

High Speed Rail Briefing Paper

The construction of a High Speed Rail (HSR) link along the east coast of Australia has been under active investigation since at least 1980. Air dominates the inter-capital travel market, and intra-rural travel is almost exclusively car-based. Rail has a significant presence in the rural / city fringe commuter market, but inter-capital rail currently has very low market share due to low speeds and infrequent service. The duration of travel between the capitals by a so-called “very fast train” could be as quick or faster than air travel - a 500 km/h MagLev train (travelling on above ground guideways) could reduce travel time from Melbourne to Sydney to about three hours, while the more conventional wheel-on-rail 350 km/h technology (such as TGV and Shinkansen) would take about four hours. A major advantage of the MagLev system is that the above ground pylons take the train sets above/over roads and valleys, and do not intersect with urban or freight rail systems.

Various studies and recommendations have asserted that a HSR service between the major eastern capital cities could be viable as an alternative to air. Although such studies have generated much interest from the private sector and captured the imagination of the general public upon their release, to date no private-sector proposal has been able to demonstrate financial viability without the need for governmental taxation assistance.

A HSR system could be economically competitive with air and road travel, provide mass transit without dependence on oil, have a travel duration that would compare with/quicker than air travel, and would reduce national carbon dioxide emissions.

	Melbourne to Sydney	Sydney to Brisbane
Land distance	730 km	770 km
Existing rail distance	963 km (32% greater)	988 km (28% greater)
Existing average speed	92 km/h	73 km/h
Existing travel time	10:30hrs	13:35hrs
Existing rail services (daily, each way)	2	1
Air travel time (CBD to CBD)	3:00hrs	3:05hrs
Air services (daily, each way)	118	84
HSR travel time (TGV max. 350 km/h)	4:06hrs	4:24hrs

NOTE: Air travel time includes travel from CBD to airport, waiting at terminal, gate-to-gate transit, and travel to destination CBD.

The major issues preventing the adoption of high speed rail in Australia include:

- a perception of cheap car travel.
- a lack of tolls on the majority of inter-capital roads.
- a high level of competition in domestic air travel, resulting in highly affordable fares.
- the great inter-city distances exceed those for which high speed rail can compete effectively against aircraft (due to excessive domestic air transport subsidies).

It is unlikely that an Australian HSR system would be viable on a privately-funded basis alone. Although patronage on a full Melbourne to Brisbane link is forecast to be similar to Taiwan's privately funded HSR system (around 100,000 passengers per day), the Australian system would be about six times longer than the Taiwanese system, with correspondingly higher capital costs. The most likely funding arrangement is likely to be either the government-as-developer or a public-private partnership.

In 1990, a Melbourne-Sydney route would have costed AU\$7.5 billion. A 2001 Arup-TMG study

concluded that a full Sydney—Brisbane HSR system would cost between \$32 billion to \$59 billion for systems in the range 250 km/h to 500 km/h, which would rank in the lower half of the cost of existing systems built overseas. That study also concluded that operating costs would be around 6-7 cents per passenger-kilometre. The study expected project costs to be around \$25 million/km.

Similar new high speed train lines constructed internationally have had widely varying costs depending on terrain and the level of viaducting and tunnelling. While the Paris-Lyon TGV was constructed for under AU\$10 million/km, most TGV lines in Europe cost around AU\$20 million/km, and the Taiwan High Speed Rail link cost over AU\$80 million/km. (Interestingly, The Victorian Department of Transport advised government in 2010 that the proposed conventional Regional Rail Link west of Melbourne will cost \$113 million/km across flat terrain, while the 2009 Perth-Mandurah conventional rail line in WA cost only \$19 million/km – a staggering 500% less.) In April 2010, the Australian Greens costed a link from Melbourne to Sydney at \$40 billion.

Corridor selection



There are two broad corridor alignment options between each capital city on the route — a coastal and an inland corridor. Each has its own advantages and disadvantages from engineering, environmental, population and national development points of view.

In December 2008, the Rudd-Labor government announced that a “Very Fast Train along the Sydney-Melbourne corridor, estimated to cost \$25 billion, was the government’s highest infrastructure priority”. The Federal Government is currently preparing a AU\$20 million study into the construction of a Brisbane to Melbourne network. It will primarily focus upon detailed Sydney-Newcastle corridor and station selection, high-level costings, and look at options for extending the line to Brisbane, Canberra and Melbourne. This study commenced in 2010, with stage 1 expected to be completed by mid 2011. This Labor Party initiative won the support of both the Liberal/National Coalition and the Australian Greens, the latter of which called for the study’s scope to be extended to encompass

Adelaide and Perth.

In late 2008, Transrapid MagLev re-entered the debate with a proposal put forward to the Victorian government to build a privately funded and operated MagLev line to service the Greater Melbourne metropolitan area. It was presented as an alternative to the Cross-City Tunnel proposed in the Eddington Transport Report, which neglected to investigate above-ground transport options. The proposed MagLev service would connect the City of Geelong to metropolitan Melbourne's outer suburban growth corridors, Tullamarine and Avalon domestic and international airport terminals in under 20 minutes, continuing on to Frankston in under 30 minutes. It would service a population of over 4 million, and the proposal was costed at \$8 billion. The Victorian government dismissed the proposal in favour of the underground metropolitan network suggested by the Eddington Report.

In late 2010, the Federal Department of Infrastructure and Transport advised the Government that a Brisbane-Melbourne HSR link would not be economically viable, but suggested that the Government begin purchasing land along a preferred corridor.

A summarized chronology of the HSR events can be found at:
<http://www.aph.gov.au/library/pubs/bp/1997-98/98bp16.htm>

Regional Economic considerations:

There are several economic benefits to the regions beyond the primary connectivity considerations. Experience world-wide has shown that increased tourism and population growth are directly linked to HSR connectivity. Many people commute from regional areas to the capital cities for the employment, which lessens the pressure upon metropolitan urban growth. New growth areas establish around the new HSR stations, and significant construction occurs in and near regional centres. Jobs growth is significant due in-part to enhanced accessibility, with many capital city businesses moving operations to cheaper regional site locations. (High speed broadband internet is also associated with this shift.)

Some proposals in the 1990's were analysed in relation to net economic benefit, eg: the Gippsland region by Dr Peter Brain in 1995ⁱ estimating \$20 billion over the first 10 years (post construction). The then Howard Government denied requests by the two HSR technology proponents that the federal government forego for 10 years the capital gains tax on land appreciation that Treasury would normally receive from development outcomes in the affected regions. This was the only tax assistance sought by the TGV and MagLev from the federal government at that time.

New public development infrastructure would have to be funded to service those developing regional centres, and Treasury has argued that the tax income will be required to build new community facilities. The infrastructure savings from slowing capital city urban growth were never factored-in however.

Some analysts argue that the gains to the affected regions would be at the loss of the capital cities (and other non serviced regions). The economic analysis is therefore very complex, with offsets for carbon emissions reductions also being relevant. No direct cost benefits analysis to regional tourism has ever been released, but some pundits claim that tourists only have a fixed dollar spend whether they visit capital city or regional attractions. It is a zero sum gain. The current Federal study by AECOM (KPMG, SKM, and Grimshaw Architects) will not include such analysis.

ⁱ Gippsland Development Ltd 1995