlier than they would have been under the traditional model. KPMG assumed a base case of delayed implementation (10 years as the central scenario), in contrast with Ernst & Young where the toll roads were never built in the base case. The total discounted road user benefits were estimated to be \$38.3b in 2014 prices, 60 per cent of which were travel time savings and travel time reliability benefits. KPMG (2015) also estimated the wider economic benefits (WEBs) associated with toll roads in Australia, which amounted to \$13.3b in discounted terms.

## Future challenges

Currently, three projects are in the development pipeline: the Toowoomba Second Range Crossing, NorthConnex and WestConnex in Sydney. The proposed Western Distributor in Melbourne is being negotiated.

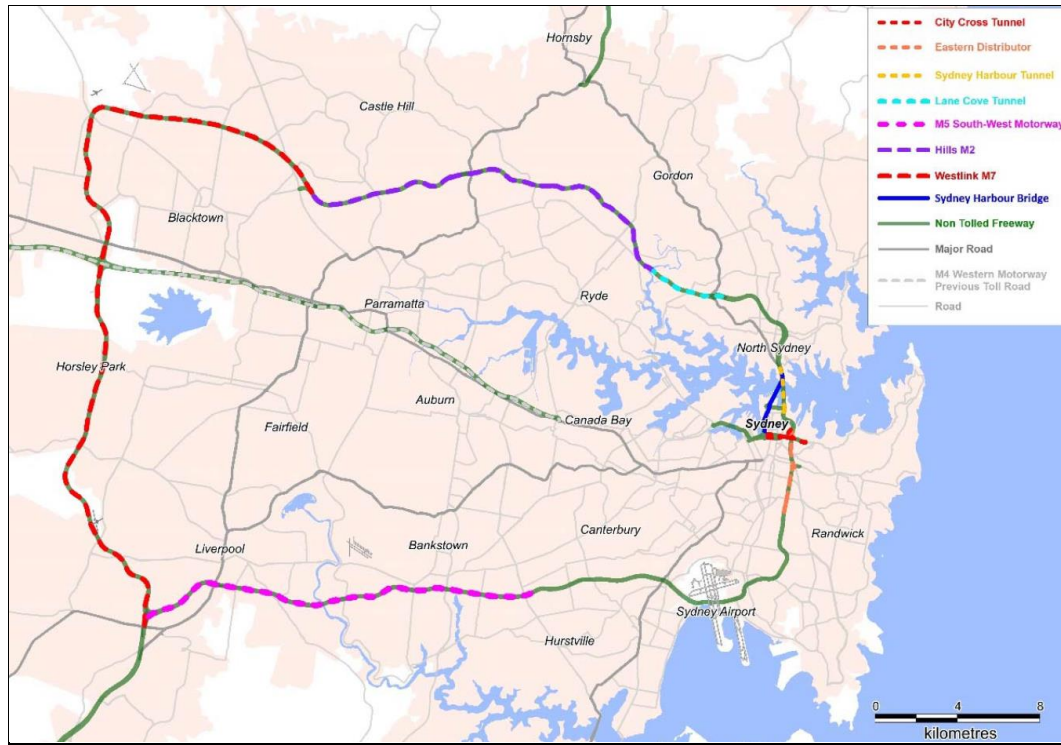
The private sector has been more cautious of taking on demand risks after a series of failures in the toll road operators industry (Magner 2016). The structure of PPPs is under pressure for change, notably in relation to the handling of traffic risks in the early years of toll road operations.

There are signs that concentration in the Australian toll road operators industry will remain high for the foreseeable future. Lack of competition among toll road operators may not be desirable from the viewpoint of the efficiency of the industry over the long run.

<sup>2</sup> Both studies were commissioned by Transurban.

Figure 1 Geographical Location of Toll Roads in Australia (2015)

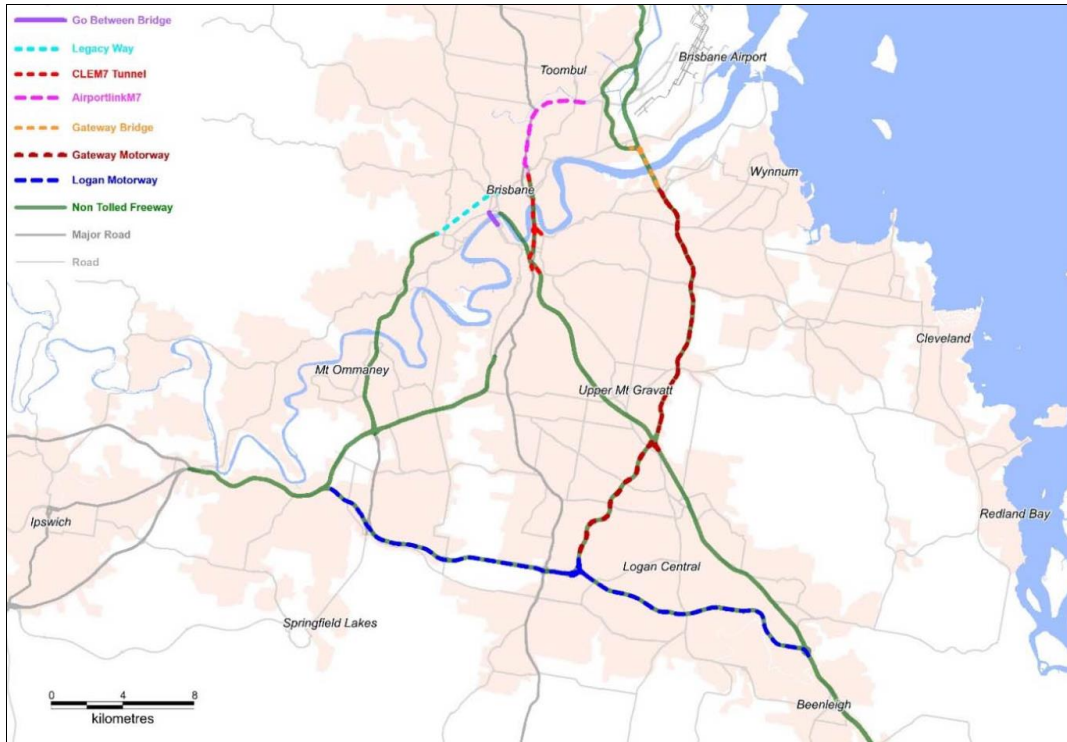
NSW



Victoria

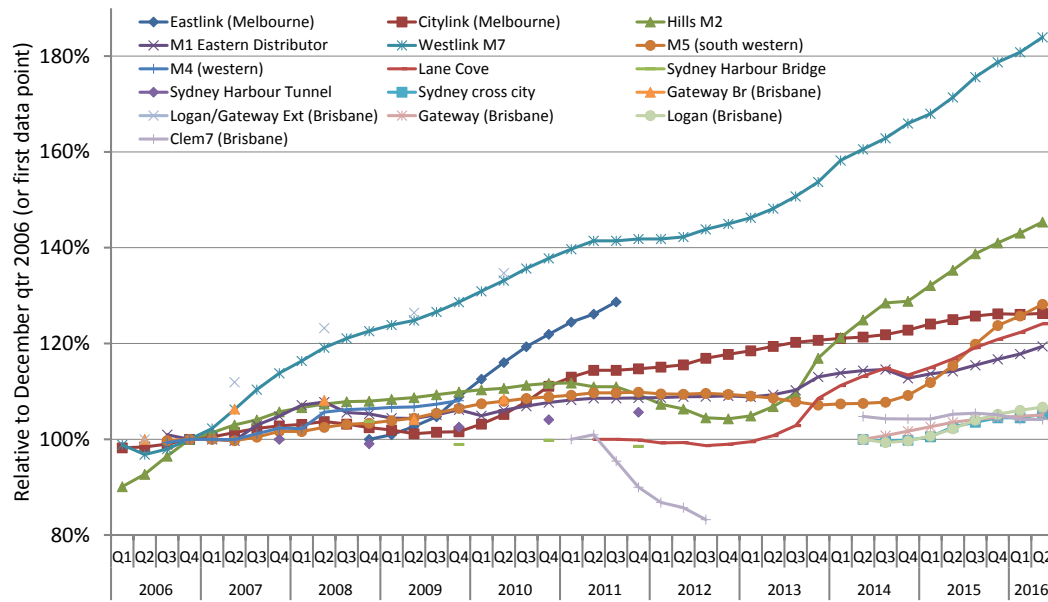


Queensland



Source: KPMG (2015).

Figure 2 Rolling 12 Month Average Daily Traffic: Australian Toll Roads



Source: Loader (2016).

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