

# ❖ Infrastructure Investing: The Australian Experience

## Introduction

Since Congress authorized the National System of Interstate and Defense Highways legislation in 1956, more than 40,000 miles of interstates have been built across the U.S. Over time, the federal government has paid for over 80% of the construction and maintenance costs for these highways. Many of these highways are now aging with significant deferred maintenance. In addition, the population of the United States has nearly doubled since 1956, and the number of automobiles per capita has doubled. This four-fold increase in cars is placing tremendous stress on existing highways and increasing demand for new road construction.

At a time when the Federal government is running record budget deficits and will undoubtedly be faced with funding the war on terror well into the future, it can ill afford to fund material highway construction and maintenance. Indeed, it is now projected that the Federal Highway Trust Fund will incur a \$2.3 billion shortfall by 2009. This situation is only apt to grow more severe. Since 1956, the federal gasoline tax has increased 3.7% annually which is just less than the inflation rate (4.1%). However, automobile efficiency in terms of miles per gallon has more than doubled since 1956. Thus, for every mile driven in America, the Federal Highway Trust Fund receives about one-half the gasoline tax that it did fifty years ago. Given the public consternation over gasoline prices it is very unlikely that a material increase in gas taxes is in the offing.

This same conundrum exists in the U.S., and across the globe, for the full range of critical infrastructure types including airports, water treatment facilities, energy production plants, affordable housing, schools, hospitals, public transportation, and even stadiums. Mature countries such as England and Germany must balance the costs of caring for their aging populations against public funding of infrastructure. Developing nations such as China and India cannot keep pace with their exploding infrastructure needs. See Exhibit 1, next page.

Fortunately, this is one problem that will not require government intervention or a massive increase in taxes. In fact, the opposite scenario is already playing out; i.e., a secular paradigm shift from public to private financing of infrastructure projects on a global level. In the U.S. this is focused on highways today, but it can be expected to migrate rapidly to other forms of infrastructure. Much of the rest of the world is significantly further along in terms of infrastructure privatization. Institutional investors have been a major

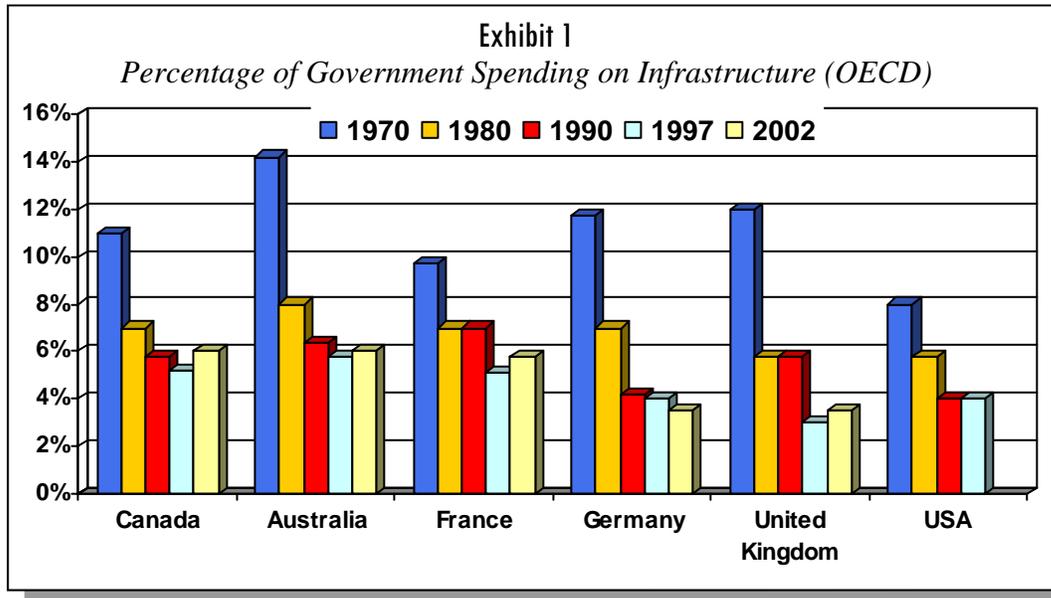


Kurt Wright, CFA

CEO

Quadrant Real Estate  
Advisors LLC





Source: Macquarie Infrastructure Group

beneficiary of these opportunities achieving very attractive, long-term risk-adjusted returns.

As a backdrop for understanding the fit for U.S. institutional investors considering infrastructure investing, this paper provides both a high-level overview of infrastructure as well as a more focused discussion of the Australian infrastructure experience. Australia has been a leader in privatization of infrastructure for the past decade. Its culture and economy are sufficiently similar to the U.S. to provide extremely valuable lessons and insights.

## Infrastructure “101”

### *Mixed Asset Portfolio Fit*

A typical infrastructure investment would be a long-term lease on a toll road or airport. In return for a large up-front fee to the government (for example, \$1.8 billion for the Chicago Skyway toll road), the investor has the right to operate the infrastructure asset and collect net income. In the case of the Chicago Skyway the lease is for 99 years. More typically such leases are 30-to-50 years. At the end of the lease term, the rights to operate the asset revert to the government.

In many respects infrastructure is like the big

brother of commercial real estate. For example:

- Improvements are long-lived assets, attached to the land.
- Assets are composed of a bundle of rights which can be converted into income streams.
- One can perfect one’s right to such assets and income streams.
- Returns include a relatively high, predictable, durable income stream.
- Cash flows can often be increased via aggressive management.
- Returns tend to have a low correlation with other asset classes and have an inflation hedging potential.
- One can invest in infrastructure directly or indirectly.

On the other hand there are some material differences when compared to real estate:

- Individual investments are typically very large (e.g. \$1 billion or more)
- Significantly less liquid at the asset level (time and cost to market)
- More monopolistic/higher barriers to competition than real estate
- Very long durations (e.g. 30 years or more)

- A small number of advisors are equipped to manage infrastructure portfolios.

Institutional investors often struggle to determine where a new investment category fits within their pre-determined asset allocation. In the short-term, investors might slot infrastructure into alternatives or fixed income. Additionally, a strong case can be made (based upon Exhibit 2) that infrastructure should fall into real estate. However, given the current size and likely growth of the market here in the U.S. and globally, investors would be better served recognizing infrastructure as a discrete asset class which deserves a material role in their overall mixed asset portfolio. In Australia, where privatization of infrastructure goes back ten years, it is common for large superannuation funds to allocate five percent or more to the infrastructure asset class with some funds having allocated as much as 20 percent.

*Market Structural Considerations*

Making sense of infrastructure on a global level requires a broad construct for evaluating opportunities along multiple attributes. At a very strategic level, the following definitions and attributes are helpful:

- **Economic vs. Social** – Economic infrastructure comprises critical general use facilities which customers pay for as used. Examples include toll roads and bridges,

power generation plants, airports and tunnels. Generally speaking, economic infrastructure may be fully privatized (albeit bound by some level of regulation). Social infrastructure tends to require some level of public/private partnering and the government retains a material ongoing role. Examples of social infrastructure include schools, affordable housing, hospitals, and public transportation. On balance, economic infrastructure is more amenable to private sector investment.

- **Existing vs. Greenfield** – Privatization of existing highways, airports, and other economic infrastructure is inherently less risky than new development of infrastructure (so called “Greenfield” investing). For any existing bridge or tunnel there is apt to be traffic data spanning years; such data greatly simplifies underwriting and modeling. Once privatized, such investments tend to immediately “cash flow.” In contrast, Greenfield construction of major infrastructure can take several years. During the construction phase risks are myriad, not the least of which are weather, labor issues, material prices, and material availability. The construction phase is typically followed by a two-to-five year maturation period during which usage patterns are established and risks are materially reduced. As a result, Greenfield investments tend to offer lower initial current cash returns and higher total

**Exhibit 2**  
*Correlations: Five Years Ending 12/31/2005*

US\$	Global Infrastructure	Global Bonds	Global Equity	Global Property
Global Infrastructure	1.00			
Global Bonds	<b>0.27</b>	1.00		
Global Equity	<b>0.51</b>	0.05	1.00	
Global Property	<b>0.60</b>	0.42	0.60	1.00

Source: Mercer Investment Consulting

returns than investments in existing infrastructure.

- **Mature vs. Developing Economies** – Developed nations with established infrastructures will offer a combination of existing and Greenfield opportunities. The combination of stabilized populations and economies, mature political/legal structures, established currencies and minimal sovereign risk in Australia, Western Europe, and North America reduces risks and return potential. Rapidly developing countries will primarily offer Greenfield opportunities and commensurately higher total return potential. Near term focus will be on the BRIC nations (Brazil, Russia, India, and China).
- **Alpha Potential** – Airports and stadiums are two examples of infrastructure which are highly amenable to increasing income streams via pro-active, creative management. Both have the potential to increase revenues via improved/expanded retail offerings, expanded car parking and development of adjoining land. Profit margins can be improved via expense reduction and productivity improvements. In contrast, toll-roads and utilities enjoy monopoly-like characteristics but are ultimately limited with respect to expansion options.

#### *Market Size and Performance Characteristics*

Obviously, here in the U.S. and globally, the potential size of privatized infrastructure is massive. For example, as reported by the Reason Foundation, (“Should the States Sell Their Toll Roads?”, June 2005) the New York State Thruway Authority, with 536 miles of toll roads, grosses \$466 million per annum in tolls and yields a net income of \$148 million. Based upon today’s market multiples, privatization of the system could yield approximately \$10 billion. The Triboro Bridge and Tunnel Authority nets nearly \$700 million; privatization could realize \$26 billion.

The Macquarie Global Infrastructure Index has a \$1.2 trillion market capitalization and is composed of 258 listed infrastructure companies around the world. Figures do not appear to be available, but market observers deem the global market capitalization of listed and unlisted privatized infrastructure to be significantly higher than this. The Wall Street Journal (May 3, 2006) estimates the European market alone to exceed \$5.7 trillion.

Around the globe, countries that have material privatized infrastructure today or which are in the process of privatizing include Australia, Belgium, Canada, Chile, France, Great Britain, Indonesia, Italy, Japan, Philippines, Portugal, Singapore, South Africa, South Korea, Spain, and Sweden. This is by no means an exhaustive list but nonetheless conveys the global sweep of the privatization phenomenon.

Over the past five years, the Macquarie Global Infrastructure Index has shown global returns for listed infrastructure of 18.8% (with a 9.6% standard deviation). Listed infrastructure in Europe has achieved a 14.3% return against a 19.9% standard deviation. Unlisted infrastructure had a lower return of 12.5%, but a better risk-adjusted return (as measured against a standard deviation of 13.2%). Over the same time frame, Australian listed and unlisted infrastructure returned 18.2% and 9.7%, respectively.

It is difficult to generalize about prospective returns, particularly in light of the broad dispersion of asset types, asset maturity, and country-level development. That said, investment in a broadly diversified fund of mature assets might deliver a net yield eight-to-ten percent. On the other extreme, a portfolio of developmental and high-alpha assets might yield 15 percent or more.

A recent report by Mercer Investment Consulting, (“Infrastructure – going global and listed”; Australia, December, 2005) offers the predictions shown in Exhibit 3 (next page) for various infrastructure asset types.

**Exhibit 3**

Risk by Project Type	Risk	Total Expected Return (pa)	Yield Component (pa)
Airports	Low-Medium	13-25%	5-7%
Toll Roads:			
■ Greenfield	High	12-20%	5%
■ Operating	Low	8-12%	10%
Power:			
■ Gas	Medium	12-18%	7-10%
■ Electricity	Low	11-12%	10-11%
Telecommunications	High	20%	5-7%
Social Infrastructure	Low	10%	10%
Rail	High	12-15%	Low

Source: Mercer Investment Consulting

### Australian Infrastructure: On the Cutting Edge

Since 1970, Australian government spending on infrastructure has fallen from approximately 7.2% of GDP to 3.6% today, mirroring a pattern seen throughout the developed world. Beginning about 10 years ago, public funding has been replaced by the private sector, a trend that has gained tremendous momentum over the past 5 years.

Today approximately \$32 billion of Australian infrastructure assets are held in publicly-traded, or listed, entities. It is estimated that over the next 20 years an additional \$100 billion will be required to fuel Australia's demand for new infrastructure. Australia's compulsory 401k or Superannuation funds typically have five-to-ten percent allocations to infrastructure and are severely under-invested today. The super funds alone could finance \$40-to-\$80 billion of Australia's needs. The rest is apt to be absorbed by a combination of Australia's highly sophisticated domestic retail distribution system and off-shore capital.

Large scale privatization of assets commenced en masse in the mid-1990s with the

sale of the State of Victoria's electricity enterprises. This was immediately followed with a federal sale of 22 airports. For example, in 1997 operations of the Melbourne airport were privatized via the sale of a 50-year lease (with a 49-year extension option). This was a classic win-win-win in which the federal government realized over \$700 million of much needed cash, airport customers benefited from substantial improvements in airport retail services and parking, and investors have received a 26 percent total return over a long period. See Exhibit 4, next page.

Over the six years ending June 30, 2006, publicly-traded Australian infrastructure has returned approximately 18.8% as compared to approximately 9.0% for corporate equities. Such strong results have encouraged investors to venture into a very broad range of asset types including toll roads, bridges, tunnels, rail, seaports, power generation, education, aged care, hospital parking lots, timber, public housing, and stadiums.

**Why not the Rose Bowl?** A recent Australian transaction is indicative of the nearly unlimited reach of this technology. A

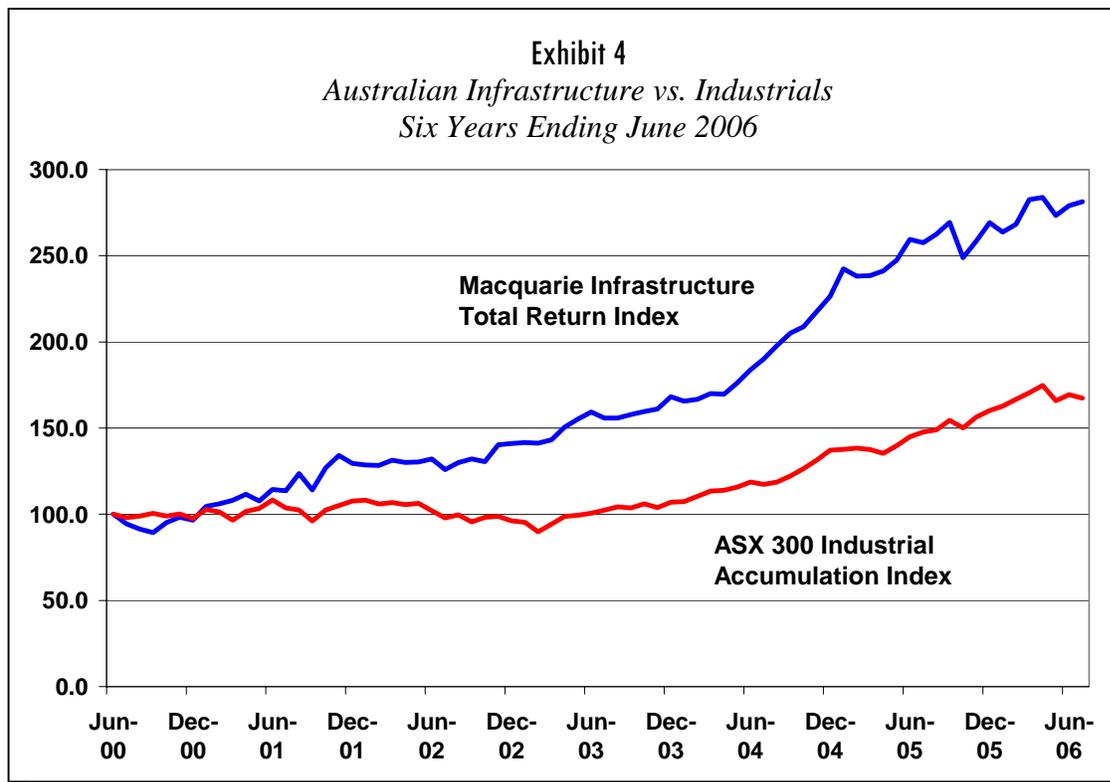
consortium of Australian superannuation funds and institutional investors has recently purchased a long-term lease on Melbourne’s state-of-the-art Telstra Dome. Telstra Dome was built in 2000 as a multi-purpose facility with a retractable roof designed for major sporting and entertainment events. Since opening, it has held over 60 events per year and attracted over 11 million patrons. The acquisition includes rights to multiple sources of revenue including car parking, ticketing, food and beverage, corporate suites, and special events.

The transaction is typical of many infrastructure investments in that the \$340 million purchase price was financed with equity and leverage. In this case the leverage was relatively low at approximately 40 percent of the purchase price. Although the venue is in pristine condition and has fully matured, nonetheless targeted returns exceed 13 percent per annum.

### Conclusion

Americans are apt to think of global technology transfer, particularly capital markets technology transfer, as the U.S. exporting its knowledge offshore. With respect to financing infrastructure, the opposite is true. Much of the rest of the world is well ahead of the U.S. in terms of privatization of critical infrastructure assets. Indeed, on a global level, infrastructure is a massive and rapidly growing industry. Further, it is an industry that is very mature in many respects. This is particularly true with respect to transaction structuring (legal and financial), credit analysis (i.e. “underwriting”) standards, vocabulary, raising capital, and reporting. If there is a hole in the industry, it is a lack of large numbers of people who have experience managing such assets and portfolios over the long-term on a private basis. However, this is a self-correcting problem that is to be expected with an emerging asset class.

For institutional investors this should be seen as a once-in-a-generation paradigm shift



Source: Macquarie Infrastructure Group

that has created a new asset class and offers the ability to invest large amounts of capital around the globe on very attractive terms. U.S. investors are hard pressed to squeeze marginal yield out of a fairly stable universe of assets. For example, the U.S. private equity real estate

market has barely grown in the past decade (hovering at around \$600 billion of institutional quality assets). Infrastructure offers the ability to invest in real estate-like assets on a large scale and with the probability of higher risk adjusted returns.

---

*Kurt has his B.A. from Colgate University; his M.S. in Accounting from the New York University Stern School of Business; and an M.B.A. from Columbia University; CFA; CPA*