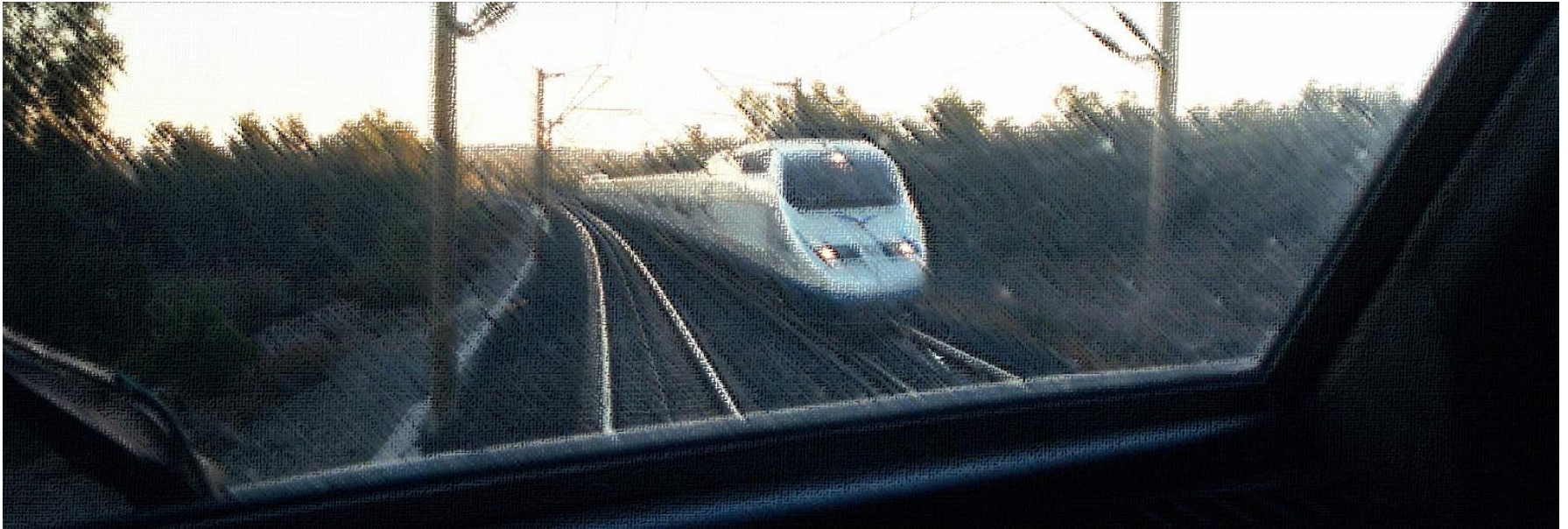


Let's get real about

High Speed Rail in Australia



Let's get real about

.....Sorry - wrong opening slide - try this one

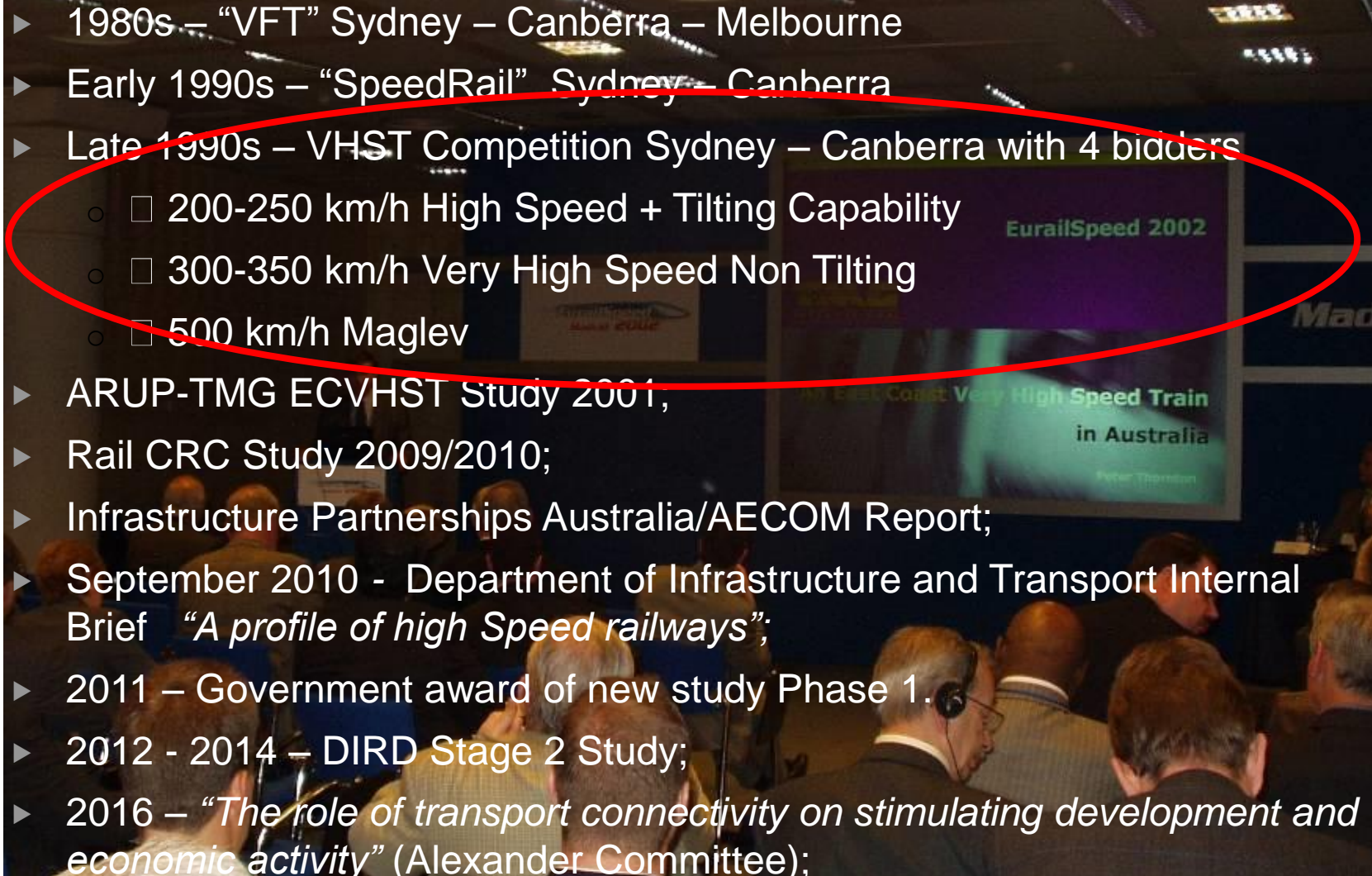
High Speed Rail in Australia



Source: <http://www.railpictures.net/photo/188926/>

Let's get real about

..... that those do not learn from history are doomed to repeat the mistakes of the past

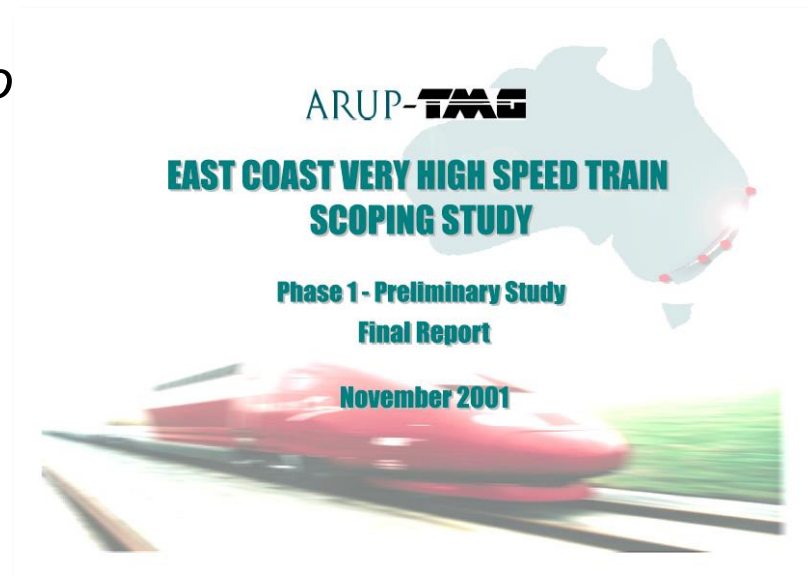
- 
- ▶ 1980s – “VFT” Sydney – Canberra – Melbourne
 - ▶ Early 1990s – “SpeedRail” Sydney – Canberra
 - ▶ Late 1990s – VHST Competition Sydney – Canberra with 4 bidders
 - ☐ 200-250 km/h High Speed + Tilting Capability
 - ☐ 300-350 km/h Very High Speed Non Tilting
 - ☐ 500 km/h Maglev
 - ▶ ARUP-TMG ECVHST Study 2001;
 - ▶ Rail CRC Study 2009/2010;
 - ▶ Infrastructure Partnerships Australia/AECOM Report;
 - ▶ September 2010 - Department of Infrastructure and Transport Internal Brief “A profile of high Speed railways”;
 - ▶ 2011 – Government award of new study Phase 1.
 - ▶ 2012 - 2014 – DIRD Stage 2 Study;
 - ▶ 2016 – “The role of transport connectivity on stimulating development and economic activity” (Alexander Committee);

Let's get real about

**.....the hero words from the
2001 ECVHST Study**

*“.....an EC VHST could have a place in Australia's transport future. The securing of that place, however, would be dependent on whether it can become an integral part of a vision and action plan for a **new paradigm of development, mobility and transportation connectivity** in the East Coast corridor.*

*If it does have a place, an EC VHST will not achieve it in the absence of political vision and leadership, **long-term bipartisan political commitment**, the full participation of all Governments and the collective will and skills of Australians.”*

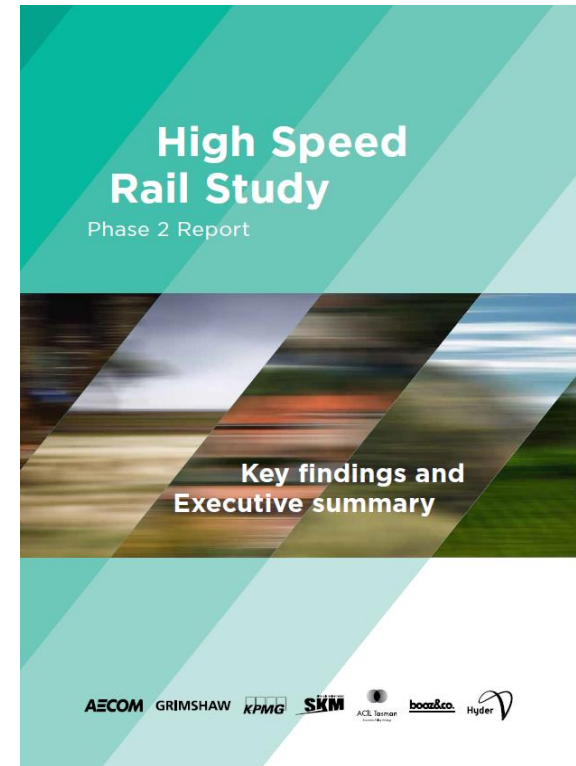


Full Report available at:
<http://www.infrastructure.gov.au/rail/publications/index.aspx>

Let's get real about

..... that the 2014 study said pretty much the same as the 2001 one

- ▶ Funding gap of 86%:
 - ***even if private funding maximized;***
- ▶ Govt required to fund upfront infrastructure costs;
 - ***\$114 billion (in 2012 dollars).***
- ▶ ***If (!)*** pax forecast achieved, above rail operation self funding
 - ***but only if fares comparable to airfares!***
- ▶ **Headline Conclusion*Reserve the corridors now!***
 - determine settlement patterns first ! (and not just accept CLARA's view on this!)
 - Define and acquire corridors;
 - defend those corridors against incompatible development;
 - effective termini and links to other modes within cities;



Full Report available at
https://infrastructure.gov.au/rail/trains/high_speed

Let's get real about

..... the current state of play

- ▶ No specific Government policy as yet – but could be changing;
- ▶ Federal Govt interested but not at any cost; States interested but not at their cost – but are interested in regions; Victoria doing some good work;
- ▶ State competition – *“not in their state if not in mine”*; SA wants it too;
- ▶ HSR again being pushed at Government – CLARA, Centurion; Hyperloop;
- ▶ HSR back to being marketed on packaged up national supplier lines;
- ▶ Technology divide – VHST; HSR + Tilt; Maglev; Maglev plus evacuated tubes; all been considered before – SWSR preferred for China; Europe; USA
- ▶ Consortia still not operator led but constructor supplier led; Plenty want to build not many want to take the risk to operate as a business;
- ▶ And now – land developer led and asking for an exclusive mandate;
- ▶ And of course, as usual, the cub reporters in the press are getting breathless about it all and sundry retired politicians are talking it up.

Let's get real about

..... the current state of play

Futureproofing Sydney Metro?



Source: AFR

Do you want to be Stirred or Shaken Sir?



MPs to learn about super fast tube travel

OCTOBER 27, 2016 11:01AM

Australian Associated Press

Imagine being whisked from one city to another in a pod carried by a tube at speeds of up to 1200km/h.

That's the vision of Los Angeles company Hyperloop One, which will share its vision with federal MPs in Sydney on Friday.

Source: News.com.au October 27, 2016

@Peter Thornton

CLARA but is it any Clearer?

New high speed rail plan connecting Sydney to Melbourne

Could Australia get high speed rail?



A high speed rail plan has been considered for Australia for decades, but what are the benefits? And why don't we have it already



A Chinese high-speed train leaves the station in Shanghai after the launch of the Shanghai to Hangzhou line.

THE plan for a high speed rail connecting Sydney and Melbourne that claims to be the fastest and cheapest in the world is being unveiled by a private company. A long-awaited proposal will to be revealed by private company Consolidated Land & Infrastructure Ltd, which has partnered with international companies to develop the proposal.

It's expected to come with a \$200 billion price tag, but, the company claims, it won't cost taxpayers a cent.

Source: news.com.au

Sober and Sensible in SA

IN DAILY Adelaide's independent news

New reading: The case for regional fast rail in South Australia

The case for regional fast rail in South Australia

ANALYSIS

Forget the pipe dream of a superfast train connecting the eastern capitals - fast regional rail makes a lot of economic sense in a state like South Australia.

Source: INDaily May 30th 2016

Peter provoked to pick up pen



Transportation
Associates

Let's get real about

..... that delivering HSR is not all pretty

- The pioneers – **SNCF and JR** - both required entire corporate restructuring because of the financial burden of HSR construction and operation; Later HSR lines far less economic;
- **Taiwan HSR** - initially privately funded, has required Govt refinancing;
- **Madrid – Seville HSR** - Govt funded - has not met regional development economic goals;
"the big difference between Spain and other European countries is that the others plan services while we just plan spending";
- **London and Continental Railways** – initially privately funded – bailed out by Govt;
- **China** – massive MoR enterprise debt; low patronage on new lines;
- **California HSR** – Govt funded – is strongly opposed by sections of public;
- **HSR 2** in UK – Govt funded - whilst proceeding, has many vocal critics on its economics;
- **Morocco HSR** – no business case analysis done? French soft loans?
- **Jakarta – Bandung HSR** – China & Japan competing – economics doubtful – difficulties in land acquisition and raising funding?
- **Spain to France (Figueres-Perpignan) HSR** – privately funded – bailed out by Govt;
- **Venezuela** – Chinese aid project – now abandoned;
- **Hong Kong** – massive cost overruns due to tunnelling problems – heads rolled!;
- **Netherlands HSR** - saved from bankruptcy by £250m government bailout
- But none of this is a reason not to do anything in Australia, only a reason to be very careful

Let's get real about

..... that delivering HSR is not all pretty

Accidents and Incidents



Source: <http://edition.cnn.com/2013/07/25/us/spain-high-speed-rail-5-questions/>

Private sector bankruptcy France and Spain



<http://www.railjournal.com/index.php/financial/spain-france-hs-concessionaire-under-receivership.html>

©Peter Thornton

Not everyone loves HSR in UK



Source: https://www.thesun.co.uk/wp-content/uploads/2016/03/1435458.main_image.jpg?w=682&strip=all

Government bailouts Holland



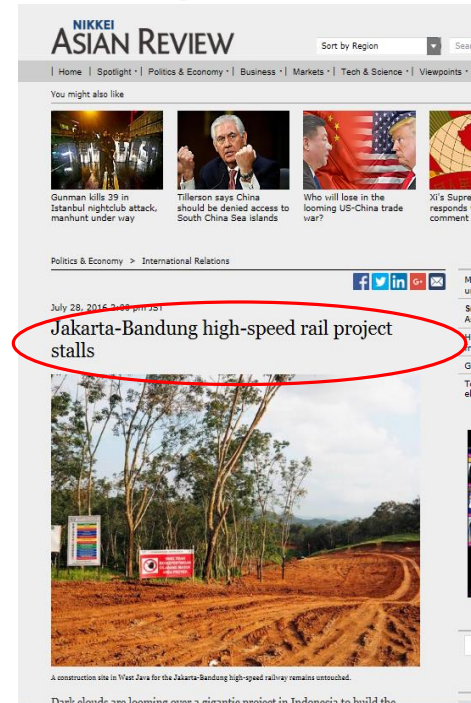
<http://www.railwaygazette.com/news/single-view/view/eurlings-moves-to-rescue-hsa.html>

Government Enterprise Debt in China



<http://www.reuters.com/article/uk-chinas-railway-boom-hurtles-into-the-idUSLNE75M04520110623>

Financing Issues Indonesia



<http://asia.nikkei.com/Politics-Economy/International-Relations/Jakarta-Bandung-high-speed-rail-project-stalls>

**Transportation
Associates**

Let's get real about

..... about what it's not about and what it is about



Not about the technologies or whether its French or German or Japanese or Chinese or Spanish or Alstom or Bombardier or Hyundai or whoever

– there are plenty of technology options!

Or who wants to provide it and build it!! **- Any number of companies available to do that.**

<http://www.yourbizbook.com/en/CI-ub-China-News/beijing-shanghai-high-speed-train-link-expects-first-profit>

1st profit after 4 years of Operations



Source: South China Morning Post 19 March, 2016

Sydney Morning Herald April 11th 2016

It is about creating a **successful and commercially sustainable transport system**

but most of all.....

it's about the big **NATIONAL** goals for **patterns of settlement in this country and how to make these work**

©Peter Thornton

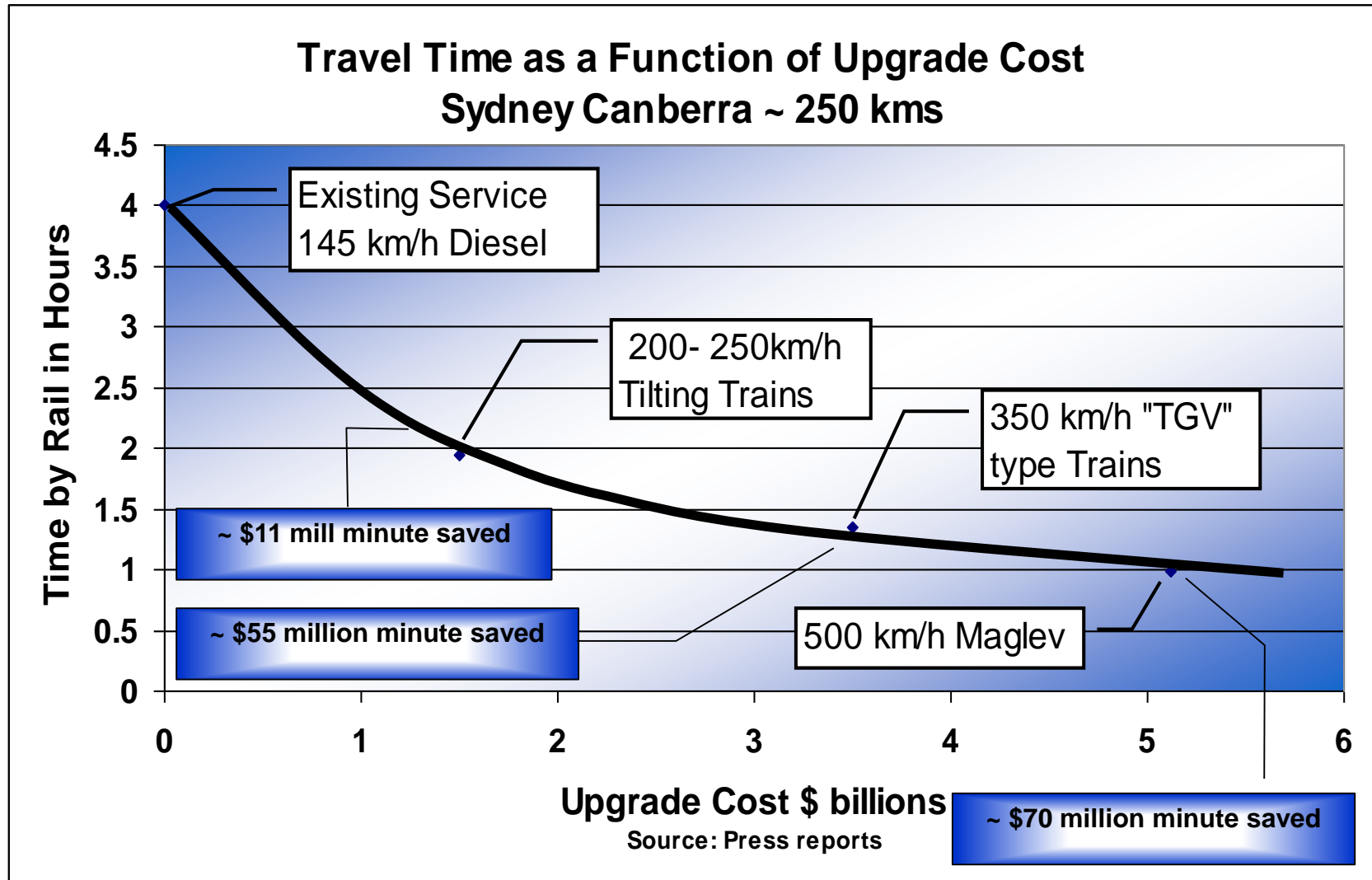


Australian National Flag flying at Parliament House, Canberra Photo: Auspic

Transportation
A s s o c i a t e s

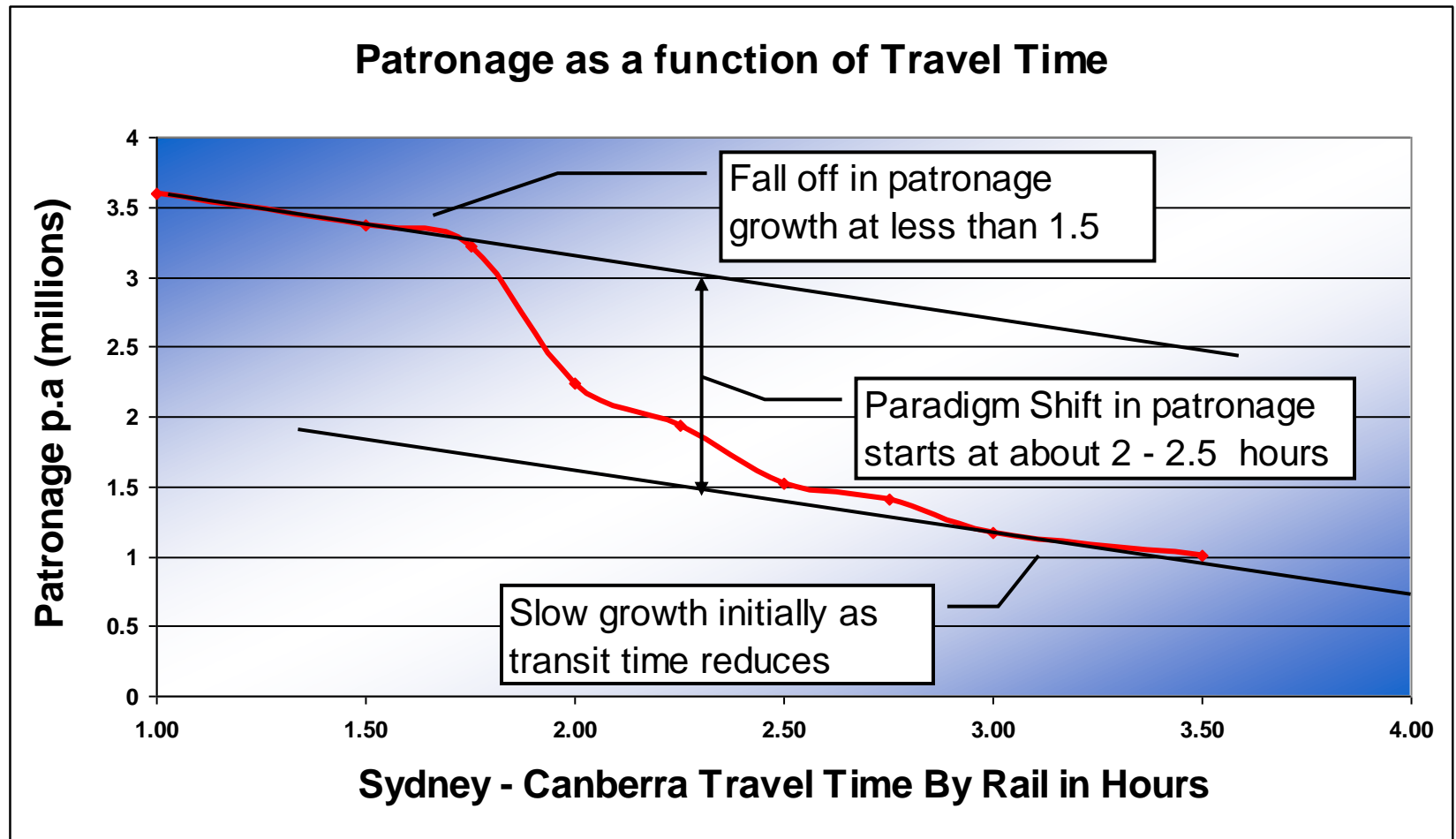
Let's get real about

..... the cost of travel time savings



Let's get real about

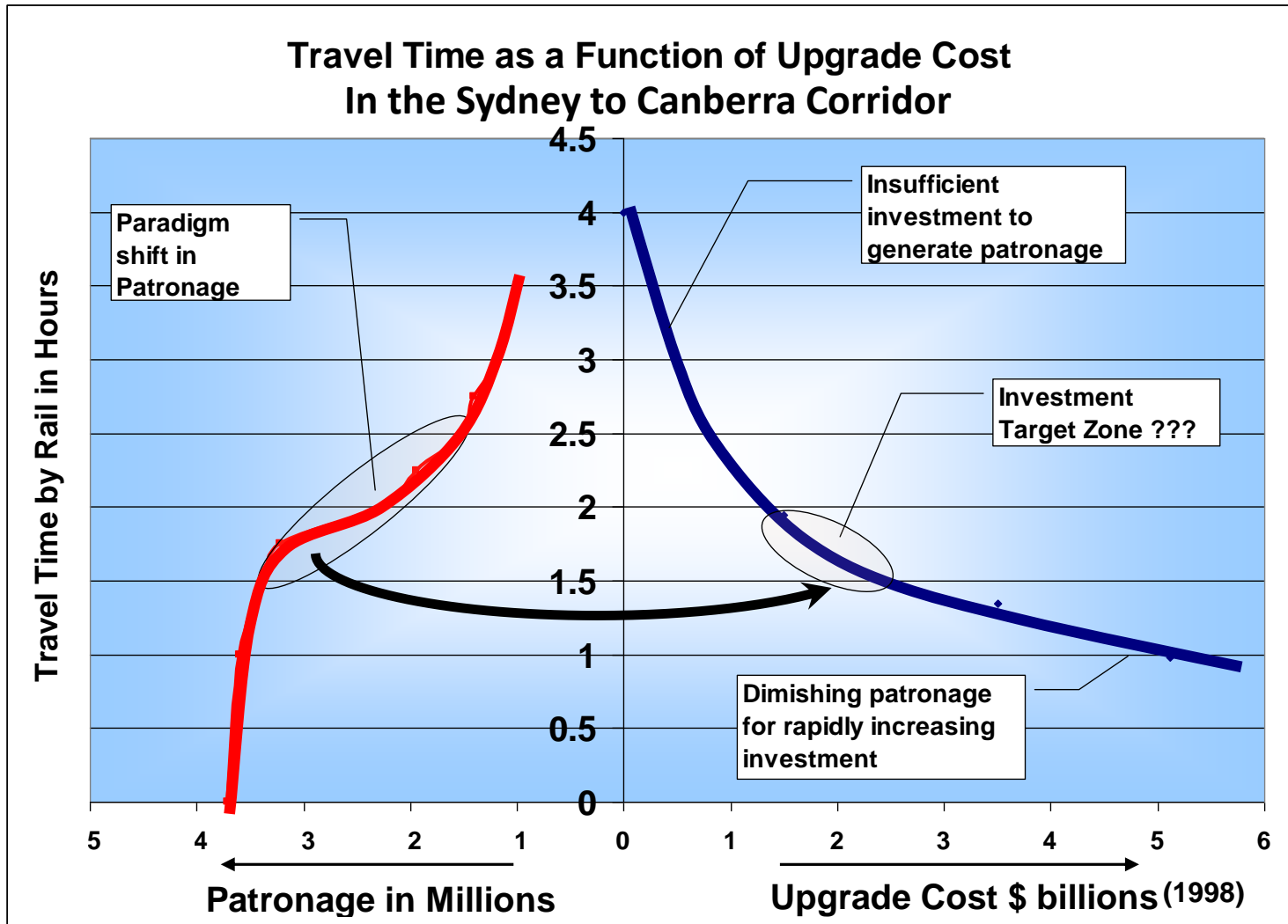
.....how patronage responds to travel time savings



Source : Capital Rail Research

Let's get real about

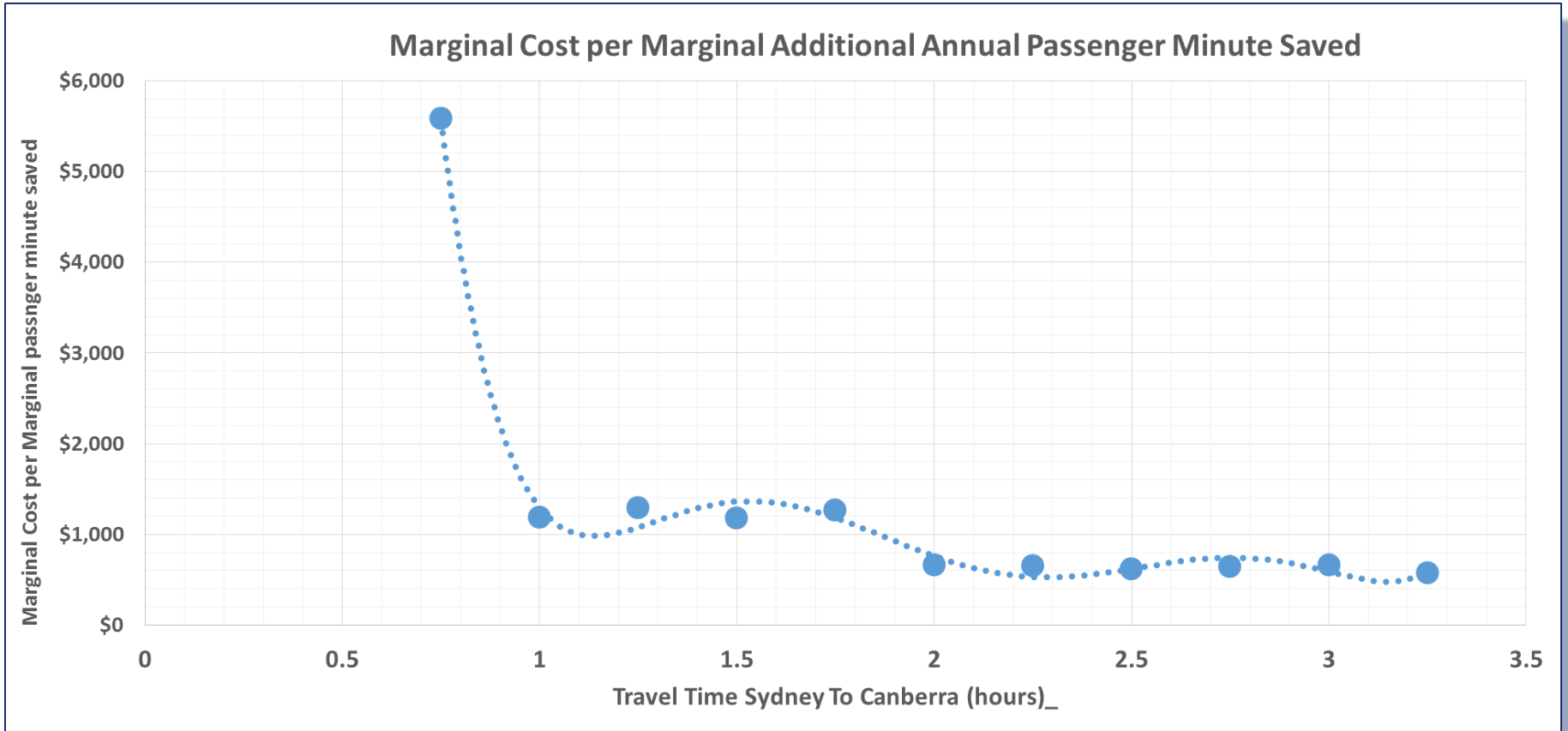
.....optimizing Investment



Source: Capital Rail 1998

Let's get real about

.....optimizing Investment



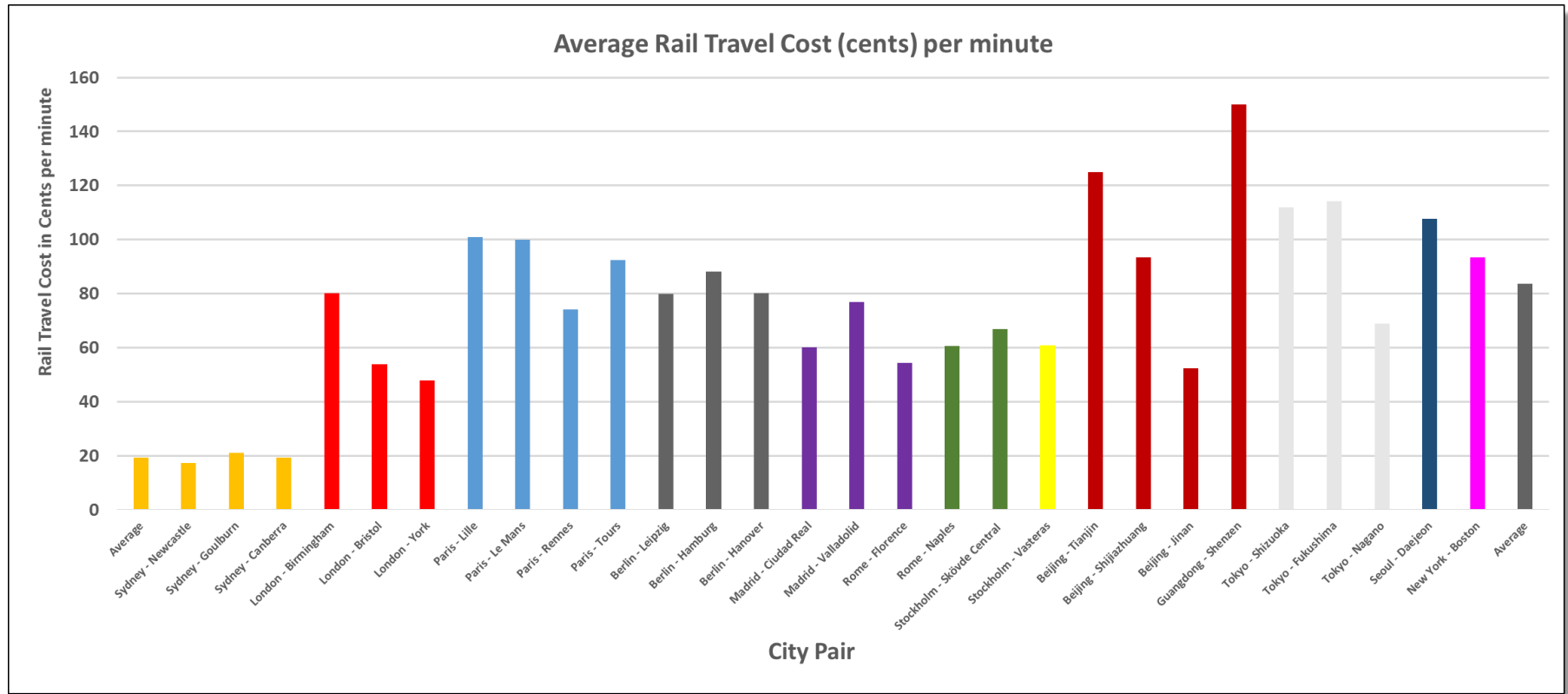
Let's get real about

..... that fares are going to have to increase

City Pairs		Kms (ATCF)	Travel time (hrs) (see note 1)	Min One way fare (AUD\$) (see note 1)	Max One way fare (AUD\$) (see note 1)	Actual track distance (see note 1)	Lowest Cost (cents per minute)	Highest Cost (cents per minute)	Av. Speed km/h	Actual distance to ATCF Ratio
Sydney	Newcastle	117	2.70	\$21	\$35	164	13.0	21.6	61	1.40
Sydney	Goulburn	168	2.67	\$27	\$40	213	16.9	25.0	80	1.27
Sydney	Canberra	250	4.30	\$40	\$60	318	15.5	23.3	74	1.27
Average		178.3	3.2	\$29	\$45	232	15.1	23.3	71.5	1.3
London	Birmingham	162	1.35	\$50	\$80	181	61.7	98.8	134	1.12
London	Bristol	172	1.70	\$45	\$65	190	44.1	63.7	112	1.10
London	York	276	1.83	\$40	\$65	303	36.4	59.1	165	1.10
Paris	Lille	200	1.03	\$55	\$70	225	88.7	112.9	218	1.13
Paris	Le Mans	185	0.92	\$50	\$60	201	90.9	109.1	219	1.09
Paris	Rennes	307	2.08	\$85	\$100	363	68.0	80.0	174	1.18
Paris	Tours	204	1.08	\$55	\$65	220	84.6	100.0	203	1.08
Berlin	Leipzig	147	1.20	\$45	\$70	168	62.5	97.2	140	1.14
Berlin	Hamburg	253	1.70	\$70	\$110	286	68.6	107.8	168	1.13
Berlin	Hanover	250	1.67	\$65	\$95	255	65.0	95.0	153	1.02
Madrid	Ciudad Real	161	0.90	\$25	\$40	167	46.3	74.1	186	1.04
Madrid	Valladolid	172	1.08	\$40	\$60	179	61.5	92.3	165	1.04
Rome	Florence	228	1.53	\$40	\$60	261	43.5	65.2	170	1.14
Rome	Naples	188	1.17	\$35	\$50	214	50.0	71.4	183	1.14
Stockholm	Skövde Central	267	1.93	\$65	\$90	310	56.0	77.6	160	1.16
Stockholm	Vasteras	92	0.92	\$27	\$40	108	49.1	72.7	118	1.18
Beijing	Tianjin	110	0.60	\$40	\$50	125	111.1	138.9	208	1.14
Beijing	Shijiazhuang	260	1.12	\$55	\$70	271	82.1	104.5	243	1.04
Beijing	Jinan	362	2.07	\$40	\$90	425	32.3	72.6	206	1.17
Guangdong	Shenzhen	102	0.33	\$15	\$45	102	75.0	225.0	307	1.00
Tokyo	Shizuoka	142	1.27	\$75	\$95	161	98.7	125.0	127	1.13
Tokyo	Fukushima	240	1.53	\$90	\$120	255	97.8	130.4	166	1.06
Tokyo	Nagano	180	0.97	\$30	\$50	190	51.7	86.2	197	1.06
Seoul	Daejeon	145	0.97	\$55	\$70	159	94.83	120.7	164.48	1.10
Boston	New York	309	3.75	\$180	\$240	373	80.00	106.7	99.47	1.21
Average		205	1.4	\$55	\$78	228	68	99	175	1.11
NSW Routes compared to Global HSR Routes			232%	53%	58%	102%	22%	23%	41%	119%
Note 1: Data Source https://www.rome2rio.com - fare data is approximate only and subject to verification										

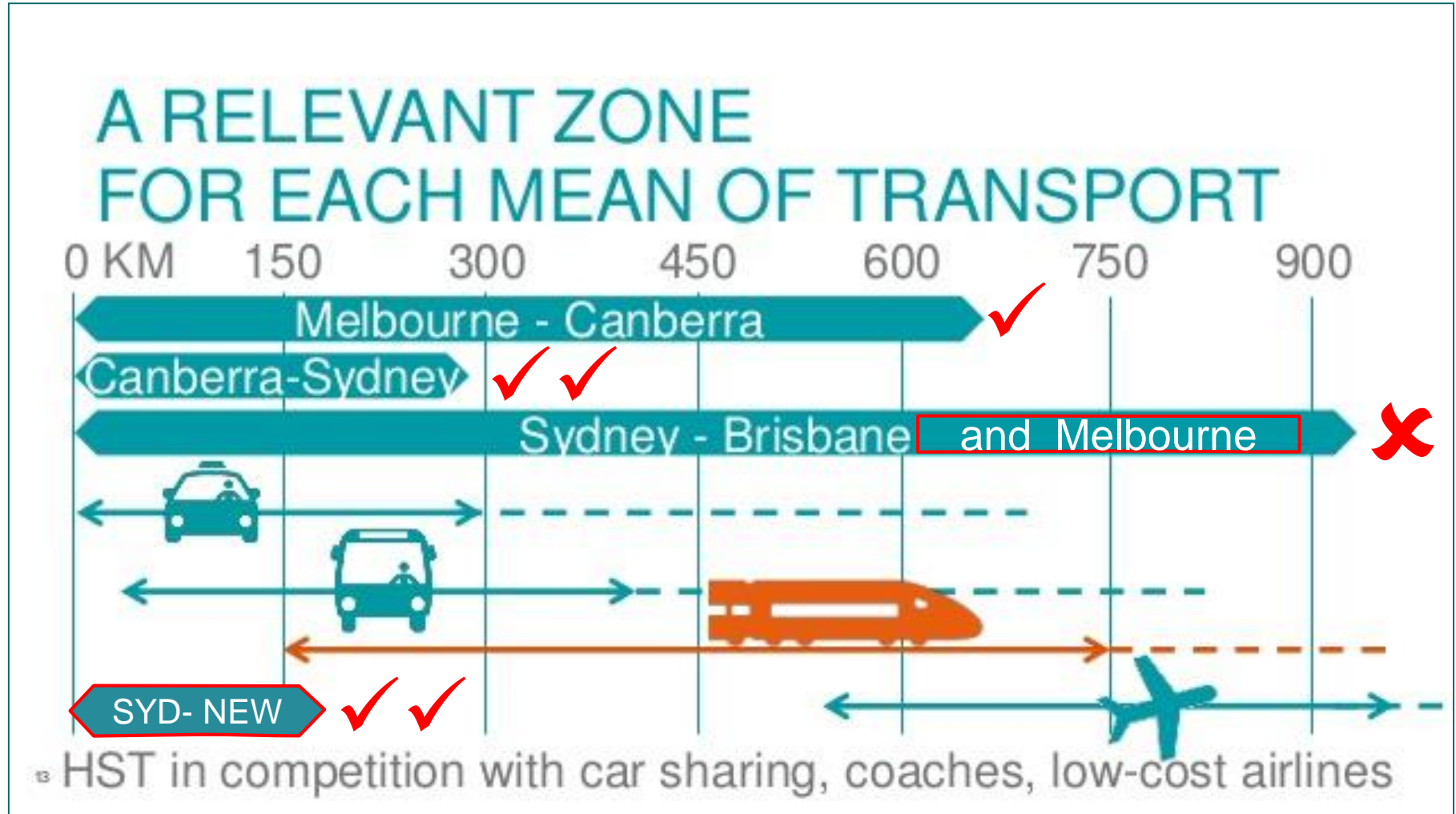
Let's get real about

..... that fares are going to have to increase



Let's get real about

**..... listening to what experience has
been telling us for 30 years**



Source: Pierre Izard Chief Rail System Officer, SNCF Presentation to AFR Infrastructure Summit July 2016

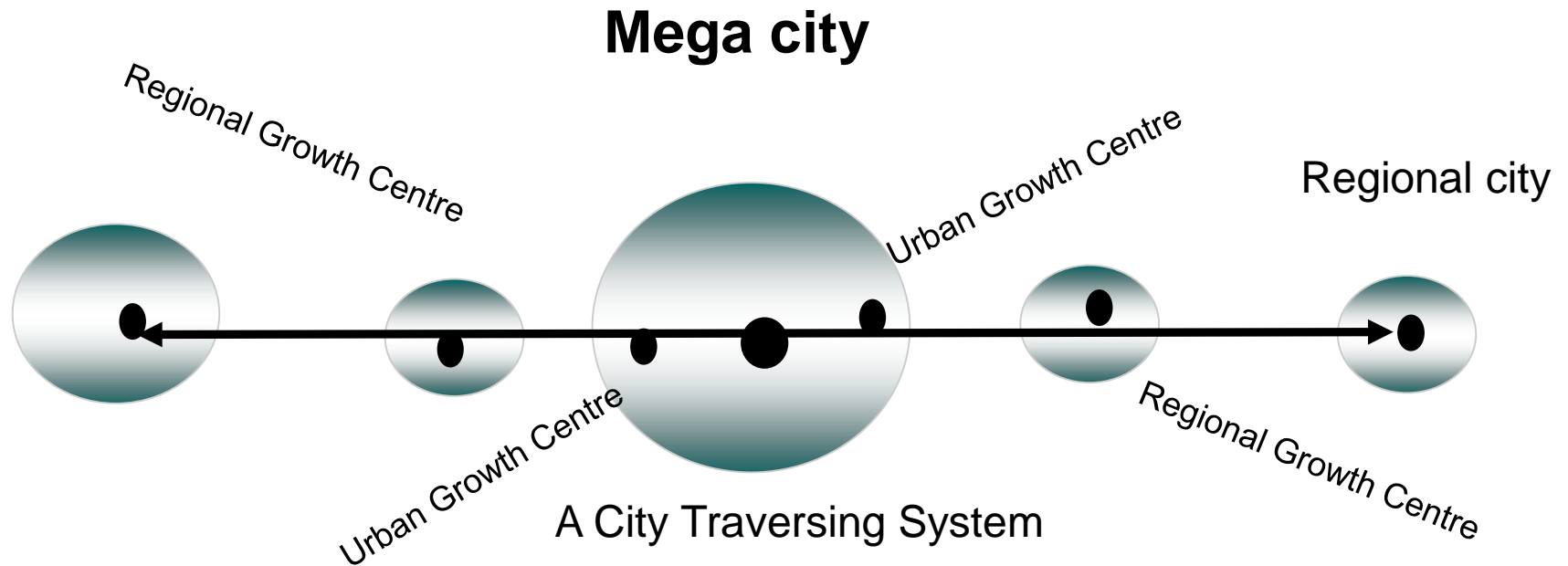
Let's get real about

.....the facts of life about HSR for Australia

- Syd-Bris, Syd-Mel, Mel-Bris are natural aviation markets and corridors;
 - *Aviation is fully privatised...*
 - *Australia needs a strong domestic and international aviation capability....*
 - *We should not spend taxpayers dollars to destroy it;*
- We need a high level plan about how we are to live in the 21st century;
 - *a few mega cities or better distribution of population in key corridors?;*
- No one private sector “outfit” can do this;
 - *this is always simply a distraction, everyone gets hot and bothered and it always ends with us doing nothing; at the end of the day government will have to underwrite the risk!*
- Land value capture will not fully fund a project of this scale in the time lines that are needed;
 - *Banks unlikely to securitize the promise of future value increase*
 - *but certainly it could help:*
- By and large, the State Transport Agencies know what is needed;
 - *but lack funding and an integrative cross border long term plan.*
- We need much better rail in regional corridors that span our cities:
 - *where it offer better travel time than road and which will never be served by air and which supports the above view and plan:*
 - *i.e. where it has a natural competitive advantage;*

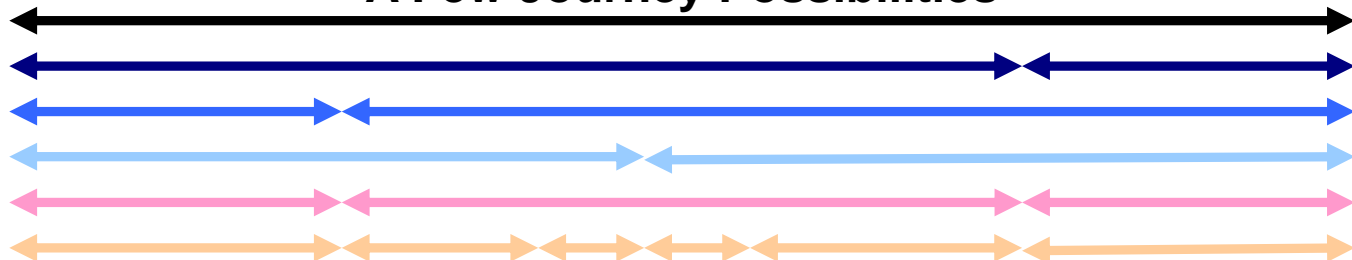
Let's get real about

**..... that we need a practical way to create
much better rail services in Australia**



Regional city

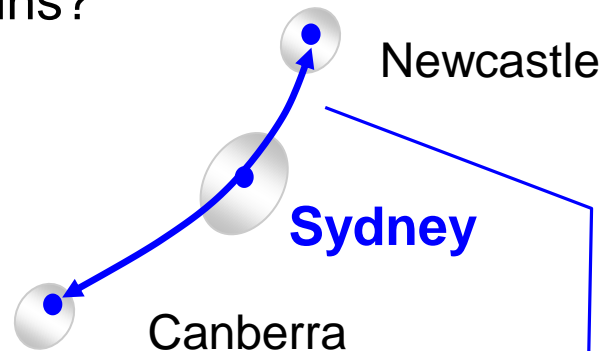
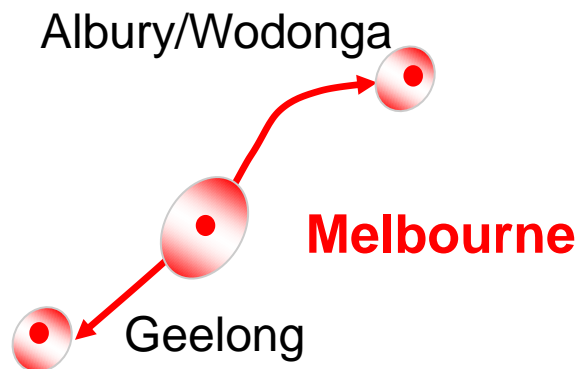
A Few Journey Possibilities



Let's get real about

**.....starting with regional fast rail serving
the places where people live now**

- ▶ Where first?;
- ▶ Who owns;
- ▶ Who pays;
- ▶ Who delivers;
- ▶ Who operates and maintains?

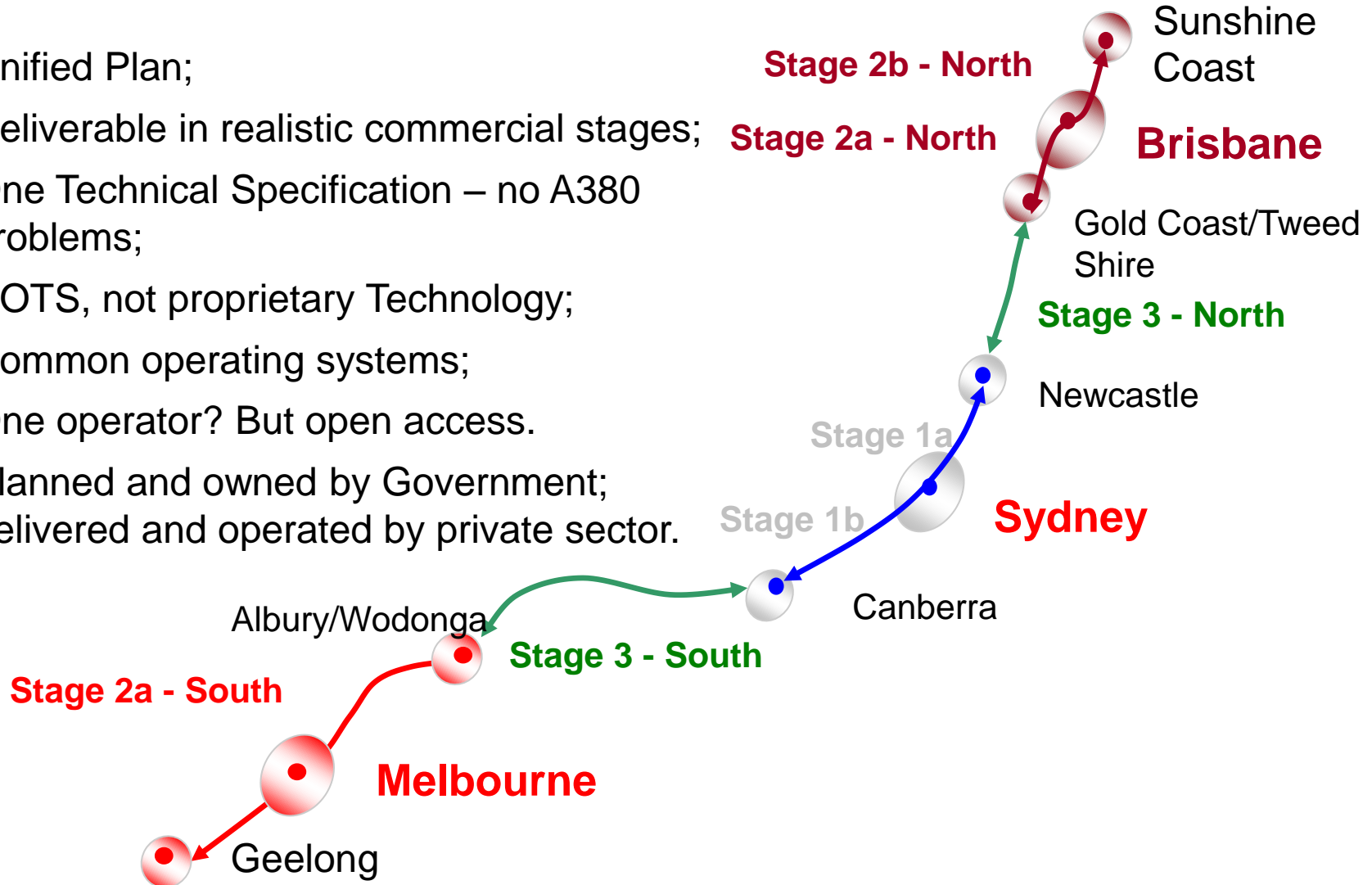


***Heaviest freight and commuter corridor in
Australia - 1:40 grades; 240m curves; 52
Stations - capacity constrained.***

Let's get real about

..... maybe creating the foundation for ultimately a bigger system

- ▶ Unified Plan;
- ▶ Deliverable in realistic commercial stages;
- ▶ One Technical Specification – no A380 problems;
- ▶ COTS, not proprietary Technology;
- ▶ Common operating systems;
- ▶ One operator? But open access.
- ▶ Planned and owned by Government; delivered and operated by private sector.



Let's get real about

..... what is Australia's most heavily used rail corridor

Newcastle

- Regional population 0.54 million

Sydney

- Metropolitan population 4.5 million

Heaviest freight and commuter corridor in Australia – 1:40 grades; 240m curves; 52 Stations - capacity constrained.



**As the crow flies = 117 kms CBD to CBD
(Beijing – Tianjin = 20 kms in 30 minutes)**

CBD to CBD

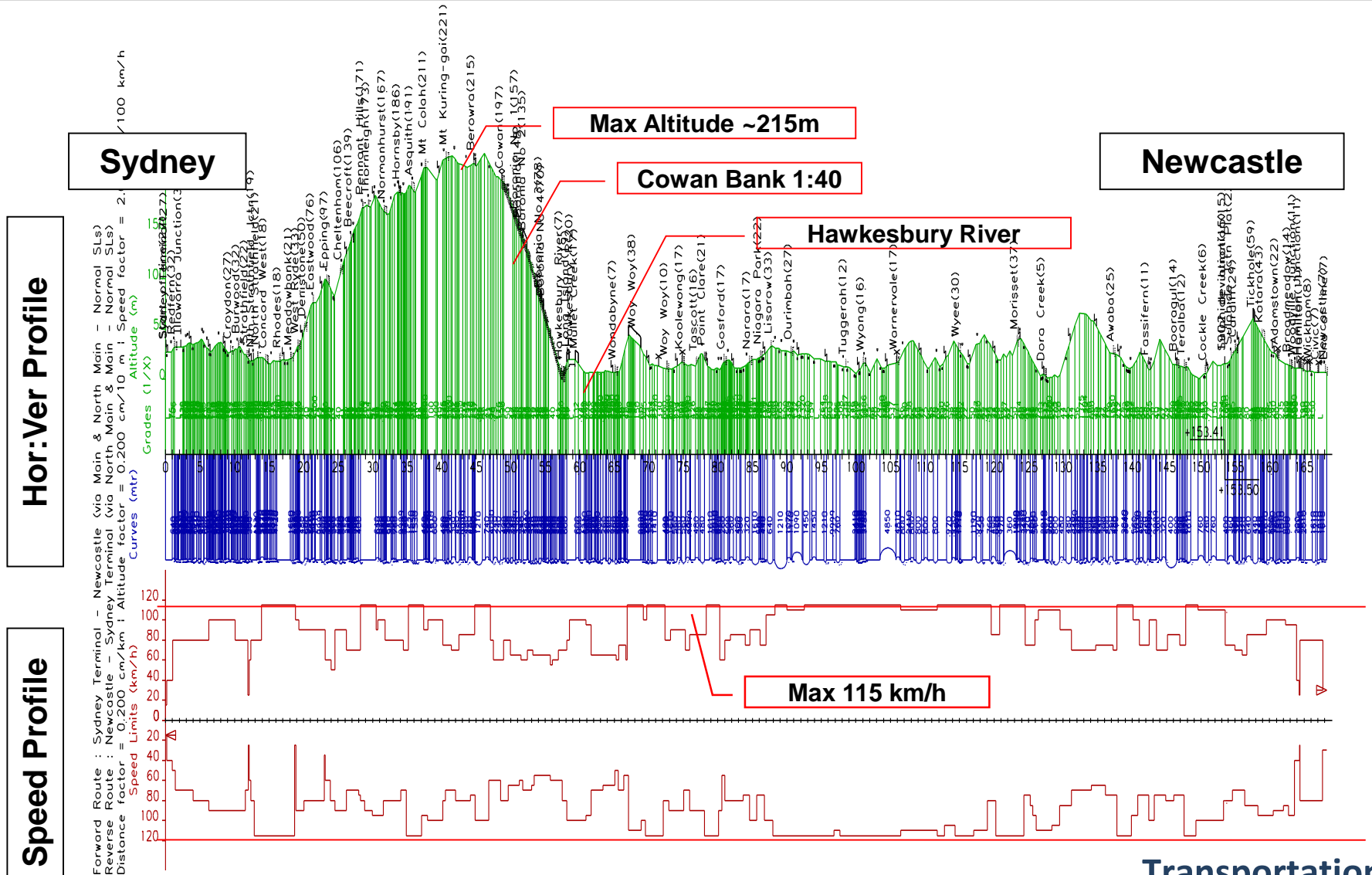
Rail - 168 kms 2hrs 45mins
(\$15.60 rtn);

Road -164 kms; 2hrs 20mins

Air - 45mins plus 56mins
ground access; (\$166 rtn);

Let's get real about

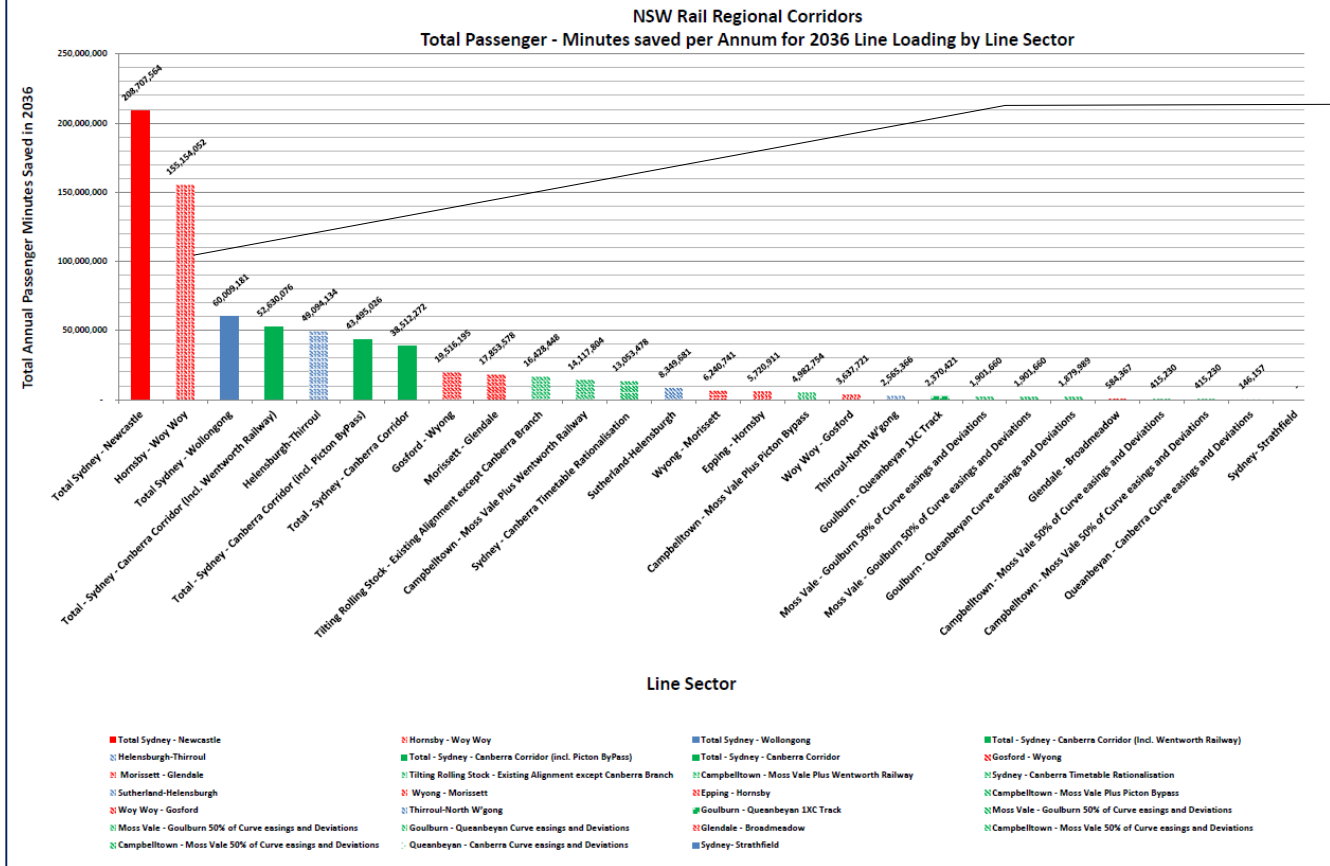
.....that its a 19th century piece of infrastructure



Let's get real about

..... that it's where the greatest good could be done

Figure 4 Total Passenger - Minutes saved by Corridor and by Line Sector



Key Points:

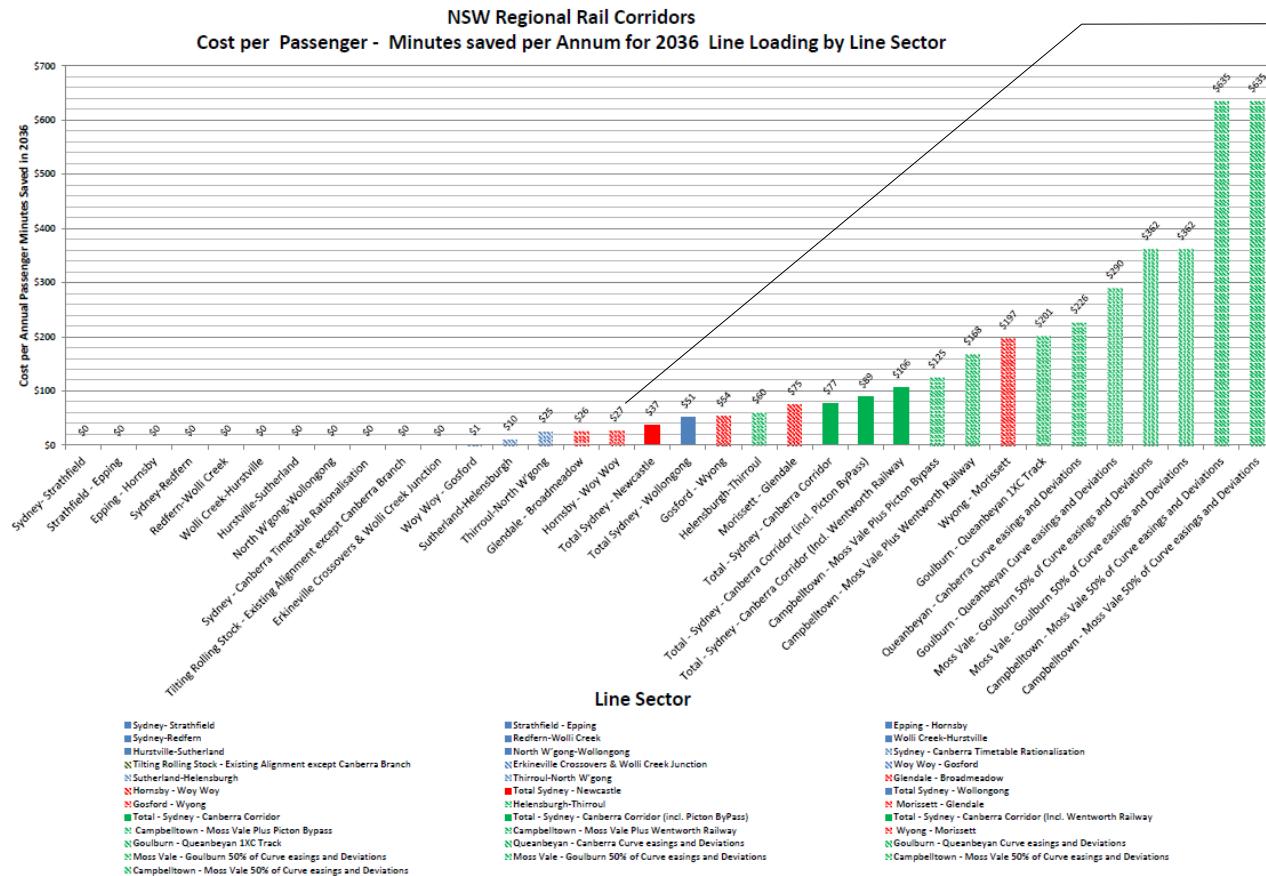
- 75% of all passenger minutes saved in Sydney – Newcastle corridor are in Hornsby Woy - Woy sector
- Over 50% of all passenger minutes saved by upgrading regional rail corridors to Newcastle, Canberra and Wollongong are in Hornsby – Woy Woy sector

Source: Confidential Research by AECOM/WorleyParsons for TfNSW and reproduced with permission from TfNSW

Let's get real about

..... what can deliver the best value for money

Figure 5 Cost per Passenger - Minutes saved by Corridor and by Line Sector



Key Point:
Of all major projects, Hornsby Woy – Woy sector is the best value for money on a cost per passenger minute saved.

Source: Confidential Research by AECOM/WorleyParsons for TfNSW and reproduced with permission from TfNSW

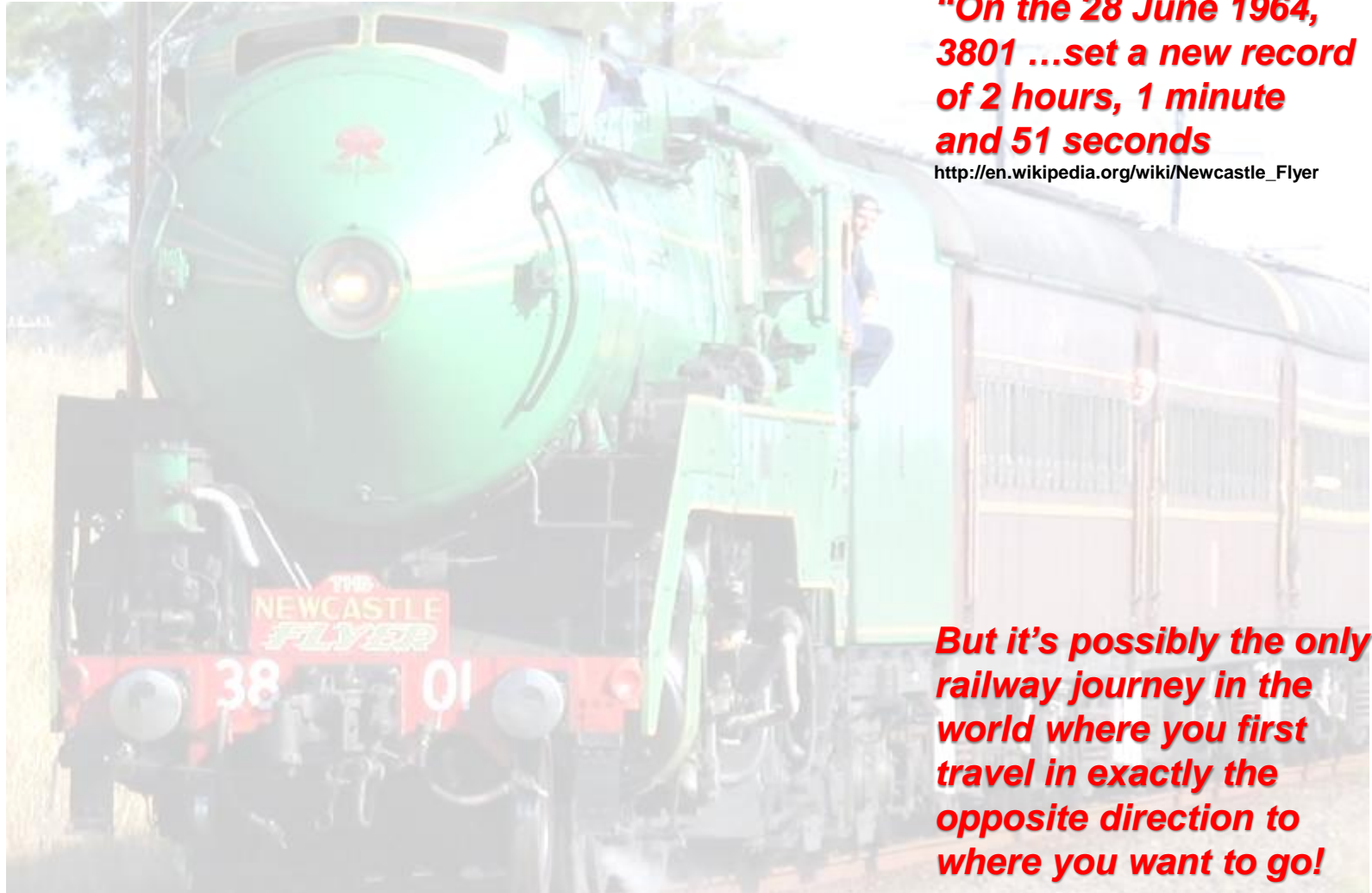
Let's get real about

..... for NSW, Sydney – Newcastle fits the bill

- ▶ *“A new paradigm of urban development, mobility and transportation connectivity”* – changing the way we live;
- ▶ Demographic trends –corridor population increasing;
- ▶ Demand for affordable housing around Sydney;
- ▶ Rail Freight is set to grow *“explosively”*;
- ▶ Peak Passenger rail demand high and increasing;
- ▶ Rail corridor capacity issues and upgrade costs;
- ▶ Newcastle Freeway also reaching peak hour capacity;
- ▶ Airport connectivity & capacity constraints;
- ▶ Sustainable transport – Energy, Safety, “Value for money travel”.

Let's get real about

**..... that the glory days have faded
and Sydney - Newcastle is a corridor in need of a rebuild**



***“On the 28 June 1964,
3801 ...set a new record
of 2 hours, 1 minute
and 51 seconds***

http://en.wikipedia.org/wiki/Newcastle_Flyer

***But it's possibly the only
railway journey in the
world where you first
travel in exactly the
opposite direction to
where you want to go!***

Let's get real about

**..... that it ain't easy, it cost lots and
you have to think big**

From fitting the alignment to the terrain ▷ ▷ to shaping the terrain to fit the alignment

Thinking big 1889 style -

*Fourth largest bridge constructed in the world
- Hawkesbury River Railway Bridge -
fully rebuilt in 1946*



Source: By Daramulan at the English language Wikipedia, CC BY-SA 3.0,
<https://commons.wikimedia.org/w/index.php?curid=18010480>

Thinking big 2016 style -


*Highest railway bridge in the World
Caijiagou Railway Bridge Chongqing-
Lichuan Railway, China*



http://www.highestbridges.com/wiki/index.php?title=Caijiagou_Railway_Bridge

Let's get real about

..... walking before we run and finally getting real about HSR in Australia

**The Canberra Times**

Comment

LettersEditorialsObituariesView from the StreetJohn BirminghamSatire

Paul O'Connor, Hawker


Rail nailed

Your editorial comment on Canberra to Sydney rail travel, that "improvements to the existing rail line could easily deliver faster travel at a fraction of the cost of the endlessly debated high-speed rail link" ("Opportunity too good to miss for Qatar", November 30, p16) is probably the most sensible assessment made in any Australian newspaper, let alone the Canberra press.

I say this having led not only many studies sponsored by governments on the matter but also a private sector bid back in 1998. Unfortunately, projects which have proposed to do exactly as you suggest are invariably seen as yesterday's technology and systems.

Australians, it would seem, would far rather do absolutely nothing than something sensible, achievable, affordable, deliverable, and which could reduce travel times for starters to well under three hours terminus to terminus and, with progressive upgrades, under two hours or less. And that is precisely what we have done for the past 20 years.

Peter Thornton, Principal Transportation Associates Pty Ltd,
Killara, NSW



万里之行，始于足下

"A journey of a thousand miles must begin with a single step"

老子道君

Lao Tzu

Chinese philosopher (570-490 BC).

***"Australians, it would seem, would far rather do absolutely nothing than do something sensible, achievable, affordable, deliverable,.....
.....And that is precisely what we have done for the past 20 years."***

Let's get real about

..... finally getting real about HSR in Australia

- Let's forget about bleeding edge technologies; Let someone else bleed proving them up;
- **But let's not sit on our hands** - Let's create better, **very much better, regional rail** links in all Australia States – *issue of equity of national investment*;
- Let's not be distracted by grandiose, private sector claims - in the end, Government will have to financially underwrite it, just like everywhere else;
- Let's encourage Government to decide on the big question of patterns of settlement, what is needed and where;
- Let's not be locked into bespoke technologies but let's have a long term integrated technology plan for Common Off The Shelf kit;
- Let's not hand out any exclusive mandates and let's put the private sector into competitive situations to deliver – many models to finance and deliver and operate;
- Let's just do it and take that a single step towards successful regional fast rail;
- And let's hand the next generation a decent platform on which they can continue to expand to full intercapital HSR – if they want.

Let's get real about

..... that if you can stand more from me, you could go to

1. <http://www.infrastructure.gov.au/rail/publications/index.aspx>;
2. www.transportationassociates.com.au/Downloads;
3. Submission #38 by Transportation Associates to Commonwealth's Standing Committee on Infrastructure, Transport and Cities on *"The role of Transport Connectivity on stimulating Development and Economic Activity"*
www.aph.gov.au/Parliamentary_Business/Committees/House/ITC/Transport_connectivity/Submissions
4. My many scribbling in the AFR and other places!