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Infrastructure

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Investing in Toll Roads

Infrastructure Investments

While we tend to think of toll roads as a recent phenomenon, they have been around for thousands of years. Toll roads today are a popular way for cash-strapped governmentsto raise money and improve the quality of, and reduce the congestion on road networks. Given the huge capital costs (toll roads often cost billions of dollars to build), for most investors the listed market is the only way to gain access to these assets.

Types of toll roads

There are two main types of toll roads; inter-urban toll roads (those between cities); and intra-urban toll roads (those within cities), which can be further be divided into radial, orbital and highoccupancy toll (HOT) lanes.

Each road varies in terms of its dynamics but, in general, this difference stems from the types of users and the trips undertaken.

Intra-urban toll roads typically host a higher proportion of cars – with a significant part of this related to people traveling to and from work and going about their daily lives. Consequently, in an economic downturn, while some traffic will divert to the alternative free route, as long as people have jobs to go to or errands to run, the diversion is likely to be minimal. By contrast, roads between cities tend to have higher proportions of commercial traffic and discretionary trips, which are more economically sensitive.

Table 1: Private toll roads in developed nations

Toll road	Type	Listed or unlisted	Country
407 ETR	Orbital	Listed (Ferrovial)	Canada
ASPI	Inter-urban	Unlisted (Mundys)	Italy
APRR	Inter-urban	Listed (Atlas Arteria)	France
Autopistas Central	Radial	Listed (Abertis)	Chile
Chicago Skyway	Radial	Listed (Atlas Arteria)	US
CityLink	Orbital	Listed (Transurban)	Australia
Conmex	Orbital	Listed (Aleatica)	Mexico
Dulles Greenway	Radial	Listed (Atlas Arteria)	US
I-95 Express Lanes	HOT lanes	Listed (Transurban)	US
LBJ Expressway	HOT lanes	Listed (Ferrovial)	US
M6toll	Inter-urban	Unlisted (IFM)	UK

Source: Magellan Asset Management

Key earnings drivers

As is generally the case for transport infrastructure, the revenue for a toll road is a function of volume and price. In the case of toll roads, this can be put simply as: **Toll road revenue = Traffic volume x toll price**

Pricing mechanism for toll roads

The typical business model for a toll road is that a government agency enters into a concession agreement (contract) that entitles a toll-road operator to collect tolls for a defined period and increase those tolls on a regular basis in a defined way.

The basis on which tolls are increased is controlled by the terms of the concession agreement and the level of tolls is generally linked to inflation. Table 2 shows how contracts differ. In Canada, the owner of the 407 ETR tollway can raise tolls with minimal constraints, while in Australia toll increases are linked to the consumer price index, the rate of inflation or 1 per cent per quarter.

The pricing mechanism for these toll roads generally tracks increases in inflation with minimal lag. Consequently, most toll-road owners have the ability to respond quickly to any rise in inflation.

Table 2: Toll road concession agreements – how they can differ

Asset	Location	Basis of toll increases	Frequency
407 ETR	Canada	At owner discretion[1]	Discretionary
APRR	France	70% of CPI[2]	Annually
ASPI	Italy	70% of CPI[2]	Annually
Chicago Skyway	USA	Greater of 2%, CPI or Nominal GDP per capita	Annually
CityLink	Australia	1.05% per quarter (4.25% pa) to 2029 then CPI	Quarterly
Eastern Distributor	Australia	Greater of 1% per quarter or basket of 67% AWE and 33% CPI	Quarterly
Indiana Toll Road	USA	Greater of 2%, CPI or Nominal GDP per capita	Annually
M5	Australia	CPI	Annually
M6toll	UK	At owner discretion	Discretionary
Western Harbour Tunnel	Hong Kong	CPI	Annually

Source: Underlying operators. As at 30 October 2023.

[1] subject to specific contractual, volume linked limitations.

[2] Plus an additional allowance for capex.

The impact of price on demand

As tolls increase, there is generally a temporary switching effect where some users shift to the toll-free alternative. This causes competing routes to get more congested, which boosts the attractiveness of the tolled route. This results in an increase in total revenue, all things being equal, as the toll increase more than offsets the temporary decline in traffic. This can be seen from the below case study 1, that shows traffic on Sydney's Eastern Distributor, which grew 118% over 18 years despite tolls increasing 151% over the same period.

Case Study 1: Eastern Distributor Average Daily Traffic

The volume of traffic

Three main factors affect the volume of traffic on toll roads.

1. Trip-time certainty

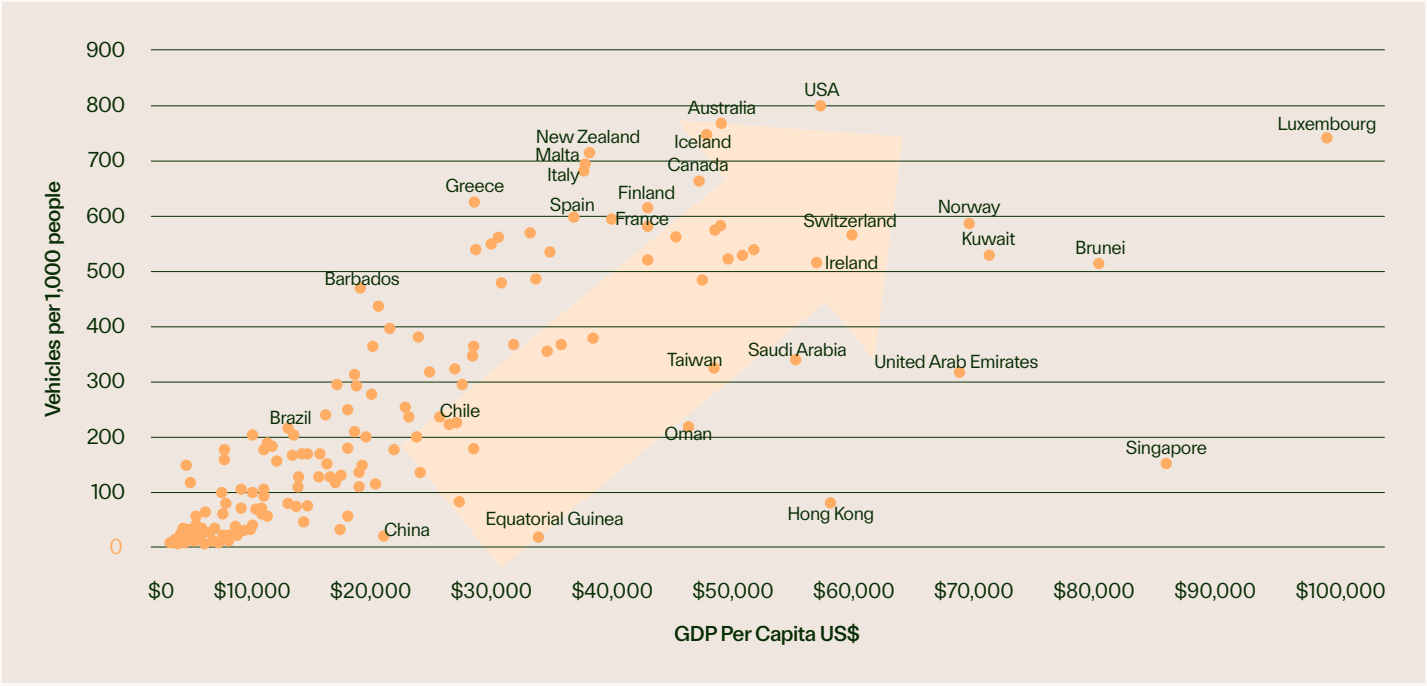
A critical point in the decision-making process for drivers is how predictable travel times are. Drivers will pay a premium for a predictable trip and overestimate average driving times on trips with highly variable conditions.

2. Demand for toll roads is tied to economic development

Experience shows that the demand for transport is related to economic development. Increases in populations and wealth lead to more demand for transport; in a growing economy, we can expect the number of vehicles on roads to rise over time.

Case Study 2 below, shows the number of cars per thousand people in different countries around the world. It shows that as countries become wealthier, the demand for transport and mobility leads to increases in car ownership. The direct relationship between the demand for transport and economic development underpins the need for transport infrastructure.

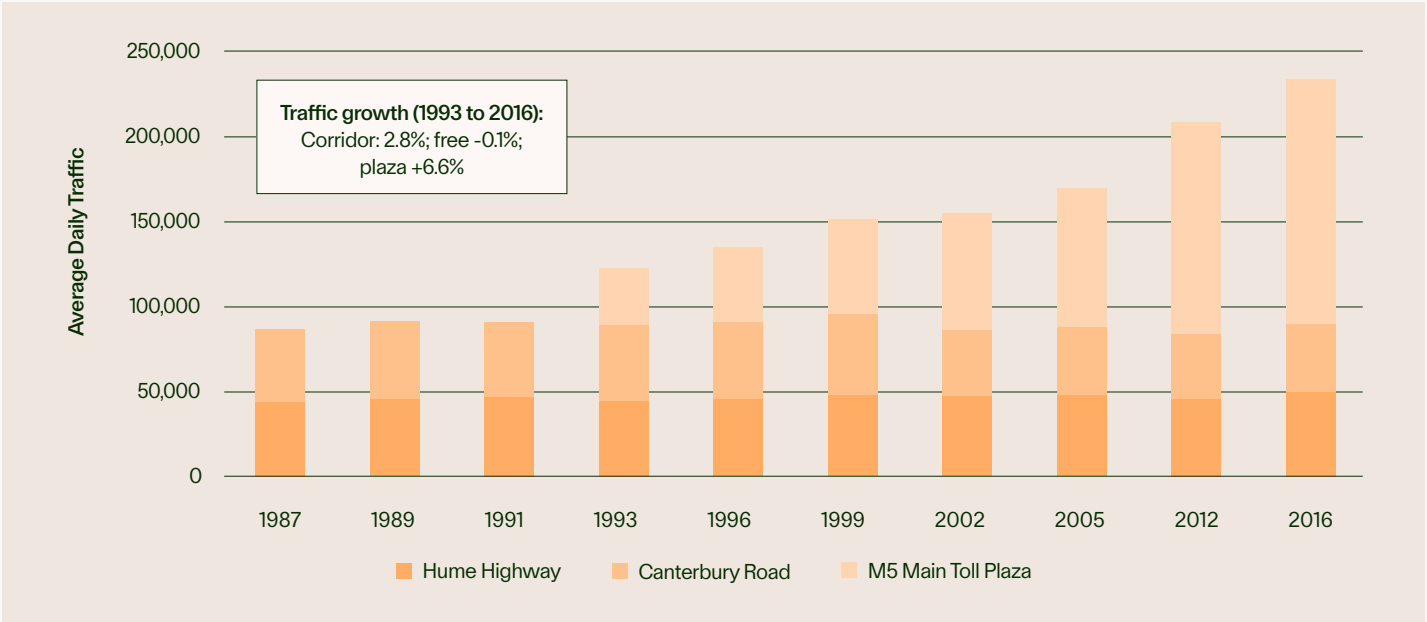
Case Study 2: Motor vehicles per 1,000 people compared with GDP per capita



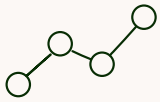
3. Capacity constraints on the existing network

A new toll road is typically supported by governments to add capacity to a network that is at, or approaching, capacity. If alternative routes to the toll road are congested, traffic growth on toll roads is likely to be higher than that of the corridor for long periods of time. This is displayed below in case study 3, which shows the traffic along a key corridor in Sydney, Australia. It shows that, despite the addition of the M5 toll road in 1992, the average daily traffic on the existing network remained unchanged and all traffic growth in the corridor was via the toll road.

Case Study 3: Average daily traffic on Sydney's M5 toll road 1987-2016



What are the risks?



1. Misalignment of incentives

A misalignment of incentives of management and advisers is the most fundamental risk to the financial success of a toll road. Recent history is littered with high-profile bankruptcies in toll roads located across the globe. Examples include the Cross City Tunnel, the Lane Cove Tunnel, the RiverCity Motorway and BrisConnections in Australia; the ITR, the SR125, the SR130, the Pocahontas Parkway and the Chicago Skyway in the US; and the M6toll in the UK. What these failures have in common is they were a result of misalignment of incentives, with (mostly) investment banks using highly aggressive traffic numbers and/or capital structures to generate investment banking fees or increase assets under management on which they could charge management fees. The other instances were largely where companies' bonus structures rewarded growth in assets rather than long-term investment metrics.

This is one of the reasons Magellan places so much emphasis on the governance or agency risk of these businesses. Incentives drive behaviour. A management team with incentives that align with the needs of long-term asset owners is less prone to such errors.

2. Congestion charges

Eight cities including Milan, London, Singapore and Stockholm have congestion charges, aimed at reducing traffic in parts of the central business district, that largely have proved effective. Other cities, including Sydney, Australia and Washington DC, have considered such measures.

A congestion charge increases the cost of a trip into the charged area, which would be expected to shift people to other modes of transport; in particular, public transport. Other solutions such as Washington DC's dynamic pricing on parking meters may also reduce traffic at the margins.

3. Technological disruption

As we have noted in our paper, 'Self-driving cars – implications for toll roads', we expect autonomous vehicles and driverless cars to prove positive for the earnings of toll roads over the next 10 to 20 years, particularly for urban toll roads.

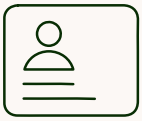
Toll roads today typically can handle about 2,200 vehicles per lane per hour. A study by the University of California[1] concluded that full penetration of self-driving cars could double this capacity. This is because computer-driven vehicles will be able to travel much closer together, at much higher speeds and in much thinner lanes.

The long-term impact on toll roads will depend on the balance between additional trips created by driverless cars minus the additional capacity that is created on the free roads.

4. Working from home

Working from home has been a more common working approach post-pandemic. However, we note that for most roads, commuter traffic only represents a minority of trips, with school-runs and other local trips representing the majority.

[1] Lewis Center. "Getting ready for the rise of autonomous vehicles." UCLA Luskin School of Public Affairs, 2016.



5. Declining licence uptake among younger adults

Much has been made about the decline in teenagers and people in their early 20s getting a driver's licence.

In the University of Michigan study, the most common reason given for not getting a licence was that people said they were too busy (37%), followed by the cost of owning and maintaining a vehicle (32%). Interestingly, 31% said it was because people said it was so easy to get a lift from a friend. Ultimately, though, these people are more likely to get a car once they leave university and enter the workforce, and especially once they have children. This is supported by the NSW Household Travel Survey, which found weekday car trips by households with children were 3.9 times that of single-person households. Their main reason for using the car (22.7% of trips) was to ferry children around.

An Australian study into the same phenomenon[2] suggested a range of explanations. Potential causes included increasingly restrictive access to learners and full licensing requirements along with lifestyle factors – increased tertiary education, staying at home longer and delaying working and having children, and the reduced status symbol of a car. The study found that young people who maintain frequent contact with friends through technology are more, not less, likely to see their friends in person.

Toll roads can generate growing and inflation-protected income streams for long-term investors. While the risks are low compared with most equities, the risks of these assets are nonetheless real – particularly when they pertain to agency risk. In-depth research and a good understanding of the drivers of the business and incentives of management teams should allow investors to reap the benefits of these largely misunderstood assets.

Examples of listed toll assets

Listed Toll Company	About
Transurban Group	An Australian-owned company that build and operate toll roads in Melbourne, Sydney and Brisbane, as well as in Greater Washington, United States and Montreal, Canada.
Atlas Arteria	A global owner, operator and developer of toll roads, with a portfolio of five toll roads in France, Germany and the United States.
Vinci SA	Vinci finances, designs, builds and operates motorways in eight countries, including France, Portugal and Brazil.
Ferrovial	Based in Spain and conducts promotion, investment and operation of toll roads and other infrastructures.

[2] Delbosc, Alexa & Currie, Graham, "Causes of Youth Licensing Decline: A Synthesis of Evidence", Monash University, 2013

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