Prospects for High Speed Rail in Australia

Peter B. Thornton

Summary: High Speed Rail has been under consideration in Australia in various ways since the mid 1980's. Several private sector proposals to develop a high speed rail project have failed. The national government investigated the matter of High Speed Rail in a study in 2001 – a presentation on this was given by the Author to the EurailSpeed conference in Madrid in 2002. Since then, no further action has been taken by government to consider HSR. However, interest in HSR is re-emerging, particularly with the
National government starting to take an interest in the population and demographical structure of Australia and with capacity problems emerging on major rail corridors in and out of Australian cities, especially Sydney. As a re-election commitment, 2010, the Commonwealth Government of Australia announced a $20 million study would be undertaken of the east coast corridor linking the 3 largest cities in Australia, with a focus on the Sydney - Newcastle corridor.

Index Terms: Australia; High Speed Rail, East Coast Corridor; Sydney - Newcastle.

1. BACKGROUND AND HISTORY[1]

The recent history of Very High Speed Trains (VHSTs) in Australia dates back to 1981 when the notion was canvasses by the Institution of Engineers. Later in, 1984 a private sector consortium put a proposal to Government to build, own and operate a VHST system between Sydney and Melbourne via Canberra. This proposal was known as the Very Fast Train (VFT). The consortium developed its proposal over a number of years and, in doing so, raised community interest and expectations in respect of the possibility of a VHST on the East Coast of Australia. This project was unable to develop a viable business case and the proposal lapsed.

In 1993, interests which had been associated with the VFT, with the significant addition of the TGV rolling stock manufacturer of TGV rolling stock in France formed the SpeedRail Consortium to address the shorter Sydney to Canberra corridor and following sustained promotion by SpeedRail, the Prime Minister announced in December 1996 that the three Governments would proceed with a competitive tender process and seek expressions of interest from the private sector to create this service.

On the 9th of April 1998, four consortia lodged detailed submissions to build own and operate a high speed rail service between Sydney and Canberra, in response to a Brief which stated that, inter alia, bidders should offer a system which would be at "no net cost to the taxpayer and the proving up by a preferred tenderer of commercial viability of the project.". It can be fairly assumed that they were totally committed to delivering a system in the event they could secure Government's mandate.

It is significant that in large measure the offers were essentially driven by two types of companies:

- Rollingstock manufacturers; and
- Civil engineering contractors.

While all consortia had organizations identified to become the service operator, it is significant that these organizations were not the primary drivers of

[1] For a complete account of HSR studies and proposals to 2000 see Reference [1]

the bid. In this regard, the proposals were very different to other service or industrial enterprises where the long term operator of the business determines the strategy needed for success.

- Two were essentially similar, were based on using proven tilting trains operating at speeds of 200-250 km/h and proposed substantial but targeted upgrades to the existing infrastructure to achieve travel times around 2 hours;
- One was based on proven French TGV technology and would have required a wholly new alignment from the outskirts of Sydney to enable such rolling stock to sustain 300km/h – 350 km/h required to reliably deliver travel times of around 80 minutes;
- The fourth was based on magnetic levitation technology, proven at test track level but not in commercial operation requiring a wholly new form of guideway totally independent of any existing transport form in order to sustainably operate at up to 500km /h and to deliver transit times of 60 minutes.

The Commonwealth Government selected the 350 km/hr proposal. But after a "proving up" period, it was ultimately rejected due to the degree of public capital funding or concessions needed – it failed the no net cost to government test. Significantly, none of the other bidders was subsequently invited to attempt to prove up its business case.

Following the failure to proceed with any of the bidders for the Sydney – Canberra HSR project, the Commonwealth Government decided to commission its own study into HSR [1]. The key findings of this study were presented in references [5] and [6] and are summarized in Section 3 later herein.
In 2009 the Cooperative Research Centre for Rail Innovation undertook [7] a project to update the information available about HSR in order to encourage renewed consideration of HSR in the Australian context. Concurrently, the Australasian Railway Association undertook a sustained campaign of reigniting interest in HSR and other lobby groups [8] have also produced research reports arguing the case for HSR in Australia

While in the 1980's the High Speed Rail (HSR) focus was on the Sydney – Melbourne VFT proposal and then in the late 1990's on the Sydney – Canberra VHST project, other studies on HSR were taking place, such as those commissioned by agencies of the State of New South Wales which examined the potential for upgrading the line from Sydney to Brisbane (and subsectors of this route such as Sydney – Newcastle)) and the use of high speed trains.

In fact, the then Minister for Transport in NSW announced in 1998 that "*A $800 million high speed rail link from Hornsby to Newcastle the first stage of which would be completed by 2007 with further work to Newcastle commenced by 2010.*"

Studies such as those in references [2], [3] and [4] were undertaken from 1999 to 2000, and were followed by more detailed prefeasibility and feasibility studies to examine the means of upgrading the Sydney-Newcastle alignment in order to deliver improved travel times for this important commuter corridor.

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2. AUSTRALIAN REALITIES

Previous studies and proposals have shown that, while there is always considerable public interest and enthusiasm for the concept of HSR in Australia, there is equally always a tendency to overlook some of the basic realities.

2.1 Population Reality

Australia's 22 million population is already small by the standards of other similarly sized nations installing HSR and 60% of it is in the East Coast corridor strung out over nearly 2000 kms and with roughly 45% concentrated in the State capital cities: Melbourne, Sydney and Brisbane.

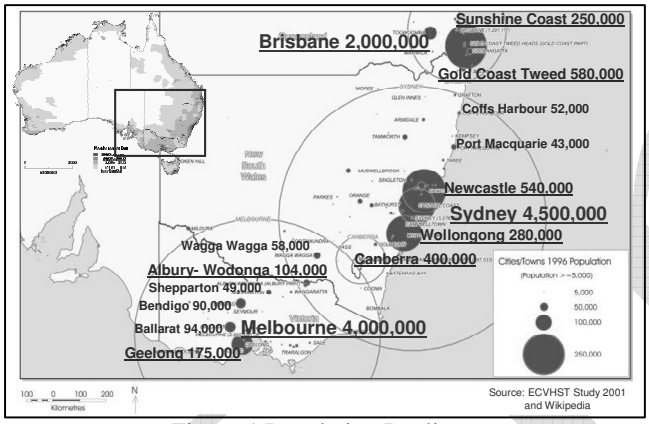


Figure 1 Population Reality

In the vicinity of each these capital cities there are region cities, of which the largest are the Gold Coast near Brisbane and Newcastle near Sydney.
In between, there is the National Capital, Canberra, with 400,000 in its region and a number of towns of up 100,000 and a few of around 50,000.

Such non capital city populations are small in comparison to locations where HSR has been constructed to date.

By Australian standards significant growth of population has been forecast, up to 35 million. The key issue is whether this growth will just be added to capital cities or will be actively encouraged to redistribute to regional cities.

For example, Sydney is forecast to grow at twice the rate of the rest of the State to a population of 6 million by 2036[7].

The question of how future population is to be distributed through the East Coast is critical to the viability of an HSR. Equally critical is the question of whether HSR can be the catalyst for regional growth.

2.2 Geography Reality

A full East Coast HSR project, undertaken in one project would be a monumental undertaking by any global standards and far more than has ever been attempted previously except till now perhaps in China. As it must pass through Sydney and Canberra and cannot align "as the crow flies", it will end up closer to 1800 km in length. More typically, start up HSR projects in the past have been around 200 – 250 km and even then often delivered in stages. A realistic way to start would be to plan for the whole corridor but identify discrete shorter sectors which can be delivered as initially standalone operations but later be connected.

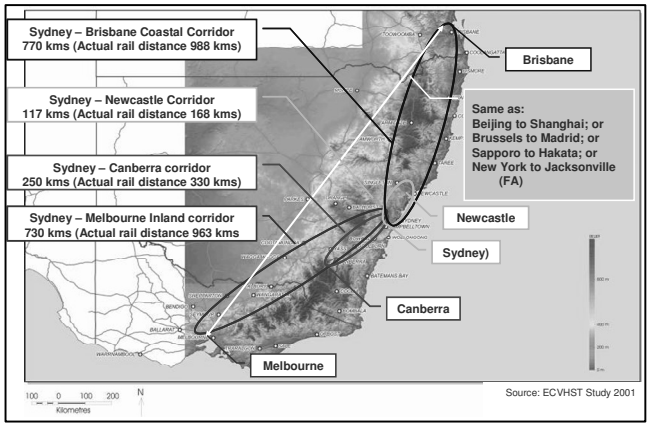


Figure 2 Geography Reality

Despite Australia's reputation as the world flattest continent, the East Coast happens to be the most mountainous strip of it. As result, geographic conditions are more likely to resemble those in

Spain than those in France or Germany though alignments would probably not be as expensive as Korea or Chinese Taiwan.

2.3 Investment reality

What made the Sydney – Canberra VHST tender process unique in the world was that four consortia developed four entirely different business cases to put forward to Government.

This is in complete contrast to other national interest projects where Government has established a well considered view on what is needed and seeks to engage the private sector to efficiently deliver that view.

Based on press reports, it was possible to draw the right hand part of Figure 3. From this can be seen that the four different propositions produced an interesting cost effectiveness curve, which shows the exponentially increasing cost of going faster and reducing travel time.

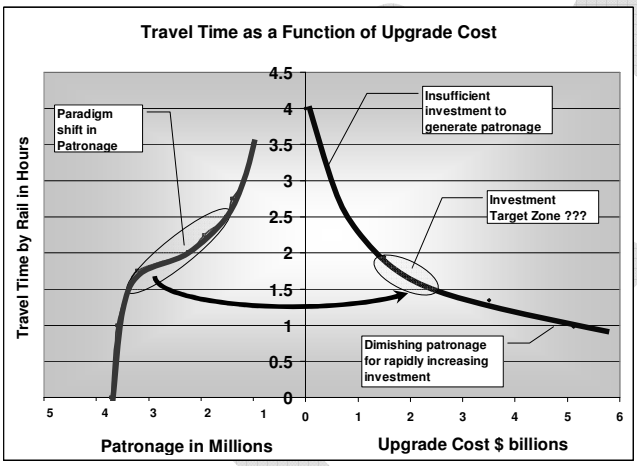


Figure 3 Investment Reality (AU$ in 1998)

On the left hand side is the predicted response of patronage to saving time. One consortium found that, unless the existing time is cut in half on this 300km corridor, there would be little increase in patronage; between 2hours and 1.5 hours there is a major jump in patronage but below 1.5 hours there is little additional patronage to be gained.

The reality here is that there may be an optimal investment zone for this corridor to create an HSR service which is faster than 2 hours but which does not need to be faster than 1.5 hours to be successful. This means that capital investment in infrastructure can be more targeted on corridor subsectors which deliver the best travel time improvements while some existing sections of track may continue to be useable.

3. THE EAST COAST VERY HIGH SPEED TRAIN STUDY 2001

The brief for this study was clear – it was to be a reality check on the whole HSR issue and it was to take the perspective of the Government as the investor, or in other words take a national interest perspective. Most importantly, it was not an advocacy study – it needed to lay out the facts about HSR without proselytizing it or proposing one technology or another.

The full report is available as reference [1] and discussed in [8] and [9] but in summary the report found, inter alia, that:

- An ECVHST would capture a significant part of the future total travel market;
- In shorter range corridors (eg using a mix of existing track and major deviations even 250 km/h technology would perform well;
- in short range corridors, HST would capture 80% of the air-rail market regardless of whether it was 250 km/h or 500 km/h;
- In the longer range corridors it would capture between 25% and 50%;
- In the very long range corridors from 15% to 30% - which is in fact better than predicted by the then empirical evidence;
- 350 km/h to 500 km/h technology would be needed in long range purpose built alignments - but even these would still not be a match for air travel times;
- It would cost in AU$ of 2000 and depending on the technology chosen, AU$32 to AU$59 billion for full project;

- It would need around 80% - $85% Government funding to allow the private sector to get an adequate return on its equity.
- It would deliver a broad spectrum of economic benefits such as:
  - It could assist in broad goals of regional accessibility;
  - replacement of air travel in small commuter style aircraft; improved connectivity of urbanization;
  - transport safety by shifting people onto rail and out of cars;
  - reduce oil dependency and;
  - reduce vehicle kilometres travelled outside cities;
- Of all the subsectors, the Newcastle – Sydney – Canberra sector had the best startup economics;
- Any HSR project would need to be commercial, stageable and extendable.
- Fundamentally, the Government would need to find "big" national reasons for HSR to proceed;

The majority of benefit accruing from the project remains the revenue and the consumer surplus with externality economic benefits being only about 10% of total benefits – showing just how important an improved service to customers is in overall scheme of things.

A significant finding was that the economics of HSR projects which traversed Sydney were better than those which began or ended in Sydney. This can be interpreted as resulting from travel opportunities for which there is no air travel and for which HSR is superior to car or other modes.

The key final messages from the study were that HSR was unlikely to be back on the agenda in Australia until there was:

- "*a new paradigm of development, mobility and transportation connectivity*" on the East Coast of Australia; and
- *"political vision and leadership, and long-term bipartisan political commitment"*.

That is, until there was a strong political and governmental view about what Australia is going to look like in the 21st century and what systems it will need to operate successfully in this key economic zone of the country.

4. NATIONAL REASONS FOR HSR

Congestion on existing systems – road, rail and air - has been the fundamental driver in initiating all HSR projects although as the following cases show there are always bigger "national interest" issues which are quickly wrapped around them and which have become a part of the overall rationale for Governments committing to resolving those congestion problems.

- Japan – efficiency of travel along a national economic spine and reduced urban pressures;
- France – energy efficiency and capacity;
- Germany – better mobility, capacity and reunification;
- And now China – capacity, regional development and national integration;

The impetus for an Australian HSR will not come from engineering and technical proposals whatever their merits – these matters are now well known and Australia's technical capacity to deliver major rail projects is not in question. It must come from holistic view about population distribution and mobility. - in fact an amalgam of all of the "big national reasons" which other nations have used to justify their investment - in the Australia context and in a corridor under capacity pressure, in order to build a business case for HSR.

5. RECENT EVENTS IN AUSTRALIA

Fifteen years ago, Australian Federal and State Governments did not have a transport policy which embraced HSR – they were reacting to private sector proposals – competition between the States on an "if them, then us too" basis was

rampant and proposals were pushed on the basis of "my technology is better than yours".

The Governments still do not have a transportation policy as such which firmly commits to HSR but there is active political interest in further investigating HSR. Prior to the recent Federal Election in August the then Minister for Transport said *"A re-elected Gillard Labor Government will undertake a detailed feasibility and corridor study to determine the economic viability of, and identify potential routes for, a high speed rail network on the east coast of Australia"* This was immediately matched by the Liberal National Coalition.

After the election, he said the now Government *"would allocate $20 million into a high-level feasibility study for the eastern seaboard corridor, concentrating on the Sydney to Newcastle route."* Most importantly in forming Government with the Australian Greens Party – who are active promoters of HSR – negotiations concluded that *"The Australian Greens & The Australian Labor Party (The Parties) – Agreement 6. Policy c) That an implementation study for High Speed Rail should be completed by July 2011"*

Additionally, the New South Wales State Government – through whose territory any East Coast HSR project would be dominantly located has shown renewed interest in HSR., announcing that [7]:

"Five long–term transformations consistent with this 'Connecting NSW' theme are as follows.
1. Fast Rail
The Illawarra, Lower Hunter and Central Coast regions will be connected to Sydney by fast rail services. These services will enhance the economic integration of the Greater Metropolitan Region (GMR). Wollongong, Newcastle and Gosford are the key Regional Cities for these rail services and will be the focus for development and regional interchanges. CBD to CBD travel between Sydney and these cities will be faster by rail than by car. These services will be part of a new high speed train network connecting Sydney with Brisbane, Canberra, Melbourne and Major Regional Centres along the north coast. This fast rail network successfully competes with air services. Inland NSW will be more connected to Sydney with a fast rail link to Bathurst. Within Sydney, key interchanges will provide seamless integration with the urban public transport system."

There is now also an established process for evaluating and prioritizing infrastructure projects of national significance and HSR is on the list of matters to be given consideration. Criteria adopted for assessing the relative merit of alternative options for national investment in infrastructure are shown in Figure 5.

TABLE 2
PRIORITY PROJECTS AGAINST THE NATIONAL STRATEGIC PRIORITIES

IA'S NATIONAL STRATEGIC PRIORITIES
1. EXPAND AUSTRALIA'S PRODUCTIVE CAPACITY
2. INCREASE AUSTRALIA'S PRODUCTIVITY
3. DIVERSIFY AUSTRALIA'S ECONOMIC CAPABILITIES
4. BUILD ON AUSTRALIA'S GLOBAL COMPETITIVE ADVANTAGES
5. DEVELOP OUR CITIES AND REGIONS
6. REDUCE GREENHOUSE EMISSIONS
7. IMPROVE SOCIAL EQUITY AND QUALITY OF LIFE, IN OUR CITIES AND OUR REGIONS

Figure 5 National Strategic Priorities

It is clear then that at the very least there will a new study into HSR on the eastern seaboard of Australia, with a focus on the very key transport corridor of Sydney to Newcastle.

However, most recently, Bureau of Infrastructure, Transport and Regional Economics, an agency of the Commonwealth Government has released a Briefing Paper [10] which summarizes HSR in other locations and discusses some of the key

issues in considering the viability of HSR including:

- The impetus for HSR normally should come from government;
- Substantial public funding is required and PPP's are not likely to be successful alone;
- The threshold for HSR viability is around 6 million trips per annum;
- Track upgrading in existing corridors is an important strategy in conjunction with new alignments;
- Interstate distances in Australia make intercapital routes on the "cusp' of commercial viability even at 350 km/h operation;

6. THE SYDNEY- NEWCASTLE CORRIDOR

The railways emanating from Sydney and Newcastle were originally completely separate. The Main Northern rail line which linked them was constructed in two distinct stages and in the earliest years, was worked as two separate railway systems.[11], [12] The line between Strathfield in Sydney and the Hawkesbury River was opened in April 1887 and that between Gosford and Islington Junction, Newcastle in August 1887. The first Hawkesbury River Railway Bridge which linked the two parts was completed in 1889 and was a major engineering undertaking being the fourth largest bridge constructed in the world with caisson foundation reached up to 49m below water level. The bridge was totally replaced with a similar construction in 1946.

Today the key features of the corridor are:

- It is part of heaviest freight and commuter corridor in Australia;
- It is a multiuser corridor with Newcastle and Sydney all stops suburban operations; Newcastle/Sydney Interurban; long distance passenger; intermodal/general freight and coal operations all coexisting;
- It is mostly double track with short sections of triple and quad track;
- It carried over 36000 passengers every day with a strong bias of commuter traffic to and from Sydney;
- Its practical useable capacity for freight is only16 paths per day each way as freight is excluded from passenger peak hours;
- It is 168 kms long with 1 in 40 grades; and minimum curvature 240 m, electrified at 1500V dc (though freight is diesel hauled);

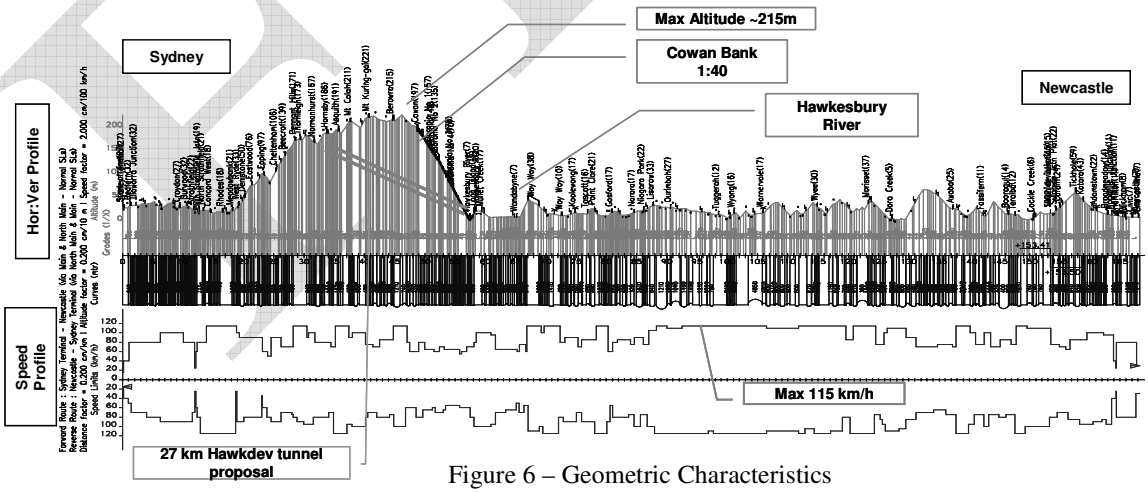


Figure 6 – Geometric Characteristics of the Sydney Newcastle Railway

- It has 8 tunnels totaling 3.8 km in length and with the longest being 1.8 kms;
- Two major bridges - over the Parramatta River and over the Hawkesbury River;
- There are 52 Stations with much of the major urban development in the corridor having occurred close to these stations

The F3 Sydney - Newcastle Freeway which runs in essentially the same corridor as the railway is itself under capacity pressure in the commuter peak periods and on public holidays. The lack of any other major freeway standard road running north from Sydney makes this route very vulnerable to accidents such as that this year which caused a 15 hour delay.

Additionally, this road does not yet connect to the Sydney Orbital route, though a proposal to achieve this at cost of $4.75 billion by 2018 is under consideration.

North of the Hawkesbury River and continuing up to Newcastle is the Central Coast Region, one of the strongest growth areas in the State of NSW, due to its lower housing costs and high quality environment. Once dominated by retirees, the region now also acts as a dormitory for Sydney and Newcastle and generates substantial traffic on both the freeway and railway systems.

Figure 7 The Hawkesbury River with the Freeway in the foreground and railway in the background

This rail corridor is a key part of the national, interstate container freight system and carries about 1.7 million tonnes per annum. This is forecast to rise to 5 million by 2018 [9] due both to growth in traffic and also a shift from road to rail. This growth cannot be accommodated within the infrastructure and operational patterns of the existing railway.

7. STUDIES IN THE SYDNEY NEWCASTLE CORRIDOR

Since 1996, the Sydney - Newcastle corridor has been the subject of extensive studies for both passengers and freight. Some of these are identified in the References and Bibliography as [2], [3], [4] and [9].

The objective in these studies generally has been to identify those infrastructure improvements in the form of major and minor deviations, essentially in the same corridor, by which passenger times could be reduced by 20% (say 29 – 34 minutes). The performance of all current forms of train was assessed together with tilting trains up to 250 km/h. In view of the mountainous terrain and the extensive National Parks and urban areas abutting the corridor, many of the proposed deviations had to be in long tunnels, though a series of short tunnels would be preferable for fire and life safety reasons. In places, former railway alignments were able to be used. Alignment standards were proposed to be minimum 1250 m horizontal curves and all 1:40 grades eliminated or eased to better than 1:60.

These studies showed that, if able to run on their merits, high speed tilt trains could deliver better that the 20% target time savings with savings of up to 35 minutes on a minimal infrastructure upgrades and 45 minutes on a greater level of expenditure.

Several further studies, including [4], up to 2002 examined the alignments more closely particularly in regard to identifying tunneled alignments, including one up to 27km in length.

The Sydney – Newcastle corridor was also examined as a part of the East Coast Very High Speed Train Study in 2001[1]. Some specific findings were that:

- A new HSR alignment suitable for operation at 250 – 350 km/h would cost of the order of ~ AU$ 5 – 8 billion;
- It would carry 4.5 million trips p.a. by 2021;
- Revenues of AU$80 million p.a. could be generated by 2021;
- User benefits would exceed AU$20 million p.a. by 2021;

However, the economics of a Newcastle – Sydney HSR as a standalone project are not as good as a Newcastle – Canberra project which traverses Sydney.

Until recently the Commonwealth Government's major interest in the Sydney - Newcastle Corridor has been in respect of improvement of freight performance. Australian Rail Track Corporation has set the objective of 4 freight paths per hour 24 hours a day, 7 days a week – a massive increase over the existing traffic; reliability of 88% to 98%; and freight transit time reduced by 1 hour to 2.5 hours; while also generating incidental additional paths for passenger rail;

The Northern Sydney Freight Corridor Proposal [13] is a program of surface improvements and additions to the existing rail corridor to create the required capacity, with the total outturn cost over 13 years from 2010–11 being $7.9 billion[2] (2010) including:

- Stage 1 completed by 2015–16, AU$1.2 billion;
- Stage 2 2012–13 to 2018–19, AU$3.5 billion; and
- Stage 3 2016–17 AU$3.2 billion

The benefits are expected to be [13]:

- Step improvement in freight capacity;
- Meet growing demand for rail freight transport for the next 30 years
- significant benefits for the productivity of the Australian economy as a whole;
- Reduction of freight transport costs of $210 m per annum by 2021 from road to rail switch, with benefits of improved transport reliability to industry over $100 m per annum by 2023;
- decreasing greenhouse gas emissions and road accidents."

The forthcoming HSR study to be commissioned by the Commonwealth Government will need to closely consider the interaction with the existing railway and the proposed Northern Sydney Freight Corridor upgrades to it.

8. FORM OF A FUTURE HSR PROJECT

Without preempting the forthcoming study, some observations about what form an Australia HSR project may take follow and are necessarily those of the author alone.

By specifically identifying the Sydney – Newcastle corridor as its starting place, the Commonwealth appears to have recognized the arguments presented in the East Coast Very High Speed Train Study and, as advanced by others [5], [6], that HSR has to start as an interregional project in a sector of greatest current and future population density. Once commercial success is achieved there, consideration can be given to continue to on ultimately link the three major east Coast cities. Necessarily, the full corridor should be planned to a sufficient level to allow corridors beyond the Sydney-Newcastle to be identified and protected at compatible standards of HSR alignment design and suitable for an ultimate line speed of at least 350km/h. Even trains operating at around 250 km/h would deliver major benefits in the Sydney - Newcastle corridor though higher speed capability would be needed as the system increased in length.

In technology terms, it seems more likely than not that an Australian HSR would adopt Steel Wheel on Steel Rail (SWSR) technology for the same

[2] A very substantial part of this budget is for a 27 km base tunnel to provide an alternative route to the Cowan bank

reasons as European and Asian nations, China particularly, and as it appears the USA will also do. The benefits of this are that where appropriate and technically viable, the investments in existing corridors or stations infrastructure can be taken advantage of and integrated into the system. This will allow an HSR project to be staged in a similar manner to the way the freeway system has been developed with sectors of maximum priority being built first and connected to the existing system as needed. It would also seem more likely that an open architecture technology and "common of the shelf" approach somewhat like that taken in Spain would be adopted. Another model that Australia should consider is the new Botniabanan in Sweden– it is a 190 km long, essentially single track electrified railway capable of operating 30 tonne axle loads and both HSR passenger trains to 250 km/h together with 120/km/h freight trains with ERTMS Level 2. The duality of capability may delivery the sort of economics which an Australian Government would find attractive.

While an Australian HST system now seems more likely to start in the Sydney - Newcastle corridor, its southern extension to Canberra would need to follow soon thereafter. This would put in place a system which traverses Sydney and, as had been shown, would open up interregional travel opportunities which to date can only be efficiently made by car. Such an HSR would also need to connect with the future airport system in this region to maximize interlining.

Beyond this there are two other major growth conurbations in the East Coast corridor:

- a corridor from Geelong, southwest of Melbourne and traversing Melbourne to Albury; and
- a corridor from the Sunshine Coast north of Brisbane, traversing Brisbane to the Gold Coast and Tweed Shire.

In fact, railways already exist in these corridors[3], though at differing gauges and not interoperable. In each case, it is possible to provide connections to airports.

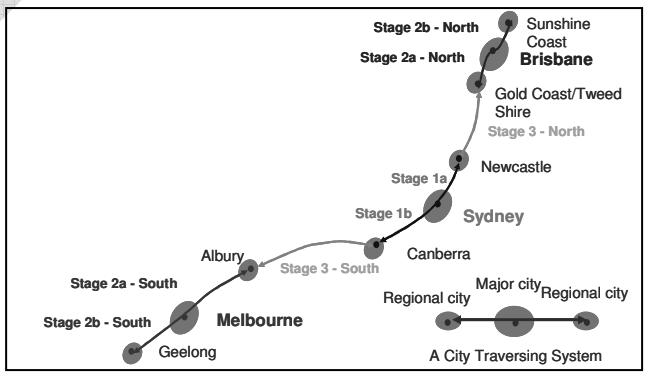
These major city traversing systems can immediately be connected to the existing standard gauge system which would allow the existing and future diesel long haul intercapital trains to obtain the benefits of the newer electrified HSR alignments. Later, those existing alignment sectors can be in filled in stages to complete the East Coast HSR system as shown in following figure.

Figure 8 Staging of an East Coast HSR System

9. CONCLUSIONS

There is renewed interest at all levels of the community in recommencing investigations into HSR in an Australian context. The Sydney – Newcastle corridor already exhibits many of the characteristics and issues which have been the basis for other governments to decide to create new HSR railways.

Most importantly, there is clear multilateral political support and HSR is being approached and will be assessed in the context of national goals



such as:

[3] The State of Victoria developed the Melbourne –Geelong corridor as a part of its Regional Fast Rail to operate at up to 160km/h, while in the 1990's the State of Queensland investigated a high speed service called SunGold from the Sunshine Coast in the North to the Gold Cost in the south and traversing the City of Brisbane. Queensland also operates 200km/h capable electric and diesel tilt trains but which only average around 70km/h due to the alignment.

- Congestion in a major transportation corridor;
- Population growth and regionalization;
- Reduction of travel times and sustainable transport;
- Interconnectivity of transportation modes eg airports
- Interconnectivity of regions;
- Holistic economic growth of the nation;

These goals align with those which have underpinned HSR development in Europe and now in Asia. However it remains to be proven that the financial business case is sound and the whole of life economics meet the Government's infrastructure investment criteria.

While the private sector can be expected to play significant roles in its delivery and operation, if it is the Commonwealth Government that has provide the majority of capital to create the project, then its ongoing support is paramount. Through the forthcoming studies, Government needs to confirm that HSR will deliver those national goals, deliver benefits in the initial stage of Sydney - Newcastle and will provide the backbone of an initially regional and ultimately an integrated East Coast system of high speed rail travel.

Commercial success at least in terms of the operating business in the initial stages selected for delivery is critical to ongoing support to continue and complete the system. The issue is no longer a matter of HSR technologies. They are proven and available "off the shelf". There is no doubt, that Australians, with some help from the rest of the world, have the skills and resources to investigate, plan, select technologies, build and operate an HSR system. However, the first steps will need to be to reserve the corridors before they become compromised with incompatible forms of development.

Most importantly, the lessons of the past attempts to create HSR in Australia must be learnt and HSR must be approached and lead as a transportation business not a construction project.

10. ACKNOWLEDGEMENTS

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12. ABOUT THE AUTHOR

Peter has been involved in virtually all the recent major proposals and studies for High and Very High Speed Rail Links in Australia. He has been an adviser to the Commonwealth Government of Australia, the New South Wales State Government, a Joint Secretariat of the Governments and the private sector on this matter. He commenced his interest in High Speed Rail when assisting Systra's staff working on the VFT project in the mid 1980's. The report which he directed on an East Coast High Speed Rail cited below remains on the Commonwealth's Government website as a definitive statement on high speed rail in the Australia context.

Peter recently was appointed by Australia's Cooperative Research Centre for Rail (Rail CRC) as one of three Independent expert reviewers of its 2009 report entitled: "High-speed Rail: Strategic information for the Australian context". Peter has presented papers at international conferences on High Speed Rail in Australia and in Madrid and was a delegate to the EurailSpeed 98 Conference in Berlin. He recently was a delegate to the "Financing & Developing High Speed Rail in the USA" Conference held in February 2010 in Chicago. He was a Key Note Speaker at the Asian High Speed Rail Conference in Hong Kong in July 2010. He was the Key Note Speaker and Chair of Day 1 of a conference on High Speed Rail held in Sydney in August 2010.