

Towards Carbon Neutral Toll Roads

Submission to the Garnaut
Climate Change Review

From Transurban Group

Australia's leading toll road owner and operator

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Introduction

Transport is a significant contributor to the greenhouse gas (GHG) emissions that cause climate change. In this submission, Transurban, Australia's leading owner and operator of toll roads, argues that the concept of carbon neutral toll roads can play a role in the achievement of national targets for reductions in GHG emissions.

Background

Despite community concern about climate change, road use in our cities is predicted to grow significantly in the next 20 to 30 years. Governments are expected to make major investments in public transport and there will be a shift away from private vehicle use for some trips by some people. However, the number of trips by motor vehicles is expected to grow at a greater rate than trips by public transport. In Victoria, a report to the State Government by Sir Rod Eddington in March 2008 said: "Even with strong growth in public transport patronage, over 90 per cent of the total travel task in Melbourne will still be done by motor vehicles. The number of trips made by car is expected to grow by around 30 per cent by 2031 ... the city faces the daunting task of managing at least an extra three million car trips every day".¹

A similar scenario is expected to play out in Sydney. According to the Federal Government's Auslink Strategy released in mid 2007, overall transport activity will see total average weekday trips increase to 12.4 million across Sydney by 2026. Total vehicle kilometres travelled in Sydney will increase by around 50 per cent over the next 20 years, with truck activity projected to escalate by 120 per cent.²

The predicted growth pattern in private vehicle travel reflects the geographic spread of our cities along with continued growth in their populations and economies, and the ongoing shift to a services based economy. Our cities have developed in ways that make it difficult, and in some cases impossible, for many people to curtail their use of cars without significant impacts on their lifestyle. Many people depend on private vehicles to travel to and from work and for shopping and recreational activities. Businesses depend on the flexibility offered by road transport. Maintaining economic growth in Australian cities will require a massive increase in investment in both public transport and roads. Both are required to keep cities moving.

Transurban believes that improving fuel efficiency is the most effective way to reduce carbon emissions from transport. The most efficient way to deliver pricing signals on GHG emissions to motorists is through the cost of petrol. However, it is difficult to demonstrate that higher petrol prices will reduce road travel. Transurban has seen no reduction in traffic growth on its toll roads in Sydney and Melbourne as petrol prices have risen in the past few years.

The introduction of tolls to finance major new freeway style road links has not deterred most people from using them. By and large, people in Sydney and Melbourne have been willing to pay tolls for the time savings and improved driver experience of multi-lane freeflow roads rather than sit in stop-start traffic on the alternative free arterial roads. This suggests caution in the development of any proposal to increase existing tolls or introduce new ones with the aim of reducing GHG emissions.

Transurban supports the comment in the Garnaut Review's Issues Paper on Transport Planning and the Built Environment published after the public forum in Perth on 19 February

¹ Eddington. R. (2007), *East West Link Needs Assessment: Investing in Transport*, Overview, March 2008, Melbourne, p.22.

² AUSLINK: Building Our National Transport Future (2007), *Sydney Urban Corridor Strategy*, July 2007, Canberra, p. iv.

2008: “The Forum debated whether charging individuals for greenhouse gas emissions and congestion would significantly reduce transport emissions. If the costs are a relatively small component of the total costs faced, people’s decisions may not be strongly influenced by what are considered relatively small changes in transport costs”.³ Transurban’s interests in toll roads in Sydney and Melbourne give it access to data on individual motorist’s trips and travel patterns not available to most other traffic modellers. This data informs our in-house traffic models of Australia’s two largest cities. Transurban would be pleased to provide the Garnaut Review access to the Group’s traffic modelling team to support Professor Garnaut in any consideration of the role of road pricing in future action on climate change.

Transurban supports the development of a consistent national approach to road pricing. To date, no Australian Federal or State Government has implemented a comprehensive road pricing agenda. Instead, Governments have awarded one-off concessions allowing a private sector organisation to develop a new freeway style road project and then collect tolls from motorists using the road for a specified period before handing it over to the State. Such concessions have typically been a response to Government Budget constraints.

Private sector involvement has enabled NSW, Victoria and now Queensland to bring forward the provision of major road projects, delivering significant economic and social benefits to each state. A recent study undertaken by Ernst & Young quantifies the economic benefit that Sydney’s network of interconnected motorways brings to the NSW and Australian economies.⁴ Based on economic modelling undertaken by Monash University, the report says that in 2007 the benefit of Sydney’s toll road network to the NSW economy is estimated to be \$1.8 billion in real Gross State Product (GSP) terms. The benefit is forecast to increase to \$3.4 billion by 2020. This is roughly equivalent to the economic benefit which Port Botany brings to the NSW economy.

Designing new toll road concessions to reduce GHG emissions

Freeways and freeway style toll roads can reduce the emissions associated with a specific trip. This is because freeflow travel produces lower emissions than a comparable trip in the stop-start conditions of our major arterial roads. Freeflow roads take traffic off local roads and help free up arterial roads for public transport. Transurban does not dispute however that the provision of more freeflow roads in our cities may induce growth in demand and that growth could balance any GHG savings.

In awarding toll road concessions to private developer/operators, Governments and road authorities require high standards of environmental sustainability from the successful tenderer. To date however, the reduction of GHG emissions has not been an important consideration within this. Governments could reduce the carbon impact of new roads by requiring rapid bus transit lanes and High Occupancy Vehicle (HOV) lanes in new projects where appropriate. They could also require higher tolls at peak times to encourage motorists to travel at other times. This would reduce stop-start travel caused by congestion.

Transurban believes GHG outcomes on new toll roads can be further enhanced by introducing the concept of carbon neutral toll roads into concession arrangements. The concept describes toll road projects in which GHG emissions are minimised in the development, construction and ongoing operational phases and customers are offered an optional product allowing them to offset their emissions. Such a concept would encourage innovation by private sector road developers and operators aimed at reducing carbon emissions.

³ Garnaut, R (2008), *Climate Change Review: Issues Paper – Forum 5, Transport, Planning and the Built Environment to the Commonwealth, State and Territory Governments of Australia*, Canberra, p. 5.

⁴ This study was commissioned by Transurban in October 2007. Ernst & Young’s report will be published in mid 2008.

There are three distinct stages in the life cycle of a toll road concession: development, construction and operations.

- **The development phase is not carbon intensive in relative terms.** This is the phase in which private consortiums form to consult with Governments and other stakeholders on proposed projects, respond to formal calls for expressions of interest and then develop full blown project proposals. This phase continues after a winning consortium is selected as detailed contracts, road designs and construction programs are finalised and funding for the project is raised.
- **The construction phase is carbon intensive.** The production of concrete and bitumen, for example, produce large volumes of GHG, although innovation is leading to the production of some lower emission products. Government road authorities are aware of this issue. In Victoria, for example, VicRoads has commissioned development of a calculator that will allow it to measure emissions associated with specific road construction projects⁵.
- **The ongoing operation of open roads is not carbon intensive in relative terms,** although there are emissions associated with maintenance such as “resheeting” or re-laying of the bitumen surface. However, there are more significant emissions associated with the operation of tunnels, due to the electricity required to power ventilation systems. Many of the foreshadowed or proposed new road projects in Sydney, Melbourne and Brisbane involve long tunnels. Transurban publishes independently audited figures on its GHG emissions. In Financial Year 2007 CityLink, Transurban’s 22 kilometre toll road in Melbourne, produced 32,108 tonnes of CO₂-e. Of this, 85 per cent came from the power used in the ventilation systems for the 3.4 kilometre Burnley Tunnel and the 1.6 kilometre Domain Tunnel.

In Transurban’s view, Governments calling for competing private sector bids for new toll road projects should require all proposals to be carbon neutral in their development, construction and day to day operations.

Bidders would aim to reduce carbon emissions as the successful bidder would be required to offset emissions they could not eliminate. Offsets would be independently audited. The cost of offsets would be reflected in the toll levels that bidders would have to charge motorists. The more carbon efficient developers and operators would therefore gain a competitive edge as the level of tolls is a significant factor in Government decision making on competing bids.

Transurban recognises that GHG emissions by customers using its roads greatly exceed those from development, construction and operations. While customer emissions are best addressed through petrol prices to encourage fuel efficiency and new technologies, tolling regimes should be designed to favour low emission vehicles and all customers should be offered an independently audited carbon offset product. These proposals are discussed later in this paper.

Transurban’s carbon neutral demonstration project

Transurban is working with the Victorian Government to upgrade the Monash-CityLink-West Gate freeway corridor, Melbourne’s major east-west route and economic spine (see map on page 5). The project will be delivered by 2011 at a cost of \$1 billion. The Government says it will deliver community benefits of \$14.5 billion. The project is designed to maximise the use of the existing freeway corridor, delivering a 55 per cent increase in peak hour capacity.

⁵ VicRoads (2008), *Greenhouse Gas Emissions from Road Construction*, Melbourne, available at the VicRoads website: www.vicroads.vic.gov.au

As part of this project, Transurban is upgrading the Southern Link section of CityLink. In planning the Southern Link Upgrade (SLU), Transurban sought to make it a demonstration project for the feasibility of achieving carbon neutrality in a major road construction project.

The work is being delivered by what is known as an alliance contract. The alliance partners are required to meet Key Performance Indicators (KPIs) including a series of sustainability indicators. One KPI requires the alliance to reduce GHG emissions from all sources including fuel, asphalt, concrete and electricity.

The alliance prepared a GHG emissions benchmark report estimating the likely source, mass and cost of offsetting emissions. The largest contributors of emissions are fuel used on-site and concrete supply, together accounting for 80 per cent of the total. To meet this KPI, the alliance is focussing on the use of recycled concrete and steel. Incentives have been built into the project to encourage all partners to meet the KPIs.

When construction is complete in 2011, Transurban will purchase independently audited carbon offsets for emissions that were not eliminated.

Low tolls for low emission vehicles

A recent analysis by Victoria's Office of Climate Change found that improving fuel efficiency of motor vehicles is the most effective way to reduce emissions from transport ahead of demand management measures.⁶ Transurban agrees with this finding.

However, toll pricing regimes that favoured low GHG emission vehicles such as hybrids would win support in some sections of the community which might otherwise oppose new road projects. Such tolling regimes should also incorporate time of day or variable pricing to encourage modal shift to public transport at peak times and to ease congestion and therefore GHG emissions.

Voluntary offset products

To date, Governments and road authorities have not required toll road operators to offer customers carbon offset products. However, Transurban's Australian customers can purchase a voluntary product called Greenpath to offset emissions associated with their motor vehicle travel.

Greenpath was developed in partnership with Origin Energy. The offsets are sourced through the Origin Carbon Reduction Scheme™ which was developed in consultation with the St James Centre for Ethics and the Australian Conservation Foundation. The Scheme supports the development of renewable energy, energy efficiency initiatives, methane destruction and tree planting. The offset programs are accredited and independently verified.

On the Greenpath website (www.greenpath.com.au) motorists calculate their vehicle's carbon emissions and the cost of offsetting them. For example, carbon offsets for a medium-sized car that uses unleaded petrol and travels 15,000 kilometres per year cost approximately \$65 a year.

Redesigning existing road concessions

Road concessions typically run for 30 or more years. This means Governments and concessionaires would have to renegotiate existing concession agreements to "retro-fit" some of the initiatives discussed above to existing roads. Transurban's position is that

⁶ Eddington. R. (2007), *East West Link Needs Assessment: Investing in Transport*, Chapter 8, March 2008, Melbourne, p.194.

changes to concessions should not leave its investors worse off than before. However, this should not be seen as a barrier to modernising concessions to address climate change concerns. Transurban has a long track record of negotiating amendments to concession agreements to ensure its roads respond to changing community needs over time.

About Transurban

Transurban Group is an international toll road owner and operator with a market capitalisation of approximately \$7 billion. The Group is a Top 50 company on the Australian Securities Exchange, where it has been listed since 1996.

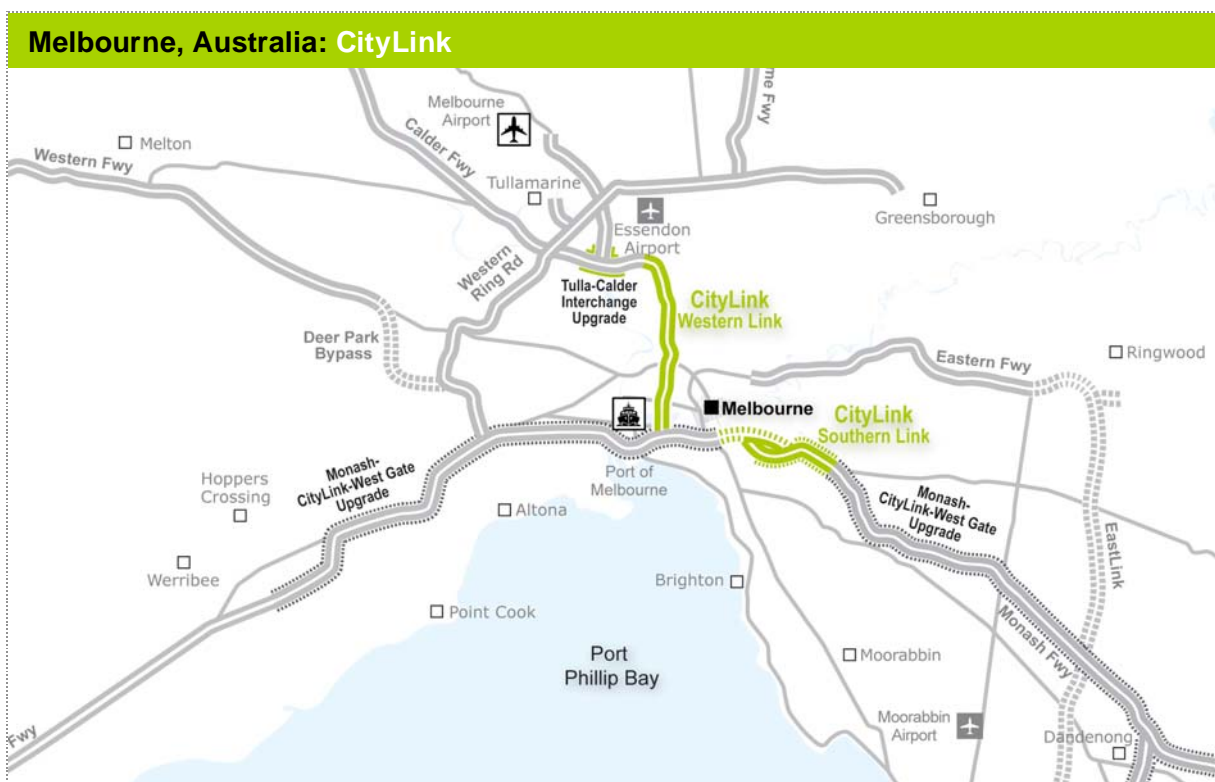
In 2006 and 2007, Transurban was listed in the Dow Jones Sustainability Index (DJSI) World list of high performing companies. DJSI World tracks the performance of the top global sustainability leaders rating them on economic, environmental and social criteria.

In 2006 and 2007, the Group also appeared in the Climate Leaders List for Australia and New Zealand in the Carbon Disclosure Project (CDP). The CDP is run by the Investor Group on Climate Change (IGCC), a global group of 284 institutional investors with combined assets of US\$41 trillion under management. Every year the IGCC asks the world's largest companies by market capitalisation to disclose information on their greenhouse gas emissions, reduction targets, climate change readiness and business innovation in a 'carbon constrained' economy.

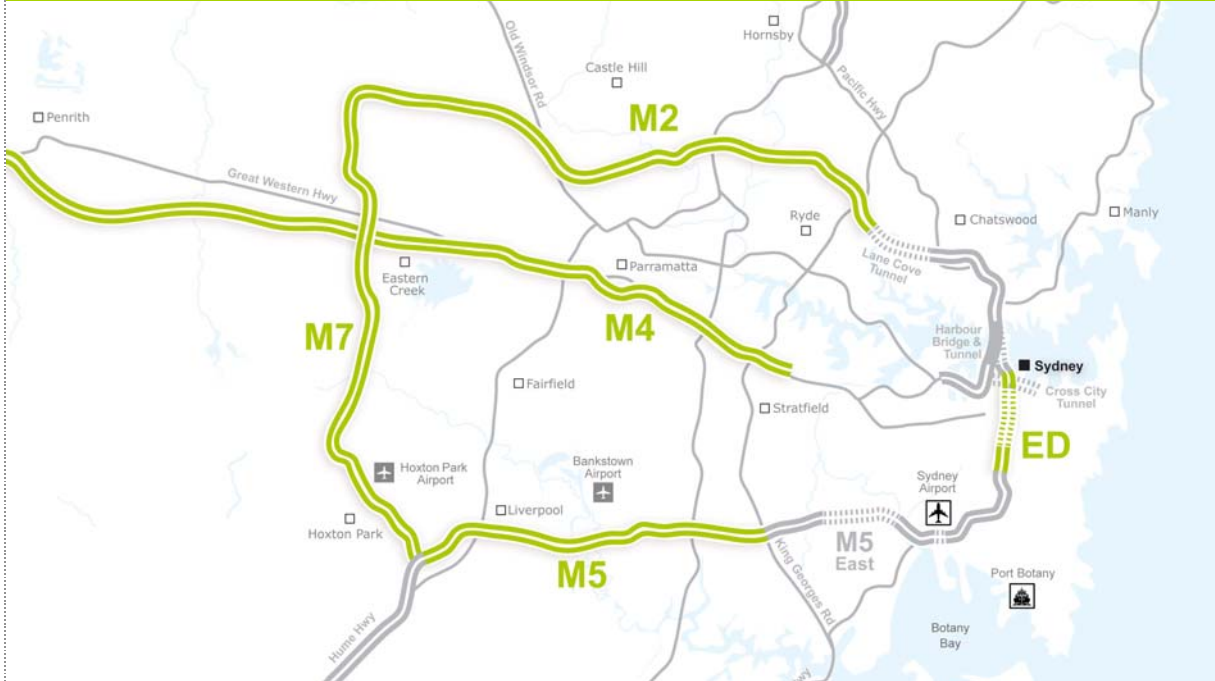
Our assets

Transurban has interests in seven roads—CityLink in Melbourne, Hills M2, Westlink M7, the Eastern Distributor, M4 and M5 in Sydney, and Pocahontas 895 in the American State of Virginia. It is also developing the Capital Beltway HOT Lanes project on part of the ring road around Washington DC as well as the Airport Connector in Richmond, Virginia.

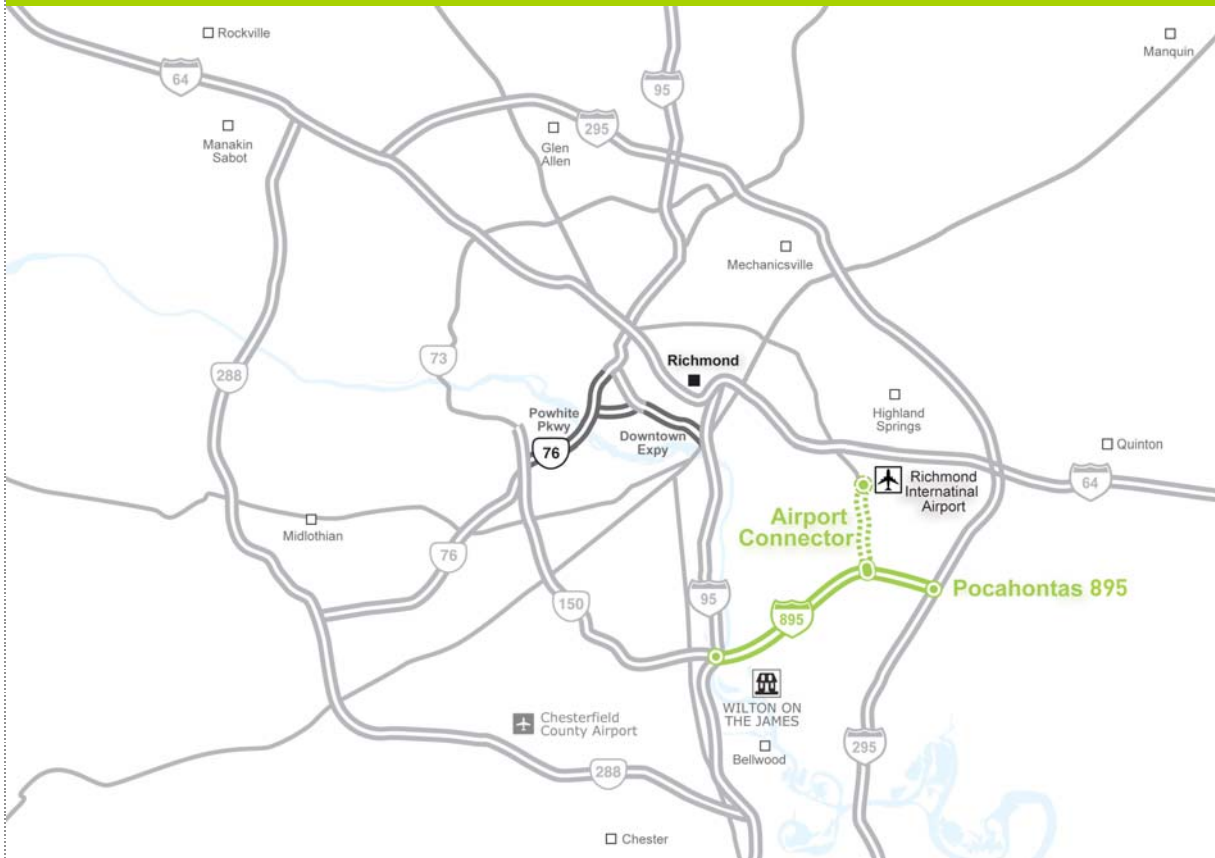
Transurban's assets are shown in green in the maps following.



Sydney, Australia: Westlink M7 | Hills M2 | M4 | M5 | Eastern Distributor



Richmond, Virginia, USA: Pocahontas 895 | Airport Connector



Washington DC, USA: Capital Beltway HOT Lanes

