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Government Relations Strategy

Australia's High-Speed Rail Network

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Introduction

The first High-Speed Rail, Japan's Shinkansen line, commenced operations in 1964 running at the maximum speed of 210km/ hour. In the six decades since, dense networks of high-speed rail routes operate across Europe and East Asia.

Since the early 1980s, there have been numerous proposals to introduce High-Speed Rail (HSR) to Australia. Air travel dominates the inter-capital travel market, and intra-rural travel is almost exclusively car-based.

The most commonly suggested route for an HSR is between Australia's two largest cities, Sydney and Melbourne, which remains one of the busiest air corridors globally.

HSR infrastructure is exceptionally costly compared to conventional rail systems as upgraded rail tracks are required for speeds exceeding 200 km/h. While there is no single standard applied globally, rail lines built to handle speeds in excess of 250 km/h or upgraded lines in excess of 200 km/h are considered to be 'high-speed'.

Prime Minister Anthony Albanese has long supported an HSR network, releasing the High-Speed Rail Study: Phase 2 Report in 2013, during his tenure as Minister for Infrastructure and Transport. During the 2022 election campaign, Anthony Albanese announced that an elected Labor Government will begin building a High-Speed Rail (HSR) line between Sydney and Newcastle.

This brief chronologises previous HSR proposals and outlines the Albanese government's current initiatives to establish a High-Speed Rail Network in Australia.

Summarised Timeline

Date	Key Event
1979	Feasibility Study into the electrification of the Sydney-Melbourne train line
1982	The XPT enters service in New South Wales
1984	The CSIRO proposes an HSR link between Sydney Canberra and Melbourne
1986	The Very Fast Train (VFT) Joint Venture is established
1990	The VFT Joint Venture is abandoned
1993	Speedrail Pty Ltd, a joint venture between Alstom and Leighton Contractors proposed a Sydney-Canberra HSR line.
1998	Queensland Rail introduces Australia's first pair of tilting trains
July 2011	Phase 1 of the High-Speed Rail feasibility study "Moving Forward with High-Speed Rail" is released
April 2013	Phase 2 of the High-Speed Rail feasibility study "Moving Forward with High-Speed Rail" is released
November 2013	High-Speed Rail Advisory Group is decommissioned
March 2019	National Faster Rail Agency is established

September 2022	The Australian Government introduces legislation to Parliament to establish the High-Speed Rail Authority.
October 2022	The Government commits $500 million towards the Sydney, Central Coast and Newcastle high-speed rail link.

The Early 1980s

Electrification of the Train Line

At the 1979 Premier's Conference, a feasibility study examining the potential of electrifying the Sydney-Melbourne line was commissioned. Electrification allows a train to accelerate faster and thus, proponents believed that travel time could be reduced to 10 hours, saving energy and reducing staff and maintenance costs.

Prime Minister Malcolm Fraser was supportive of the proposal and the Senate Standing Committee on National Resources examined the rationale for the electrification of train lines. However, the electrification proposal was rejected on economic and energy efficiency grounds.

XPT

The New South Wales Express Passenger Train (XPT) was the first High-Speed Train used in Australia.

At the 1976 State election, the incoming New South Wales Labor Government committed to improving country rail services. In 1978, the Public Transport Commission invited tenders for highspeed rail cars with Australian engineering company Comeng as the successful bidder. Comeng's design was based on British Rail's High-Speed Train with the ability to reach speeds of 200 km/h.

The XPT however, was modified for a top operating speed of 160 km/h to account for the condition of the rail tracks and to prevent level-crossing incidents. The XPT entered service in 1982 and is still in operation today.

During a test run in 1992, the XPT achieved a speed of 193km/h which remains one of the fastest speeds recorded on an Australian rail track.

The CSIRO proposal

In June 1984, CSIRO spearheaded by its chairman Dr Paul Wild proposed an HSR link between Sydney Canberra and Melbourne via Cooma, Orbost and the Latrobe Valley.

The train would run at 350 km/h and be based on French TGV (Train à Grande Vitesse) technology.

The initial cost was estimated to be $2.5 billion, with an estimated annual revenue of $120 million against operating costs of $50 million/year. The proposal was found to be uneconomic.

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Very Fast Train

The Very Fast Train (VFT) Joint Venture, established in September 1986, remains the most substantial investment into a high-speed rail project in Australia, and the only proposal to have been completely privately funded.

The Venture was comprised of Elders IXL, Kumagai Gumi, TNT and later BHP, with Dr Paul Wild as the chairman. Their proposal suggested a 350 km/h HSR link from Sydney to Canberra (via Bowral and Goulburn), and a line from Canberra to Melbourne (via Wagga Wagga, Albury-Wodonga, Wangaratta).

The initial proposal included a coastal route via East Gippsland and the Latrobe Valley. However, the route was opposed by numerous environmental groups as the train line would cause significant damage to the fragile coastal ecosystem.

The VFT attracted widespread support from both the general public and sections of government and a feasibility study titled "*VFT – Project Evaluation*" was released in November 1990. It proposed an 854-kilometre inland route (108 km shorter than the existing railway), 1435mm gauge, with a 7 km minimum horizontal radius and a maximum grade of 3.5%. Construction was slated to begin in 1992, taking five years and costing $6.56 billion.

The proposed service would have 30 trains per day in each direction, with the non-stop service offering travel times of one hour from Sydney to Canberra and two hours from Canberra to Melbourne. Additional stations would be located at Sydney Airport, Campbelltown, Bowral, Goulburn, Yass, Wagga Wagga, Albury-Wodonga, Benalla, Seymour and Melbourne Airport.

Several major studies were undertaken in the 1980s, indicating that the proposal was both technically and financially feasible. The Queensland, Victorian and ACT agreed in principle to the VFT proposal and further studies examining the environmental, socio-economic, transport and economic impacts were commissioned. Prime Minister Bob Hawke publicly supported the VFT project stating that it would revolutionise the geographic and demographic aspects of cities on the route.

In May 1990, an interim report tabled in the senate raised doubts about the VFT's construction and operating costs, fare schedule, passenger demand and environmental impact. In August 1990, it was reported that the joint venture was seeking tax concessions from the government, on the grounds that other privately owned transport providers (e.g., airlines and buses) were not expected to pay directly for the necessary infrastructure such as airports and freeways. The Department of Treasury opposed the idea of tax concessions.

Failure to secure a favourable taxation agreement, the deregulation of the Australian airline market, environmental and noise pollution concerns and an escalation in projected costs caused the joint venture to collapse.

Tilt Trains

A *Tilt Train* tilts into corners allowing it to take corners faster than conventional trains.

In 1990, the NSW and ACT Governments sought expressions of interest to develop a tilt train service between Sydney and Canberra. In 1995, an X2000 tilt train, manufactured by Asea Brown Boveri in Sweden was trialled by the NSW State Rail Authority in regional areas. While the speed improvement over the existing timetable was modest, track improvements and deviations would cost in the order of $500 million. The ACT Government chose to explore other proposals for faster rail.

Throughout the 1990s, the NSW Government continued to explore the option of tilt trains on inter-urban corridors such as Sydney - Newcastle. Ultimately, conventional trains were found to be preferable to tilt trains.

In 1994, The Queensland Government signed a $6.2 million contract with a Maryborough company to build a tilt train to run on the newly upgraded rail link between Brisbane and Rockhampton. Queensland Rail introduced Australia's first pair of tilting trains in 1998, reducing travel times by approximately twenty per cent. The tilt train service remains operational in Queensland.

In 1999, during a trial run, where the tracks were specifically modified for the trail, Queensland's Tilt Trains set an Australian train speed record of 210 km/h. It remains the only time a train in Australia has exceeded 200 km/h.

Speed Rail Proposal

In 1993, Speedrail Pty Ltd, a joint venture between Alstom and Leighton Contractors proposed a Sydney-Canberra HSR line. The proposal was similar to the VFT proposal, except that it was confined to the Sydney-Canberra corridor and did not seek changes to the tax law or tax concessions.

The Federal and ACT governments backed the proposal, announcing a jointly funded feasibility study into the Speedrail proposal. In November 1999, Speedrail submitted a feasibility study to the government, claiming that the project satisfied all the government's requirements.

It was predicted that construction would cost A$3.5 billion, creating 15,000 new jobs during the construction period. The line would use the East Hills line to depart Sydney, and then follow the Hume and Federal highways into Canberra.

Nine eight-car trainsets would be used, departing from each city at 45-minute intervals, and running at a maximum speed of 320 km/h to complete the journey in 81 minutes. The line would run under a build–own–operate model, that would allow the private company to manage the network, but would then be transferred to the government after 30 years.

However, the federal government terminated the proposal due to fears it would require excessive subsidies.

Moving Forward with High-Speed Rail

In August 2010 then Minister for Infrastructure and Transport Anthony Albanese announced a $20 million High-Speed Rail feasibility study. The study was undertaken in two phases:

Phase One Report

Phase 1, published in July 2011, identified a short list of corridors and station options and estimated preliminary costs and demand for HSR on the east coast of Australia.

The key findings of the Phase One preliminary study were that an east coast HSR network would:

- Cost between $61 billion and $108 billion to build and involve laying more than 1,600 kilometres of new standard-gauge, double-track.
- Achieve speeds of up 350 kilometres per hour and offer journey times as low as 3 hours from Sydney to Brisbane, and just 40 minutes from Sydney to Newcastle.
- Carry around 54 million passengers a year by 2036
- Cut carbon pollution, with emissions per passenger a third of what a car emits

The following regional areas were identified to have sufficient size and demand to warrant a regional or parkway HSR station:

- Brisbane to Newcastle: Gold Coast, Far North Coast, Northern Rivers, Mid North Coast
- Newcastle to Sydney: Central Coast
- Sydney to Canberra: Southern Highlands, Illawarra
  Canberra to Melbourne: Riverina, Murray, Goulburn Valley

Phase Two Report

Phase 2, published in April 2013, built on Phase 1 but was considerably broader and deeper in objective and scope, refined many of the Phase 1 estimates, particularly demand and cost estimates.

The report found that:

- The HSR network would comprise approximately of 1,748 kilometres of dedicated rail routes with four city centre stations, four city-peripheral stations (one in Brisbane, two in Sydney and one in Melbourne) and 12 regional stations.
- The estimated cost of constructing the preferred HSR alignment in its entirety would be about $114 billion (in 2012 terms)
    - $64 billion between Brisbane and Sydney
    - $50 billion between Sydney, Canberra and Melbourne.
- 83.6 million passengers per year by 2036 were forecast to use HSR services
    - If passenger projections were met the HSR would generate sufficient fare revenue to meet operating costs without ongoing public subsidy.
- The optimal staging for the HSR program would involve building the Sydney-Melbourne line first, starting with the Sydney-Canberra sector.

In April 2013, at the release of the HSR Phase 2 study, the High-Speed Rail Advisory Group was announced. The advisory group was to advise on key industry and community issues arising out of the HSR Phase 2 study.

In November 2013, the High-Speed Rail Advisory Group that was undertaking the planning of the HSR between Brisbane and Melbourne was wound up as part of the newly elected Abbott Government's efforts to cut costs.

The Government did, however, acquire the land corridor identified by the previous government's study.

National Faster Rail Agency

In March 2019, the Australian Government released the Faster Rail Plan, which focused on improving the speed of rail in key travel corridors (although not necessarily through HSR).

The National Faster Rail Agency was established as an Executive Agency within the Infrastructure, Transport, Regional Development and Communications portfolio.

The Government allocated $40 million to the Agency to assess the viability of upgrading five fast rail corridors:

- Sydney to Wollongong
- Sydney to Parkes (via Bathurst and Orange)
- Melbourne to Albury-Wodonga
- Melbourne to Traralgon
- Brisbane to the Gold Coast

These assessments were in addition to the three business cases already underway, started under the Turnbull government, examining the following corridors:

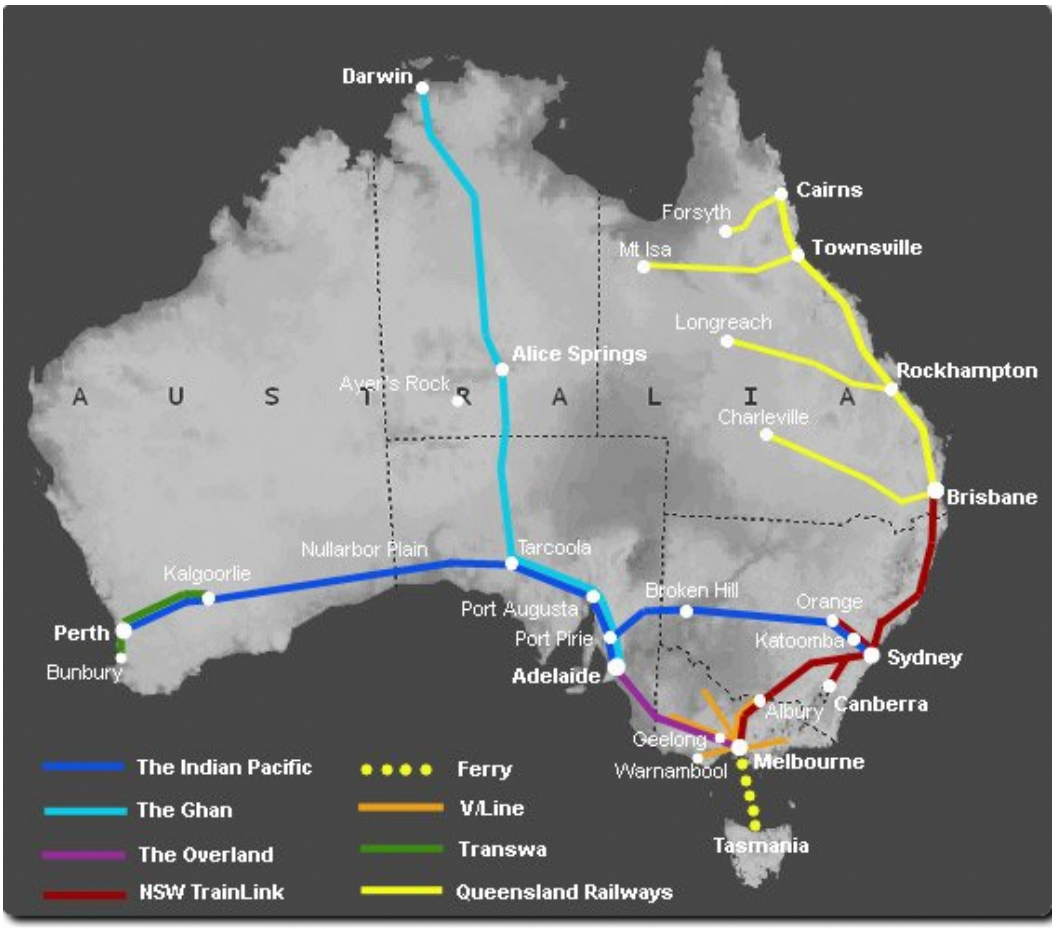
- Melbourne to Greater Shepparton
- Sydney to Newcastle
- Brisbane to the regions of Moreton Bay and the Sunshine Coast

In April 2022, the National Faster Rail Agency published the *National Faster Rail Investment Program*.

The document explained that as of 2022, their cost estimate for the Melbourne-Sydney-Brisbane HSR corridor was between $200 and $300 billion - significantly higher than the $114 billion cost outlined in Phase 2 of the High-Speed Rail Study - due to reasons including that:

- Recent costings show substantially higher cost per kilometre,
- Concerns were raised over terrain, community acceptance, environmental degradation and industry capacity,
- Previous costings were high level, based on broad plans, had an insufficient contingency and were not detailed.

Current Rail Routes



Major Rail Routes	Duration	Distance
The Indian Pacific (Sydney to Broken Hill)	16 hrs	1125 km / 703 mi
The Indian Pacific (Sydney-Adelaide-Perth)	65 hrs	4352 km / 2720 mi
The Spirit of the Outback (Brisbane-Longreach)	24 hrs	1326 km / 828 mi
The Westlander (Brisbane-Cunnamulla-Quilpie)	22 hrs	998 km / 623 mi
The Ghan (Adelaide-Alice Springs-Darwin)	47 hrs	2979 km / 1862 mi
The Ghan (Adelaide-Alice Springs)	20 hrs	1555 km / 972 mi
The Inlander (Townsville-Mount Isa)	19 hrs	977 km / 610 mi
XPT (Sydney-Brisbane)	14.5 hrs	987 km / 617 mi
The Overland (Adelaide-Melbourne)	10.5 hrs	828 km 517 mi
XPT (Sydney-Melbourne)	10.5 hrs	961 km / 600 mi
EXPLORER (Sydney-Canberra)	4.5 hrs	326 km / 204 mi
Spirit of Queensland (Brisbane - Cairns)	25 hrs	1681 km / 1051 mi
TILT TRAIN (Brisbane - Rockhampton)	7 hrs	796 km / 498 mi

The Albanese Government

During the 2022 election campaign, Anthony Albanese announced that an elected Labor Government will begin building a High-Speed Rail (HSR) line between Sydney and Newcastle.

The Sydney-Newcastle line will be the first of a much larger network of fast rail between Melbourne, Canberra, Sydney, Newcastle, and Brisbane. The fast rail route will deliver speeds of over 250km/h and is expected to cut travel time from Sydney-Newcastle to 45 minutes, down from the current two and a half hours.

The Government has committed $500 million in the May 2022 Federal Budget to begin corridor acquisition, planning and early works.

High-Speed Rail Authority (HSRA)

In September 2022, the Australian Government introduced legislation to Parliament to establish the High-Speed Rail Authority. The explanatory memorandum can be accessed here.

The HSR Authority will be overseen by a Board, drawn from experts in the rail and infrastructure sector and is designed to provide independent advice to the federal, state and territory governments on high-speed rail planning and delivery.

Faster rail will continue under the HSRA, with the functions of the National Faster Rail Agency absorbed into the HSRA and the Department of Infrastructure, Transport, Regional Development, Communications and the Arts.

Potential Route

As yet, the route of an east coast HSR line is not finalised and is likely to be one of the HSRA's key priorities. Previous plans have often focussed on a Melbourne-Canberra-Sydney-Brisbane route, which would necessitate the involvement of the Governments of Victoria, the Australian Capital Territory, New South Wales, and Queensland in the project's development.

Environmental Impacts

Long-distance travel, currently mainly served by aviation, is one of the more challenging sectors to decarbonise.

The International Energy Agency and International Union of Railways estimate that the energy usage of HSR is about 90% lower than aviation per passenger kilometre. It is likely that renewable electricity will be used to power HSR further reducing emissions.

While HSR seems to be a low-emissions alternative to air travel, The Grattan Institute found that for a period of between 24 and 36 years, during the construction of the project, emissions would increase. An HSR rail line can also be expected to have local environmental impacts in the areas that it passes through.

Support for High-Speed Rail

Infrastructure Australia, the nation's independent infrastructure advisor, has advocated for governments to engage in the protection and early acquisition of key infrastructure corridors.

Infrastructure Australia Chairman, Mark Birrell has identified the east coast HSR corridor as the "most urgent priority for protection". This is due to the corridor's proximity to major population centres.

Corridor protection and early acquisition can reduce the costs of major projects and minimise the need for underground tunnelling.

Infrastructure Australia's *2021 Australian Infrastructure Plan* recommends that the Australian Government invests in faster rail, fast rail and high-speed rail infrastructure. It is also recommended that the Commonwealth takes the lead on confirming the long-term interoperability requirements for fast rail, faster rail and high-speed rail lines that cross state and territory borders. This will ensure consistency across jurisdictions on technical standards for tracks, operator training and communication and signalling systems.

In 2020, the Greens' *Invest to Recover* plan committed to a 'fully publicly owned high-speed rail connection from Melbourne to Brisbane'. Prior to the 2019 election, the Australian Greens in their policy document, World Class Public Transport, pledged to establish a High-Speed Rail Authority and provide $1.6 billion in funding 'to cover the first four years of expenses.

State and Territory Governments

State and territory governments will be critical to any development of an HSR network in Australia.

While HSR is not specifically mentioned in the Victorian, New South Wales and Queensland's respective Infrastructure Strategies all three states are currently undertaking projects to improve speeds on regional rail networks.

New South Wales Government

In 2018, the NSW Government commissioned Professor Andrew McNaughton, a British rail expert, to produce a report on four possible faster and high-speed rail routes:

- Sydney south to Wollongong and Nowra
- North to the Central Coast and Newcastle
- West to Lithgow, Bathurst and Parkes
- South-West to Goulburn and Canberra.

His report has not been released publicly.

The NSW Government committed $500 million for faster rail in the 2022 budget, conditional on $500 million in matched funding from the Commonwealth Government.

The funding will go to the first stage of the Northern Corridor, helping build two new electrified rail tracks between Tuggerah and Wyong, new platforms and station upgrades, new bridges including over the Wyong River and safeguarding future fast rail connections to the north and south.

Site investigations as part of the project are scheduled to commence by the end of the year.

Victorian Government

The Victorian Government has already delivered significant improvements to its regional rail networks. The Australian and Victorian governments have invested more than $4 billion in the Regional Rail Revival program which has included purchasing new VLocity trains that enable speeds of up to 160km/h.

Queensland Government

The Queensland Government, in preparation for the Olympics in 2032, has begun planning upgrades to their South East Queensland Routes to connect the Gold Coast, the Sunshine Coast and Toowoomba to the Brisbane CBD in under 45 minutes.

ACT Government

The Australian Capital Territory Government's website states that it has 'commenced corridor preservation for a high-speed rail service into the ACT and will reflect this in its future planning.'

Further Information

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