

NSROC

PUBLIC TRANSPORT PLANNING FOR SYDNEY



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Contents

- ◆ *Why have a plan?*
- ◆ *Developing a Plan*
- ◆ *Funding and Implementation*

\$28 Billion of Axed Projects

- ◆ Parramatta – Chatswood Rail Link
- ◆ Fast Rail to Newcastle and Wollongong
- ◆ North-West Rail Link
- ◆ Next Harbour Crossing
- ◆ North West Metro
- ◆ South West Rail Link
- ◆ Richmond Line Duplication
- ◆ Integrated Ticketing

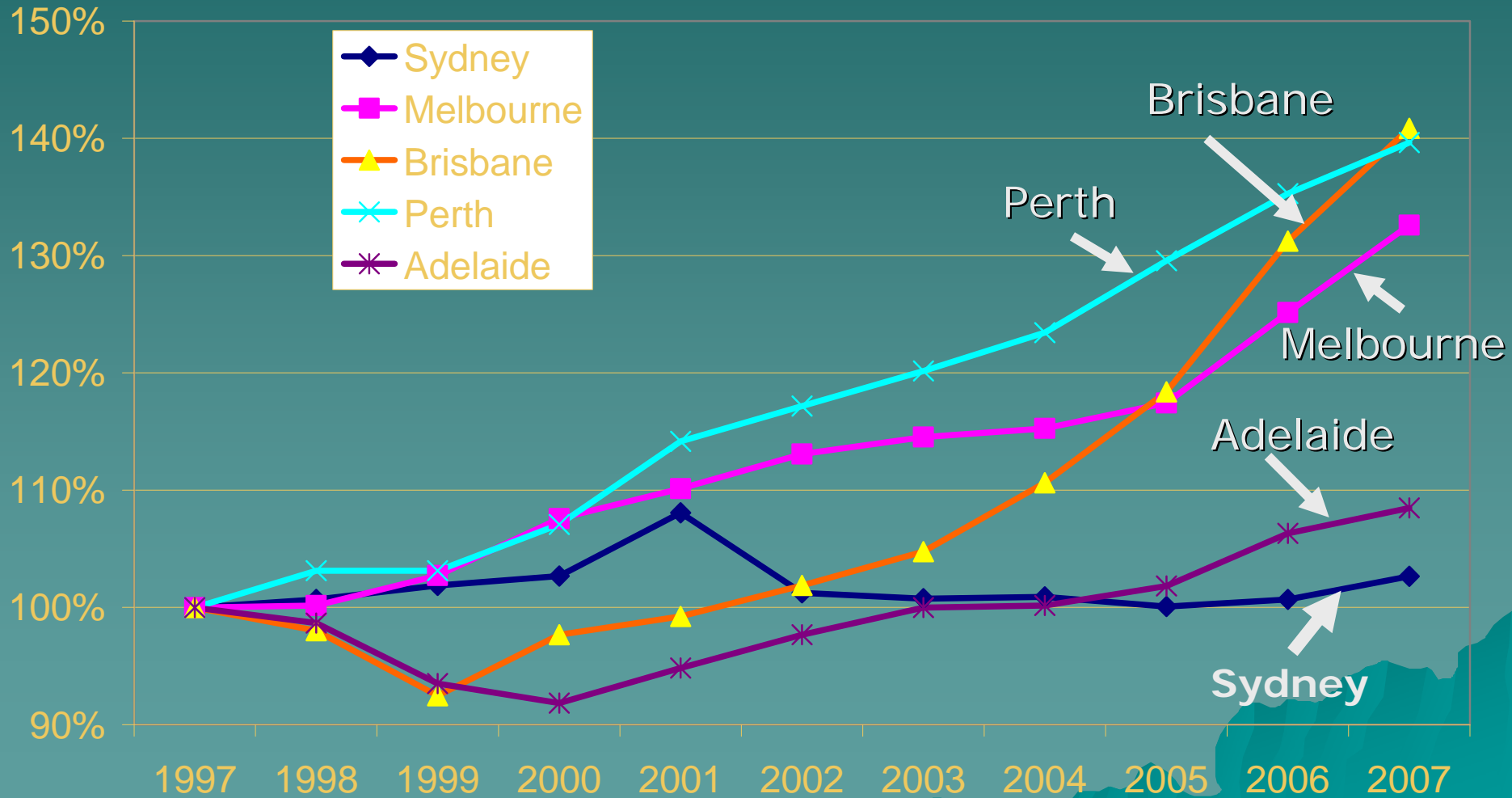


Sub-optimal projects

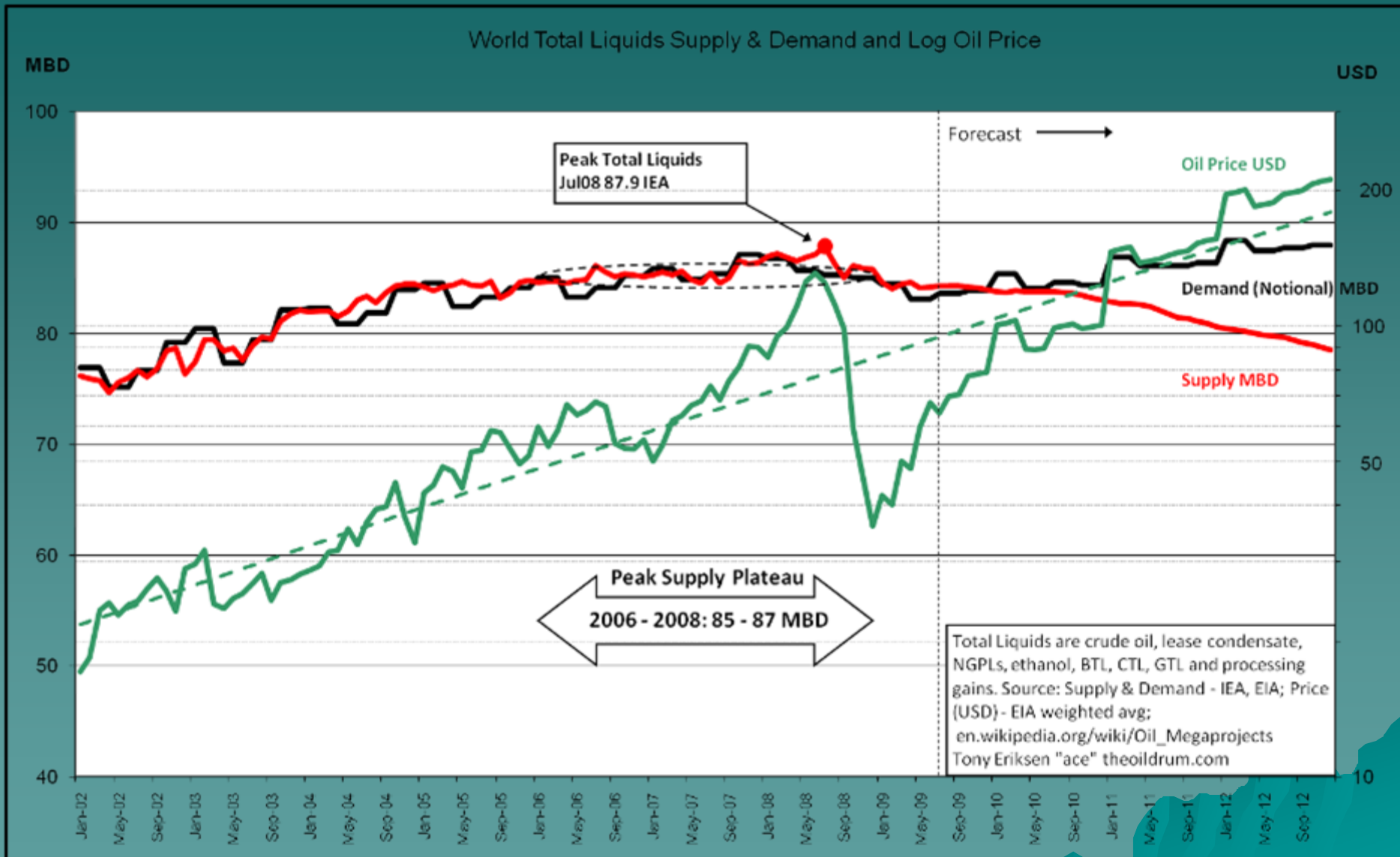
- ◆ *Olympic Rail Loop* (could have been start of a direct line from Strathfield to Parramatta)
- ◆ *Airport Rail Link* (high fares –low usage)
- ◆ *Cross City Tunnel* (should be free with toll to drive through CBD on surface)
- ◆ *Light Rail* (not yet extended.. But feasibility study announced 4th August)
- ◆ *Epping – Chatswood Line* (altered to run under Lane Cove River – added cost, gradients, time)

Sydney is falling behind

Percentage Growth in Public Transport Patronage Since 1997



Global Oil Depletion



Source: Tony Erickson, ASPO, see "The Oil Drum".

Warning: Oil supplies are running out fast

Catastrophic shortfalls threaten economic recovery, says world's top energy economist

By Steve Connor, Science Editor

Monday, 3 August 2009

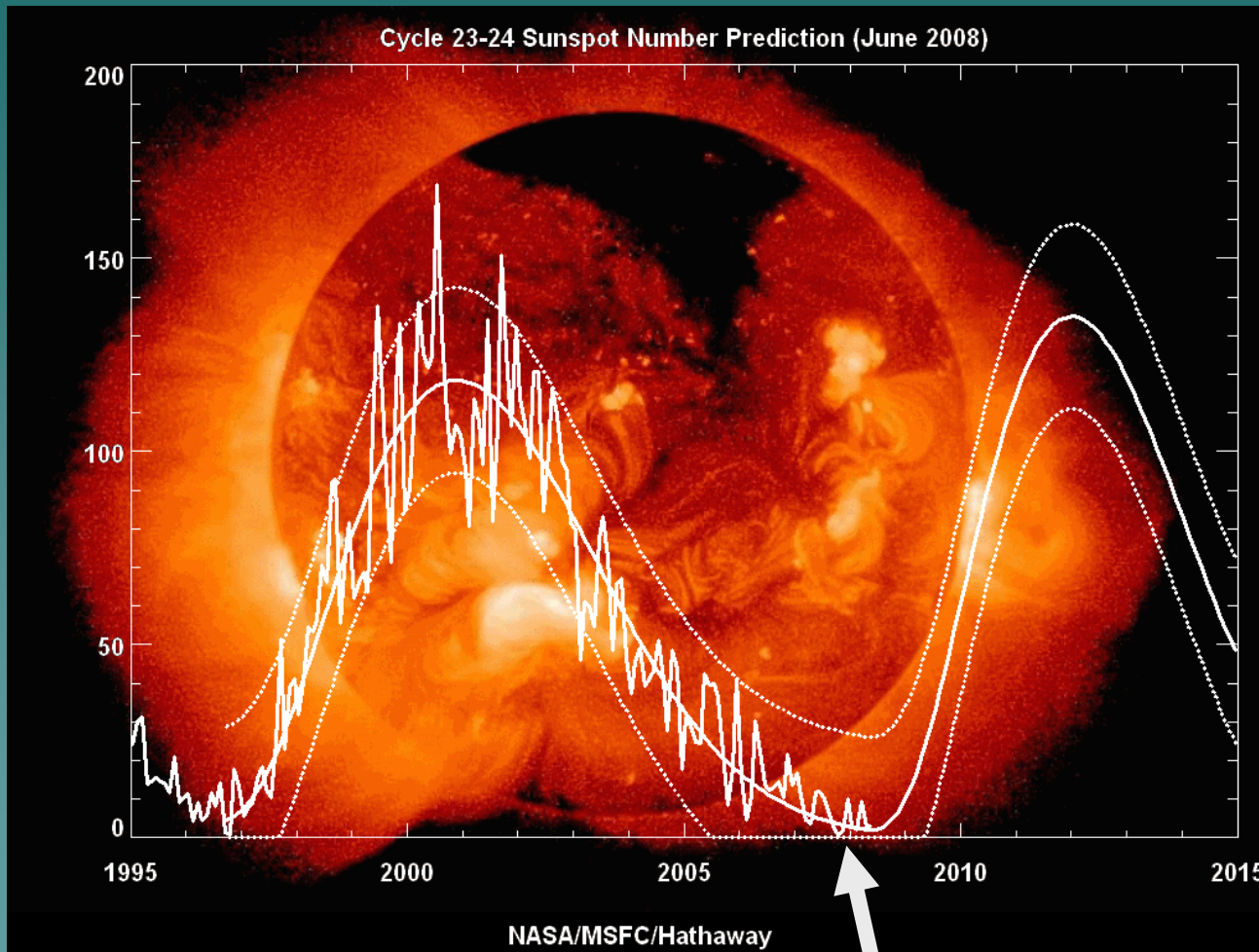
The world is heading for a catastrophic energy crunch that could cripple a global economic recovery because most of the major oil fields in the world have passed their peak production, a leading energy economist has warned.

Source: The Independent (Science Section):

<http://www.independent.co.uk/news/science/warning-oil-supplies-are-running-out-fast-1766585.html>

Climate Change

We Are At A Solar Minimum- watch for the upswing !



NASA/MSFC/Hathaway

Source: NASA David Hathaway 2008

We are here

The world is changing..

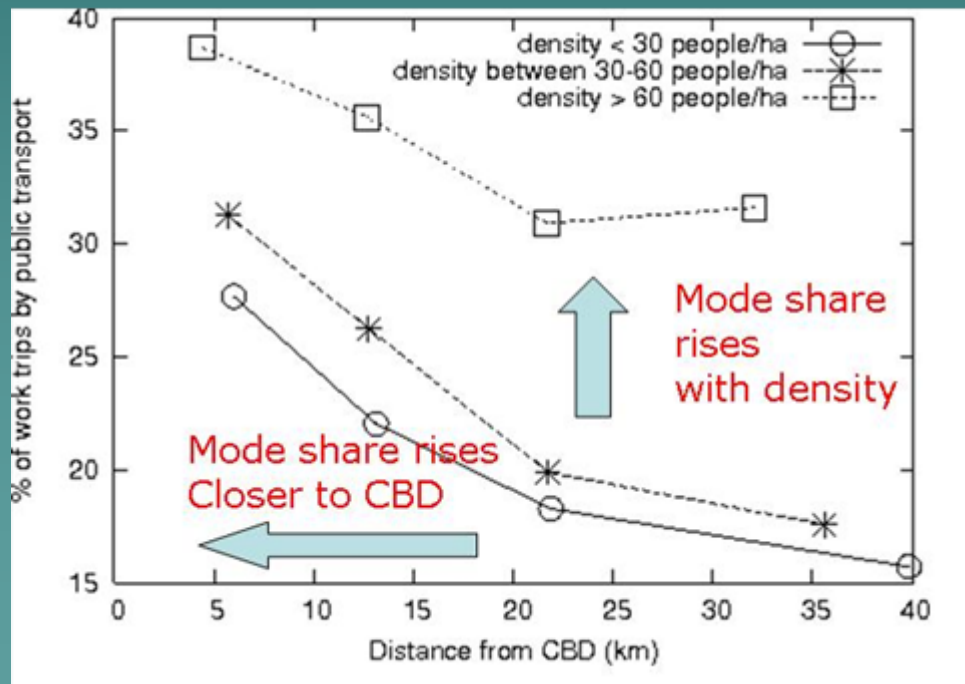
Private Car boom coming to an end

In last few years...

- ◆ Many tollways in trouble (Cross City, Lane Cove, Brisconnect etc)
- ◆ Car sales down 40% in the US. Chrysler bankrupt. GM just out of bankruptcy
- ◆ More cities introducing congestion charging and more talk of it here
- ◆ City of Sydney starting to install 200km of cycleways; inner city councils put in bid for major regional cycleway network;
- ◆ Councils also introducing free buses (Parramatta, Willoughby, Manly) and DRT like Council Cabs

Urban Sprawl has slowed and TOD has arrived

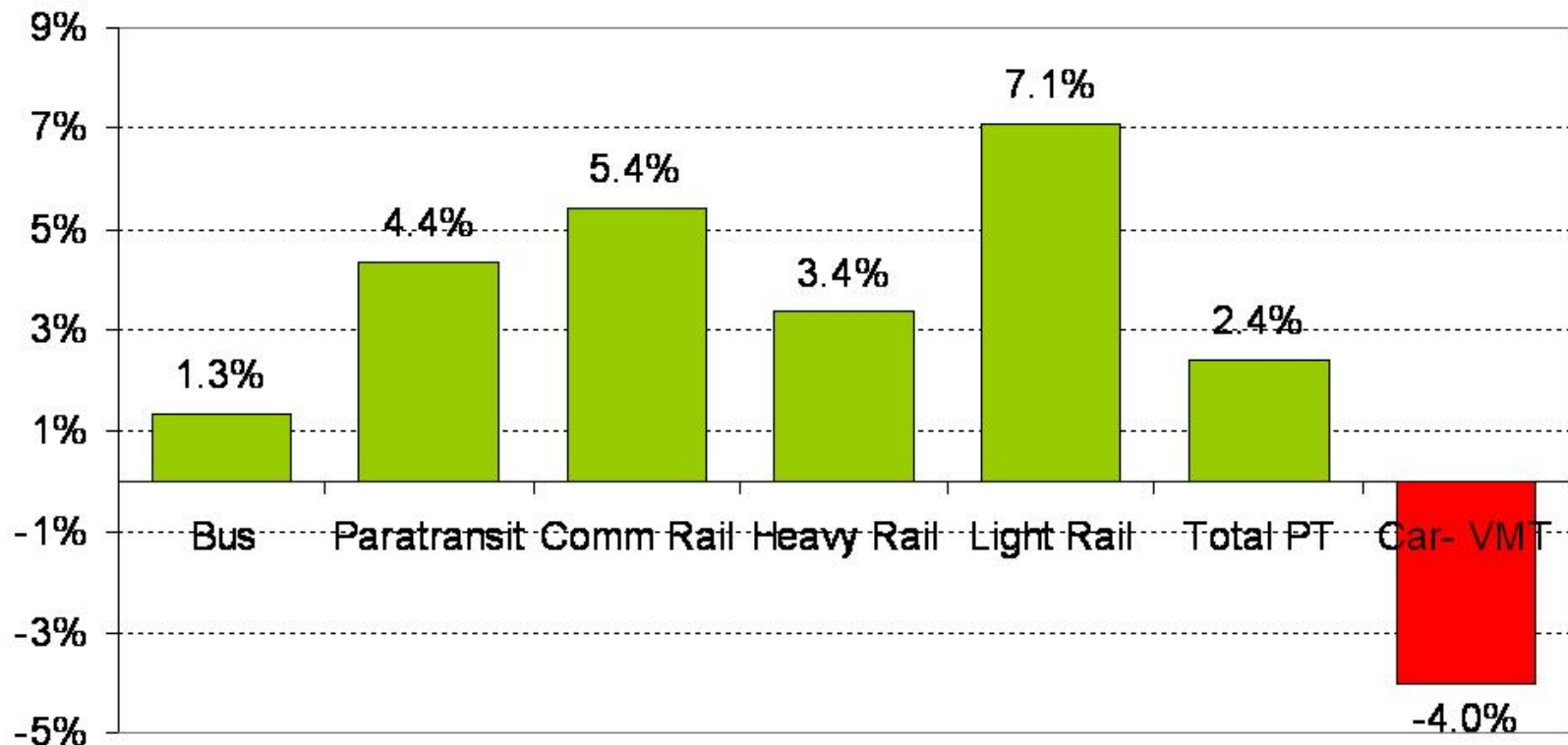
- ◆ Apartments & Town Houses now over 2/3rds of new dwellings in Sydney
- ◆ Sydney's density is rising
- ◆ Implies much more road congestion unless we substantially boost public transport



Transit-oriented Development at Subiaco, Perth

Travel behaviour is shifting

Public Transit Boardings and Vehicle Miles Travelled in US:
March Quarter 2008 vs March Quarter 2007



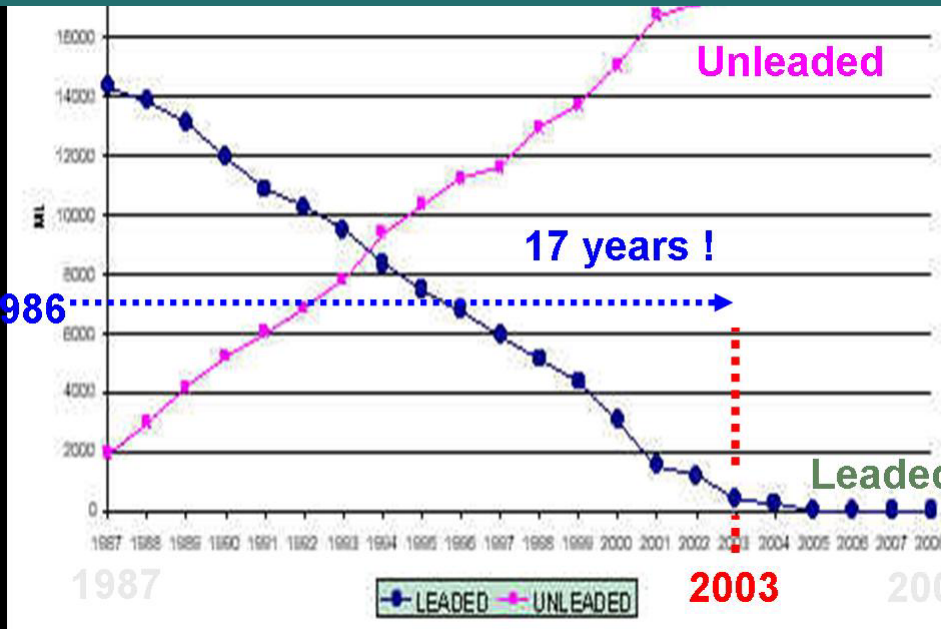
So are funding priorities...

IA Transport Infrastructure Funding

(Federal Budget – 12 May 2009)

- ◆ \$4.6 billion for public transport:
- ◆ \$3.4 billion for roads
- ◆ But NSW only got 2% of PT funding
- ◆ “No plan, no money..”

Response times



17 years to phase out leaded petrol even after unleaded petrol made mandatory on all new cars.

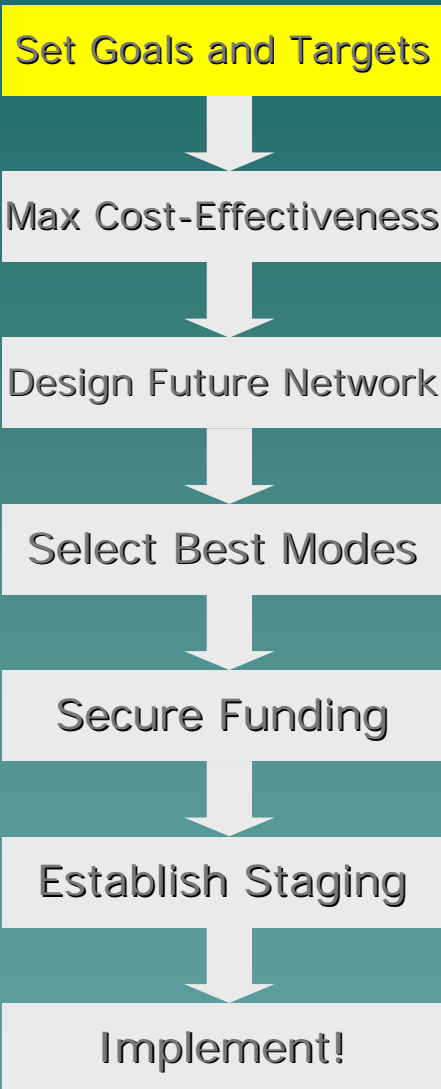
- ◆ 30 years to change our vehicle fleet
- ◆ 30 years to change our land use patterns
- ◆ 30 years to build world class public transport
- ◆ Major infrastructure lasts 100 years
- ◆ Need detailed 30 year plan, but with eye to longer term

If we don't act now.....Fuel Rationing?



7 Steps to a Rational Plan

Step 1: Goals

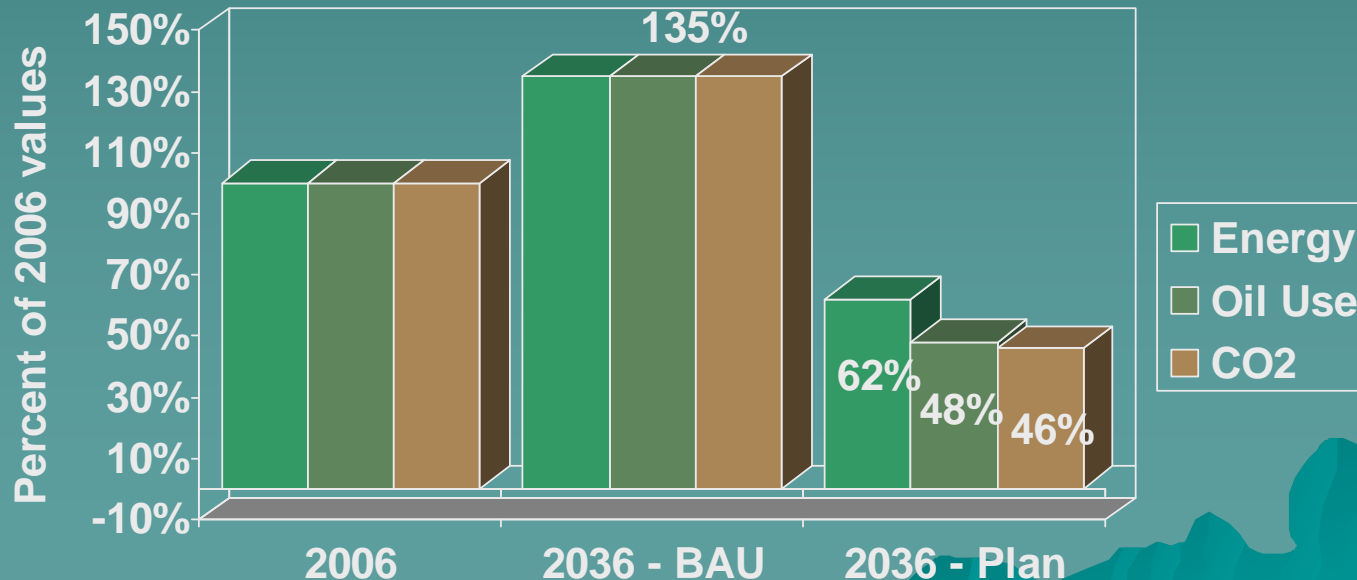


- ◆ *Reduce emissions and oil use*
- ◆ *Double Public Transport, Walk & Cycle*
- ◆ *Limit need for new roads*
- ◆ *Serve inner & outer suburbs and centres*
- ◆ *Integrate all modes into a single system*
- ◆ *Improve funding, staging and implementation*

Oil and Greenhouse

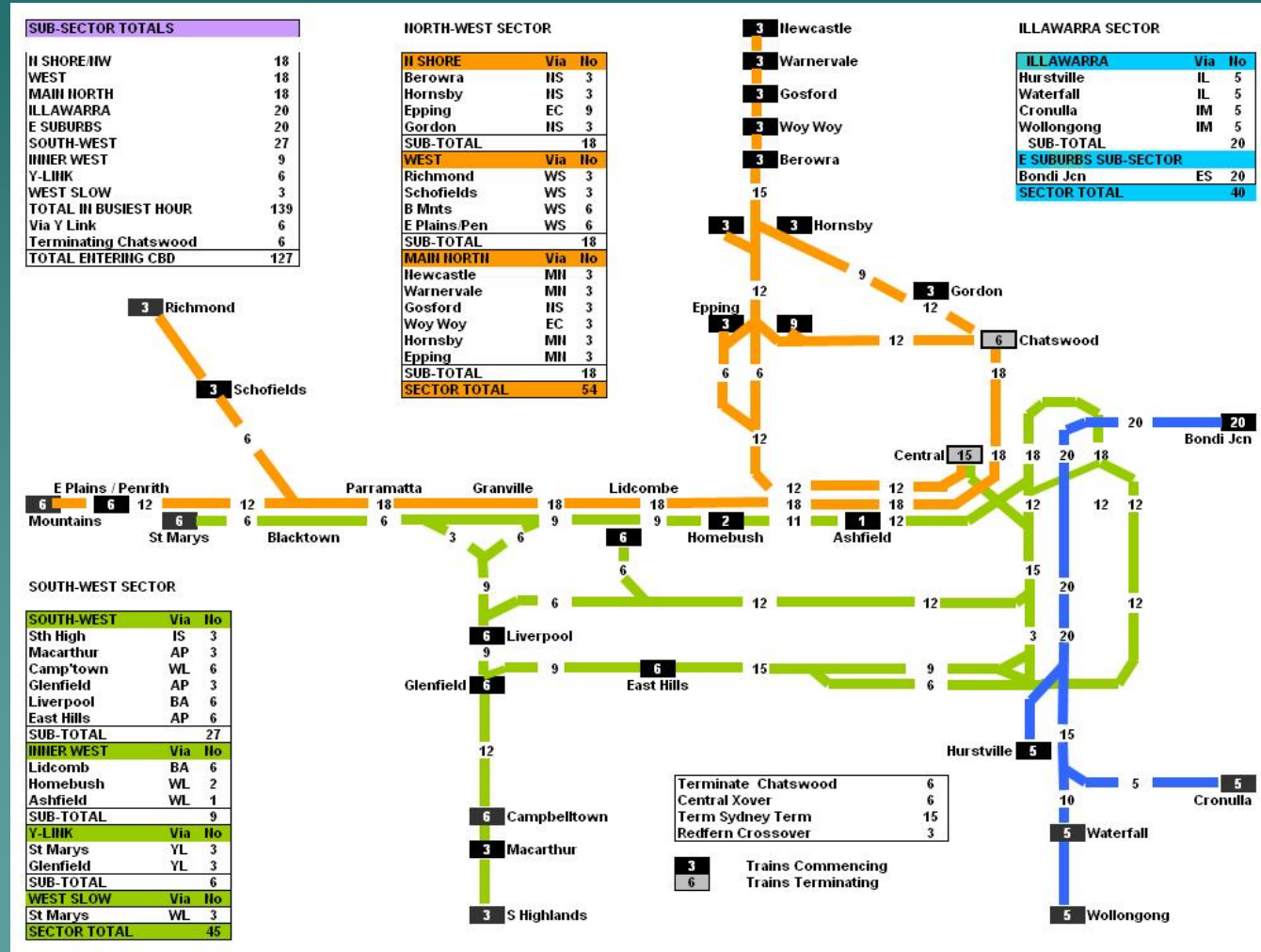
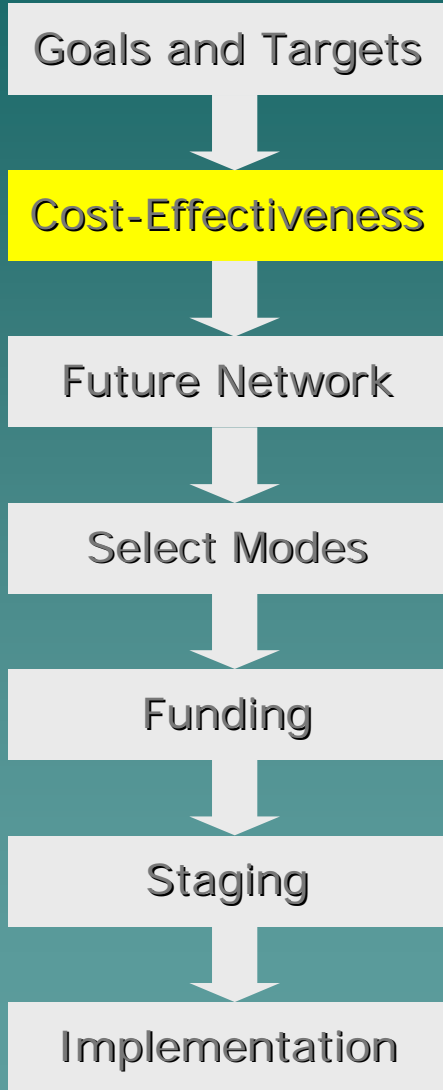
- ◆ 10% reduction in per capita travel
- ◆ MODE SHIFT: PT, walk, cycle to double
- ◆ EFFICIENCY:
 - All electric rail to use 100% greenpower; green buses
 - Average car in 2036 to use 50% less oil and produce 50% less CO₂
- ◆ Total oil and GHG emissions fall by more than 50%
 - despite 30% pop growth

Overall Impact for Sydney



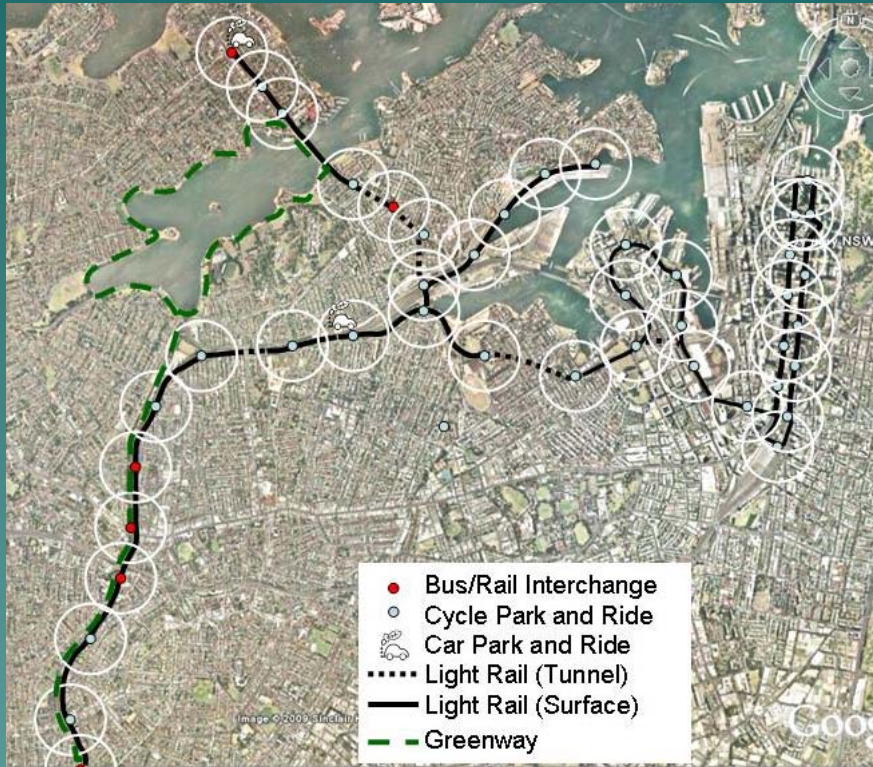
Step 2: Maximise Cost-Effectiveness

25% more trains on heavy rail

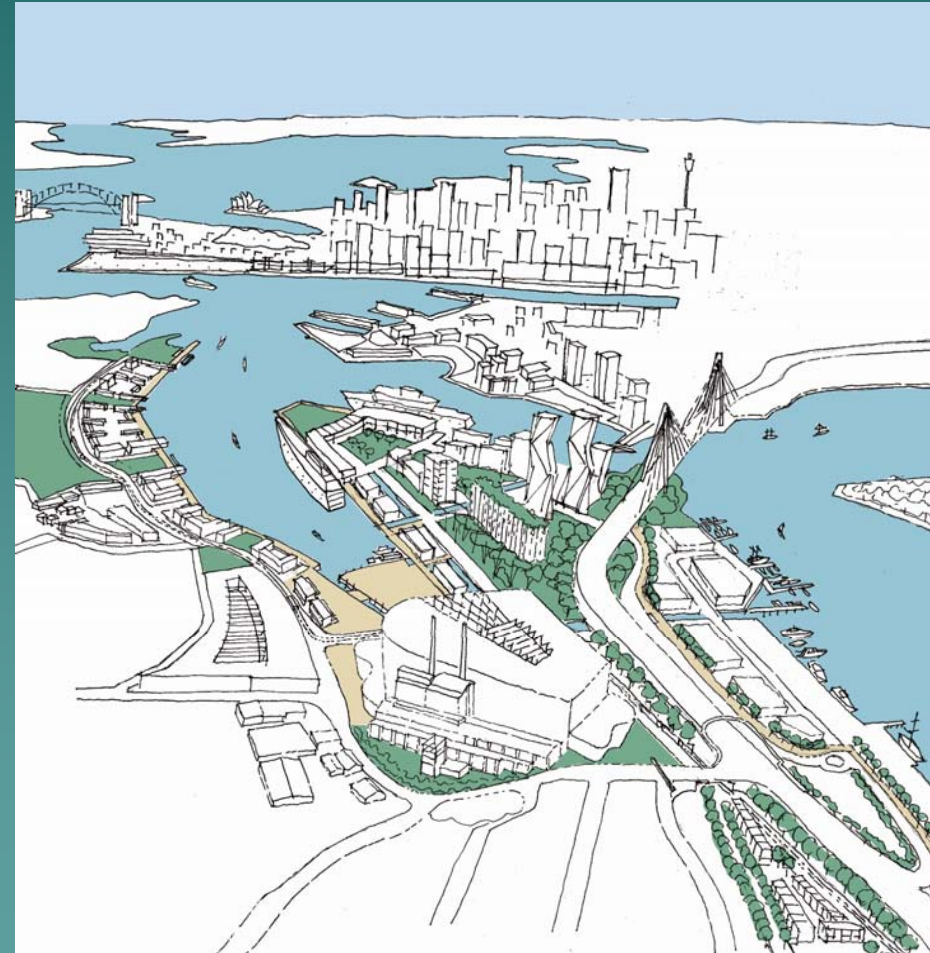


Cost – Effectiveness: Light Rail

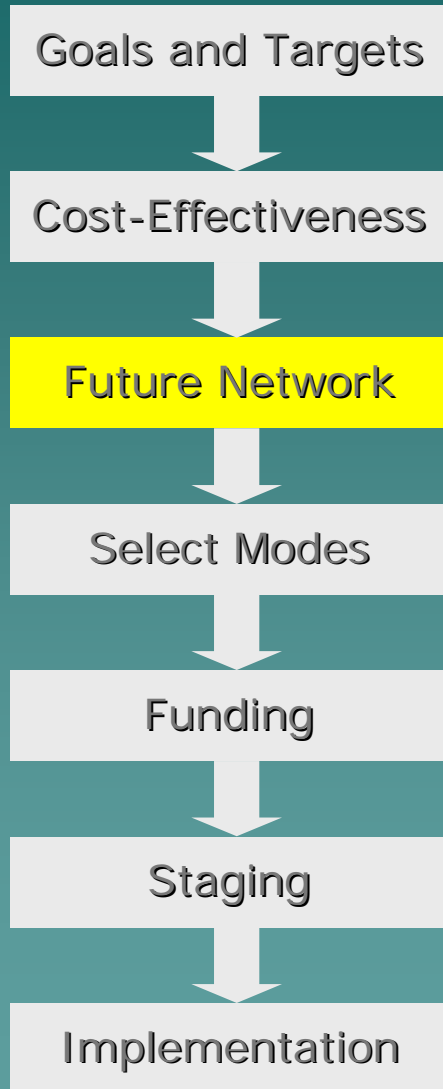
Extend underutilised LRT system into inner west and CBD. Additional inner-west extensions to Burwood and Abbotsford



One option for development at Glebe Island, White Bay, Rozelle Goods Yard, served by light rail



Step 3: Design a Future Network

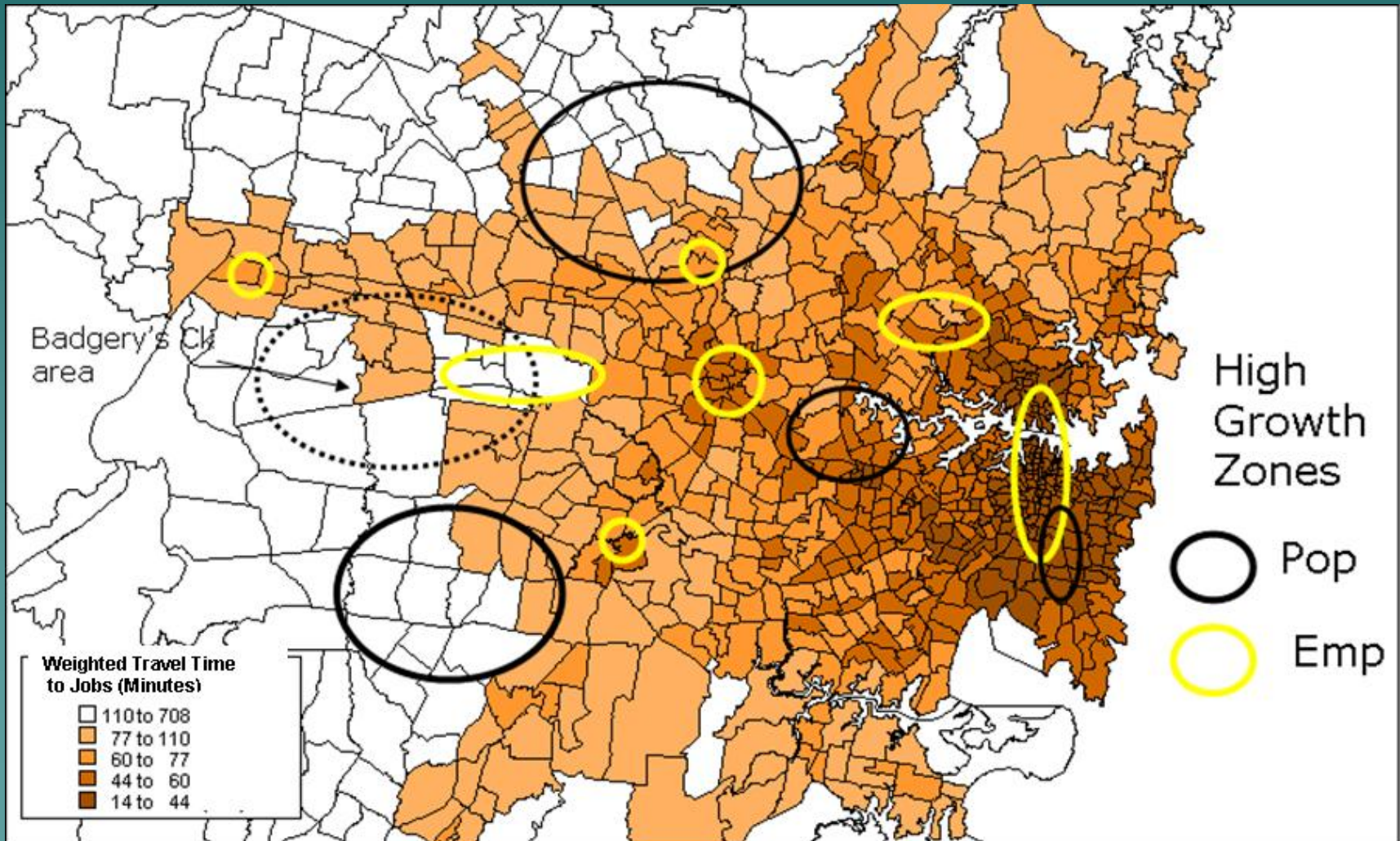


Need to consider:

- ◆ Land use (current and future)
- ◆ Travel desire lines
- ◆ Capacity requirements
- ◆ Network connectivity

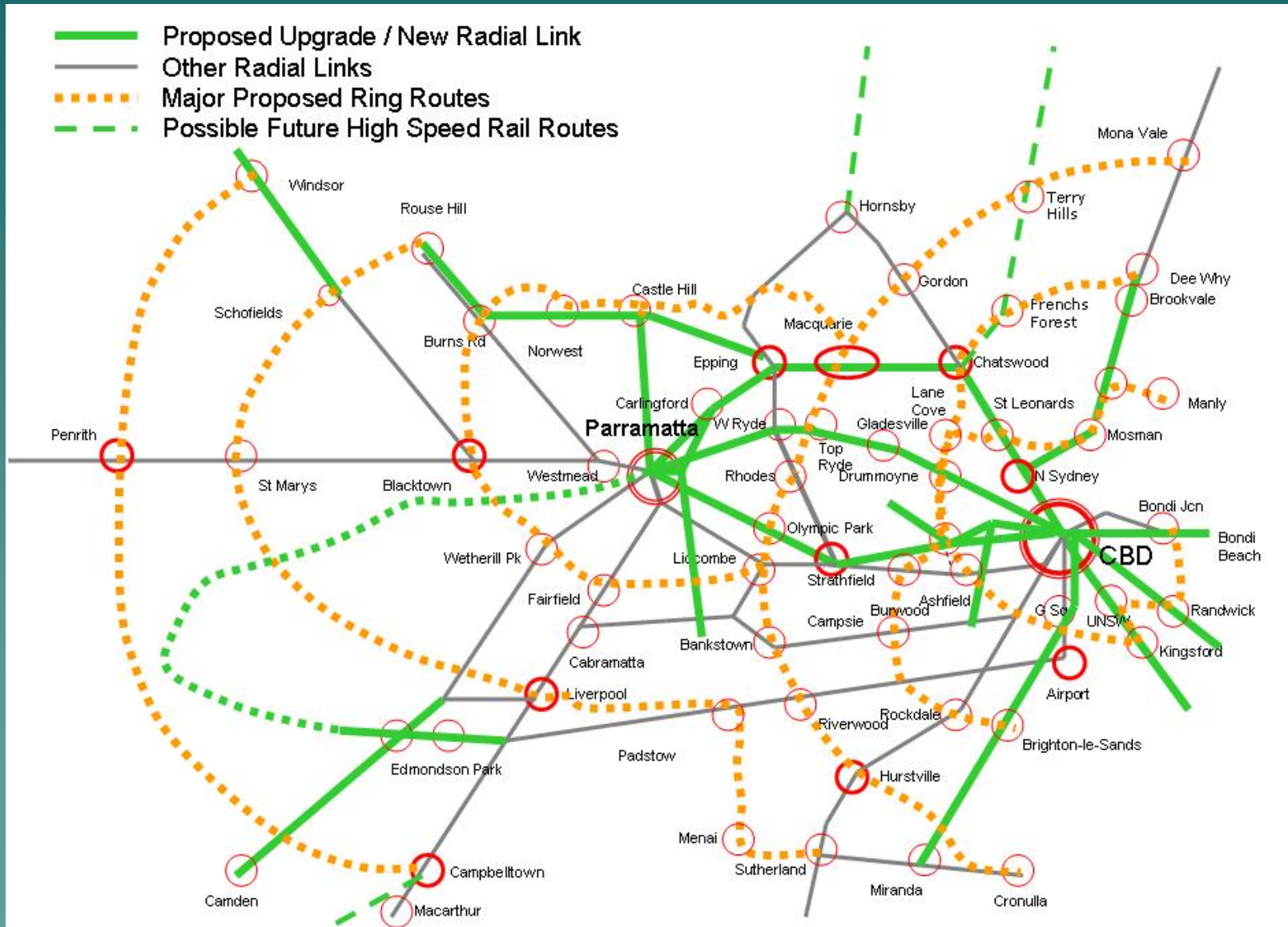
Design a Future Network – Land Use

- ◆ Current Accessibility problems are worst in the NW and SW
- ◆ High Population Growth in NW, SW, Mid West and SE
- ◆ Key Employment Concentrations in CBD, Parramatta, Macquarie

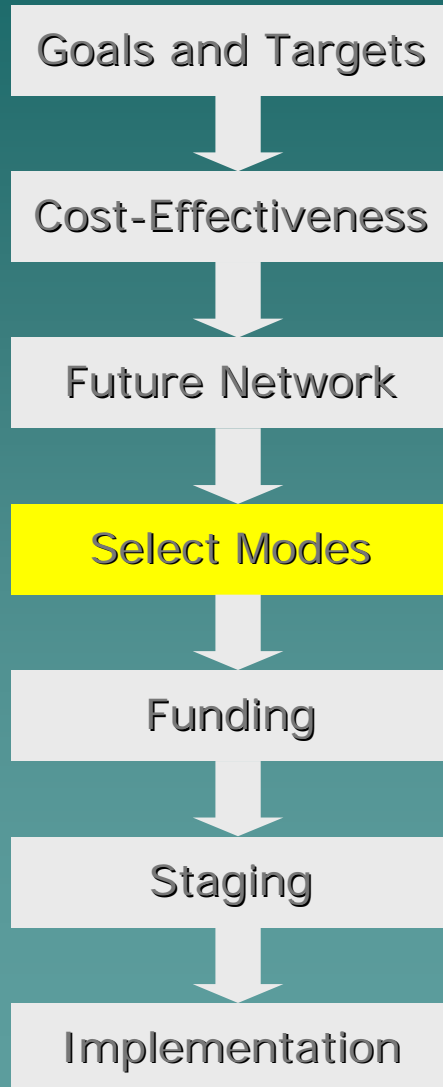


Design the Network: Key Links

26 Key Radial and Circumferential Links identified for enhancement



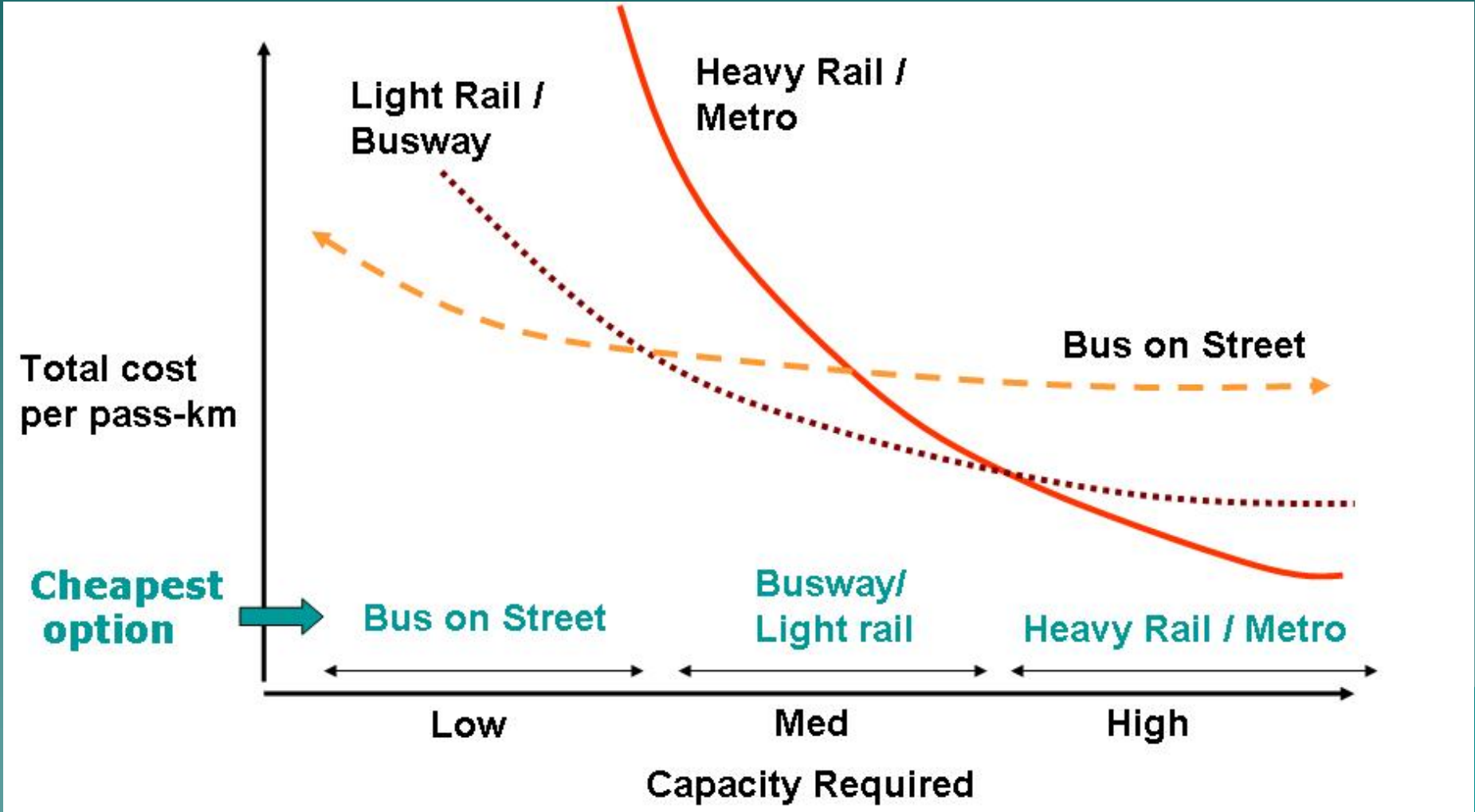
Step 4: Select the most appropriate modes



Need to consider:

- ◆ Characteristics of modes
- ◆ Corridor conditions

Select the Right Modes – Cost and Capacity



Why Metros?

- ◆ Faster to load and unload
- ◆ Quicker acceleration and hill climbing
- ◆ Cheaper to operate (fully automated) and build (smaller tunnels)



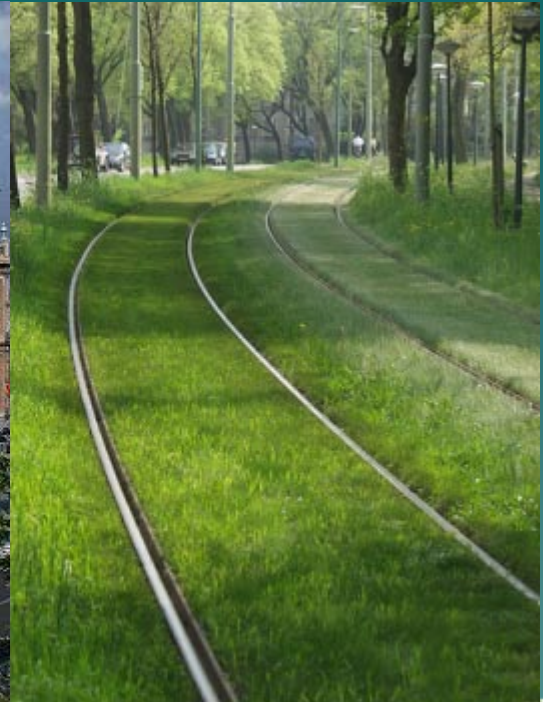
New Spacium Metro for Paris
(Source: Bombardier)

They don't need be sardine cans!

Metros vs Heavy Rail

- ◆ *Metros make sense on many new high capacity routes*
 - especially where there are steep gradients, tunnels or relatively closely spaced stations,
- ◆ *Retrofitting the whole Cityrail network is not cost effective*
 - as the capacity benefit requires 30 trains per hour and stations to be fitted with screen doors, as well as suitable signalling, train control etc.
- ◆ *Heavy rail is the way to go in locations* like the SW rail link or for long distance high speed rail corridors.
- ◆ *Need to consider Network Connectivity*
 - Balance loads on links, places to stable trains etc

Light Rail



Busways



Parramatta – Rouse Hill T-Way in
Western Sydney



Brisbane's SE Busway



Adelaide O-Bahn

Local Access and Feeders to the Strategic Network

- ◆ Local Bus Services (including demand responsive)
- ◆ Strategic Car Park and Ride
- ◆ Local Bike Park and Ride

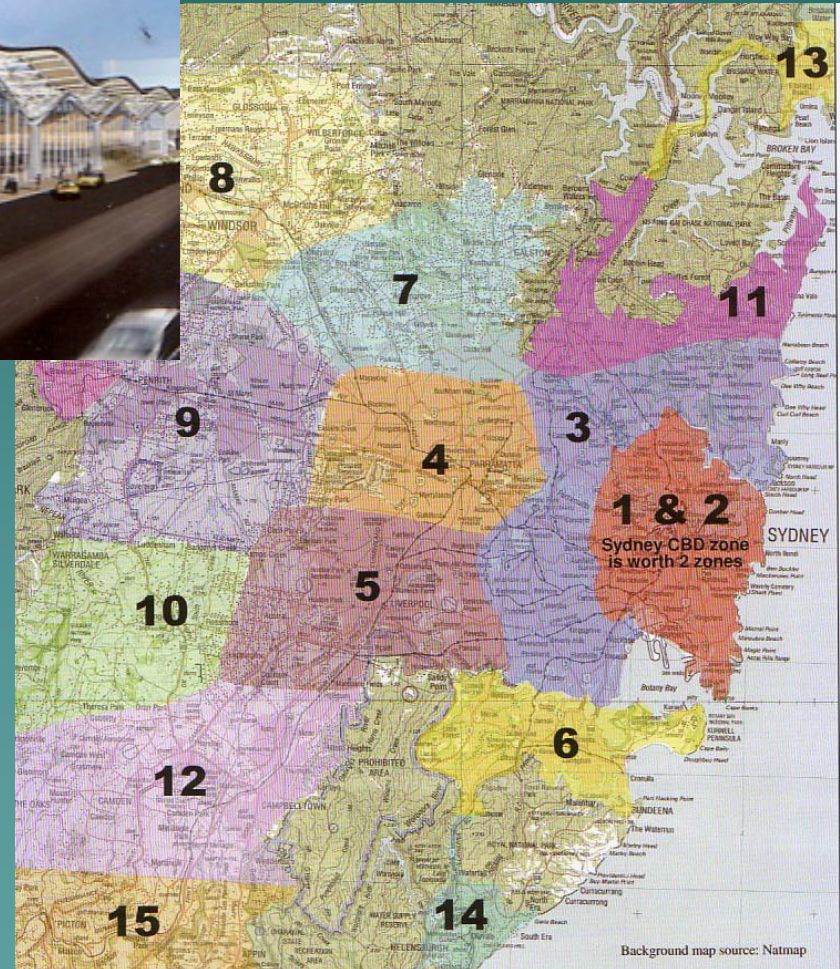


Seamless integration across all modes



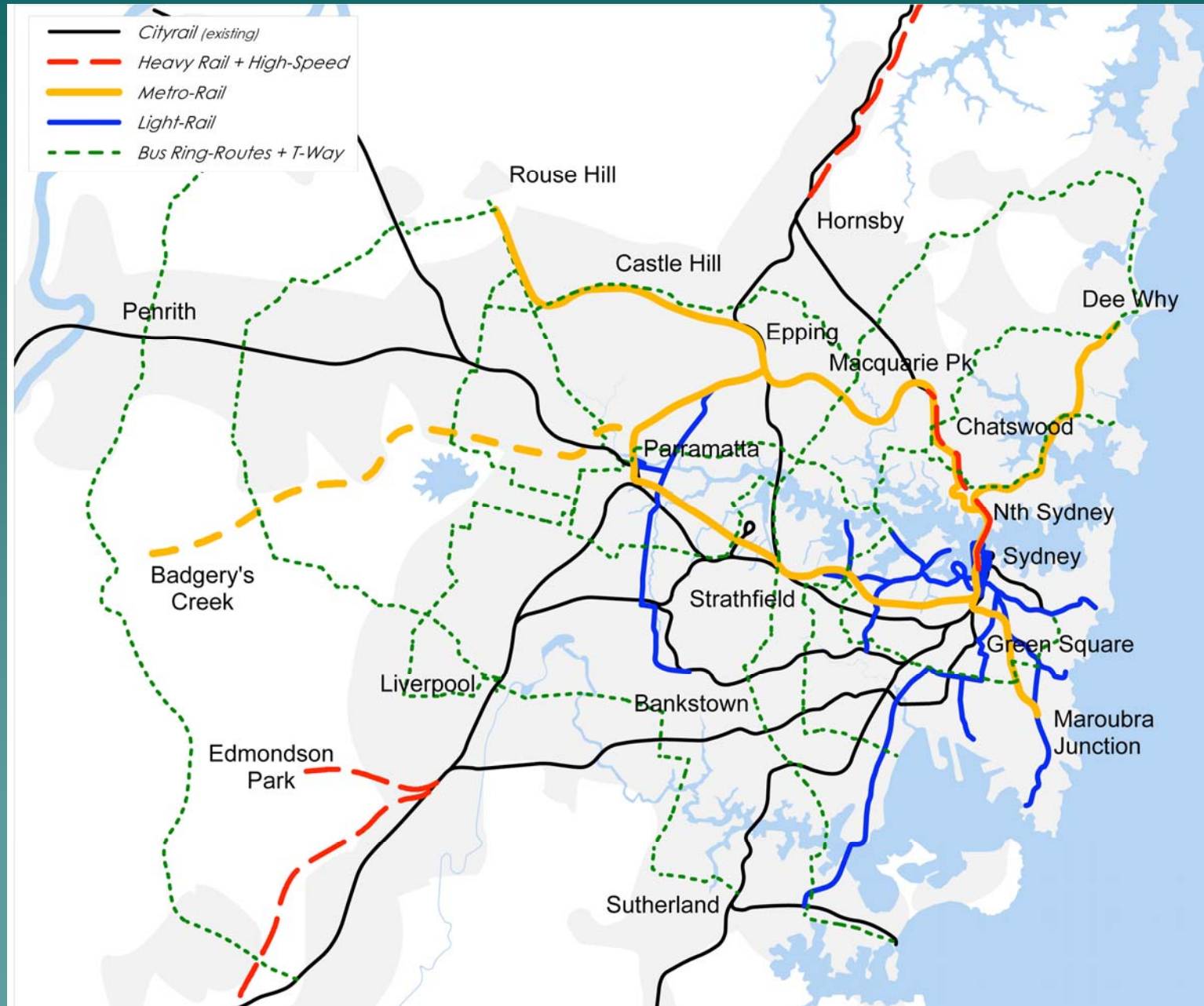
Quality Interchanges

Integrated Fares and Tickets

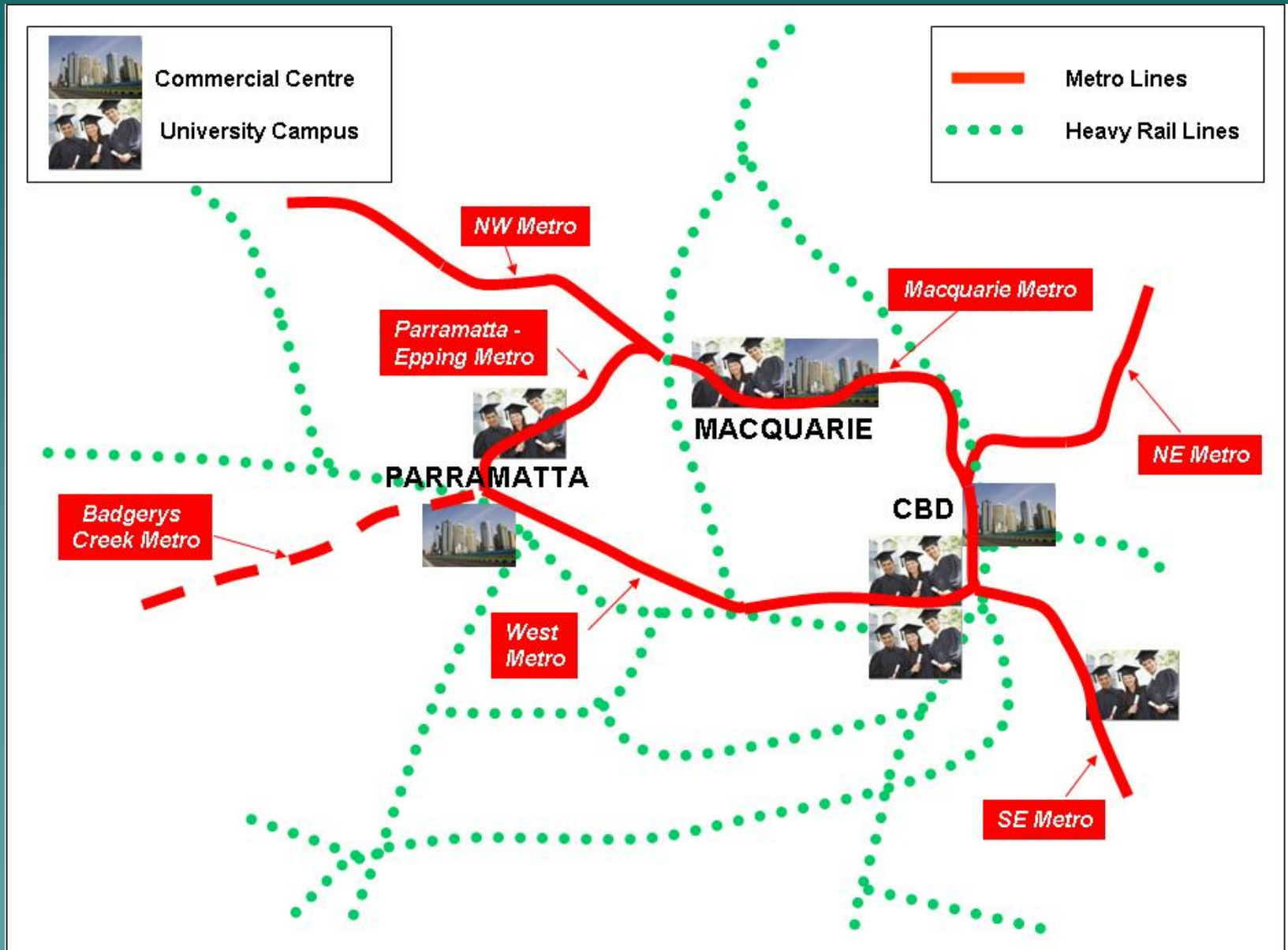


Integrated Information and Marketing

The Overall Plan: Modes for 26 Key Links



Metro Network to fill major gaps in heavy rail system, and link major CBD's and universities

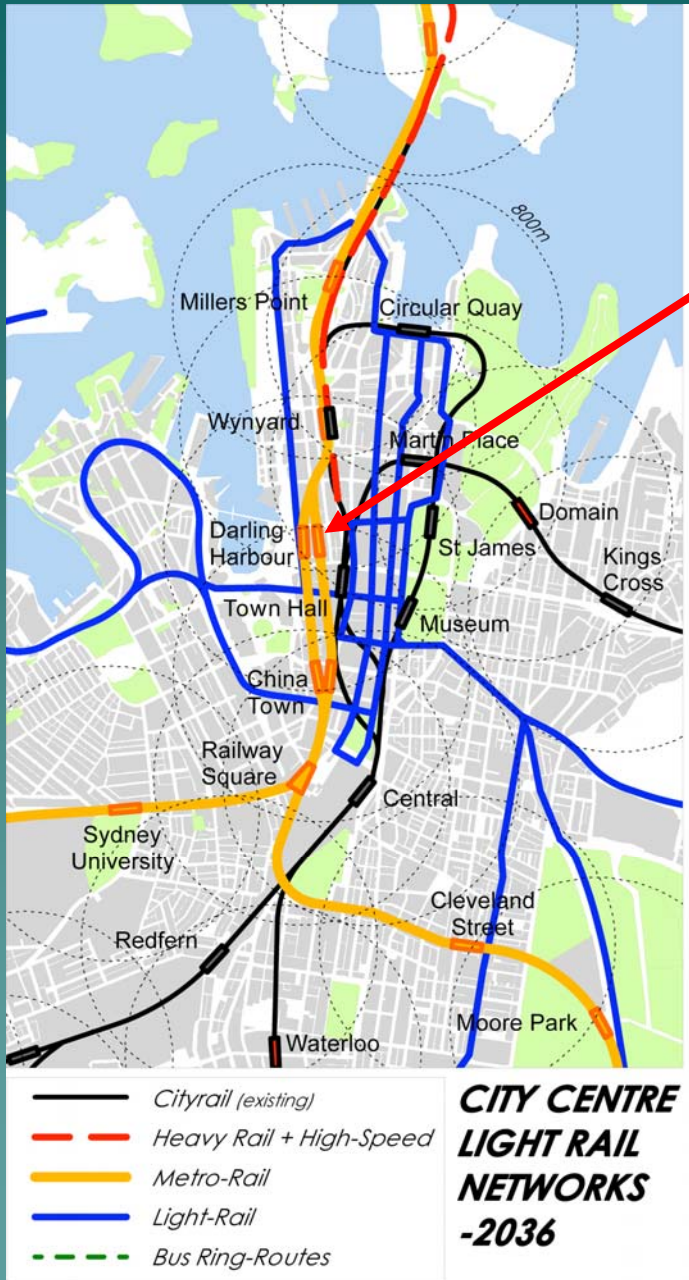


Fast North Shore Link

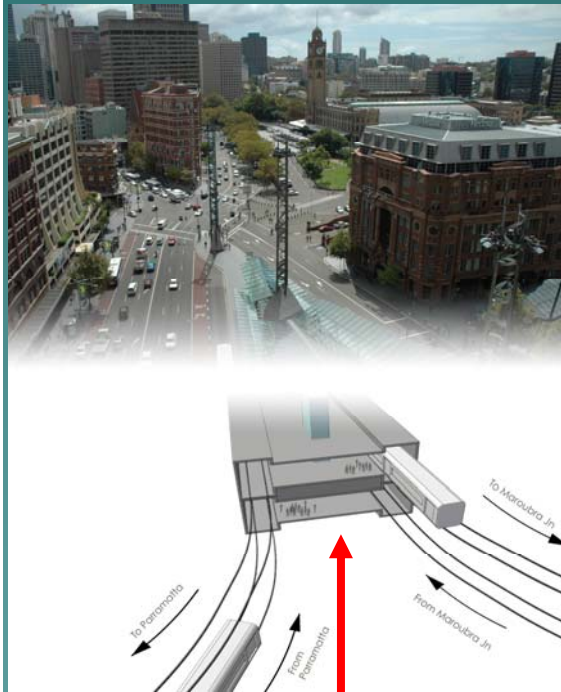
Saves 5-6 minutes and increases capacity from North Shore, and frees existing line from Wynyard to Chatswood for metro operations, which can speed up services on this route



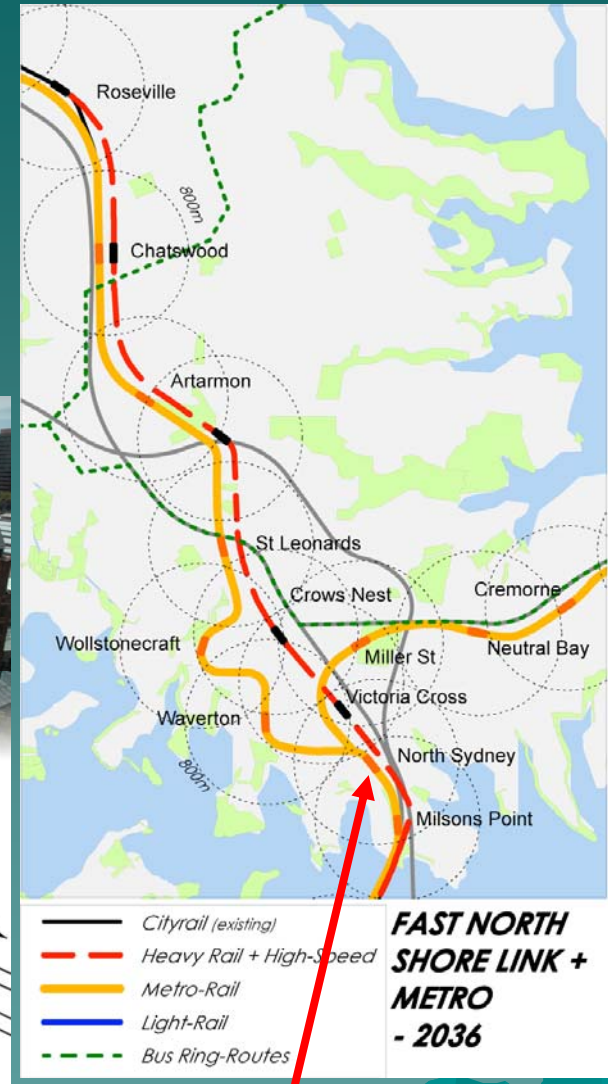
CBD and Nth Sydney



New metro stations in China Town, Darling Harbour and potentially Milsons Point serve western part of CBD



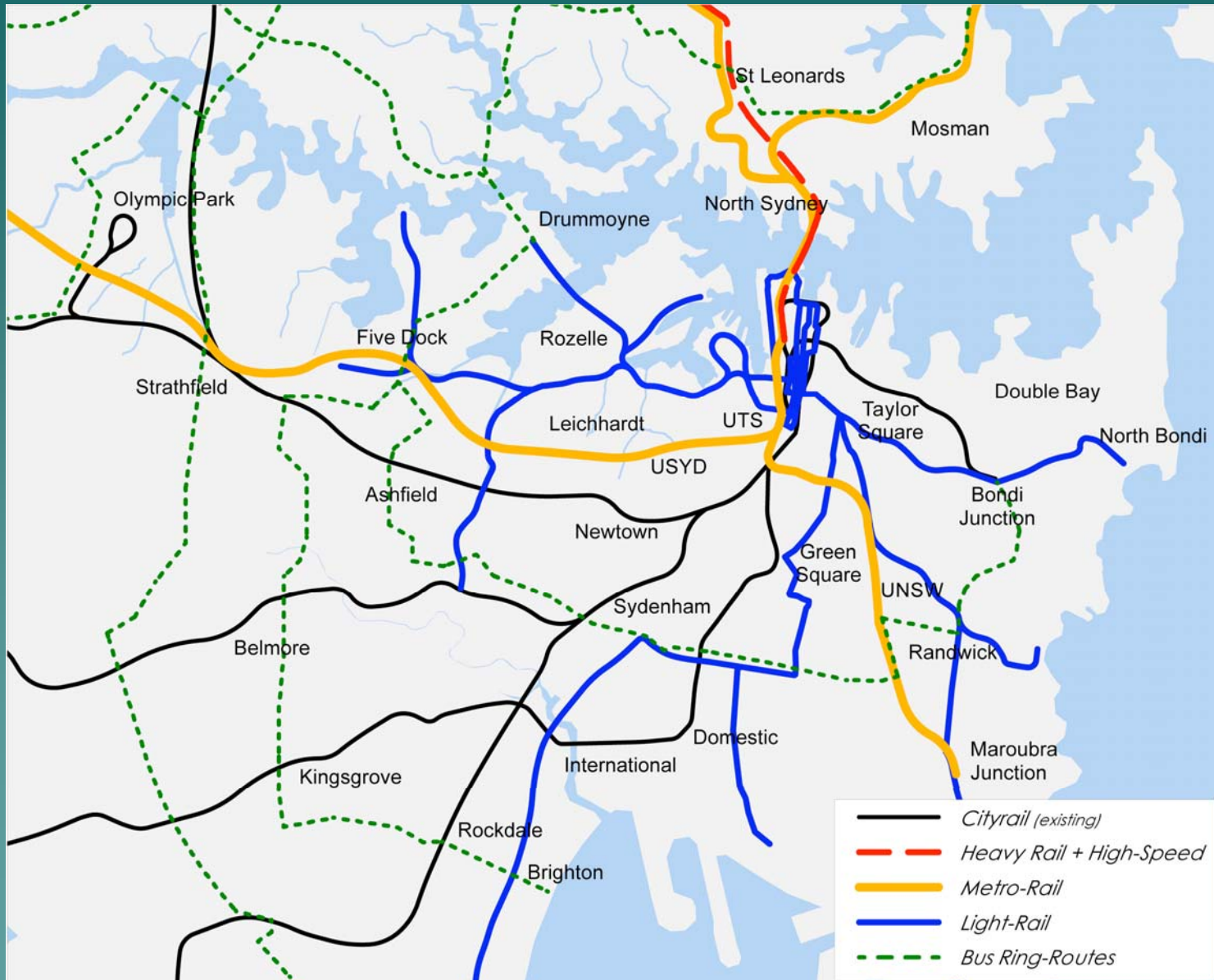
Grade separated junction under Railway Square serves SE and West Metros



Grade separated junction at North Sydney serves NE and Macquarie Metros

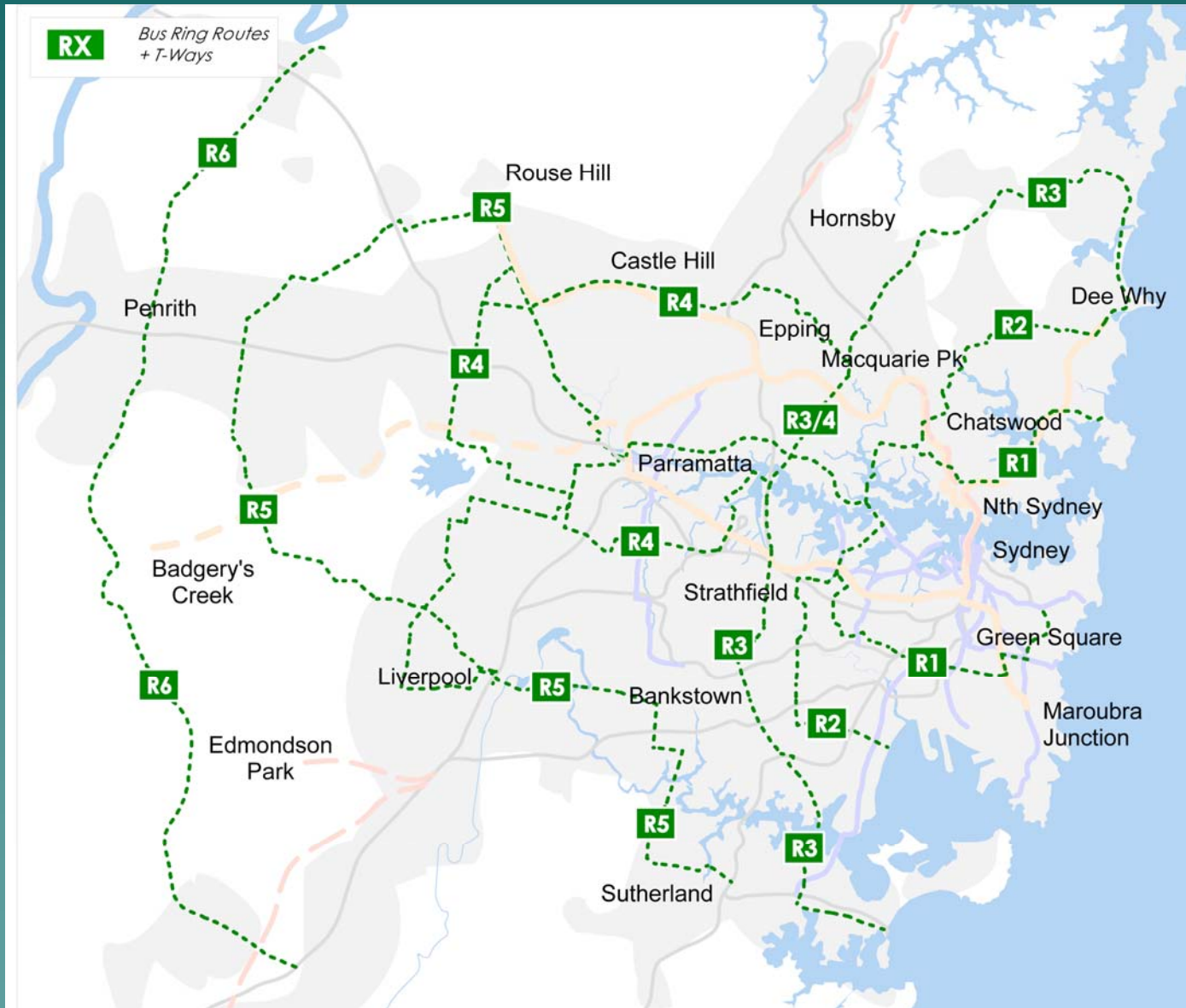
Inner City LRT Network

serves secondary radial routes in the inner west, east, and inner southern suburbs, and the CBD



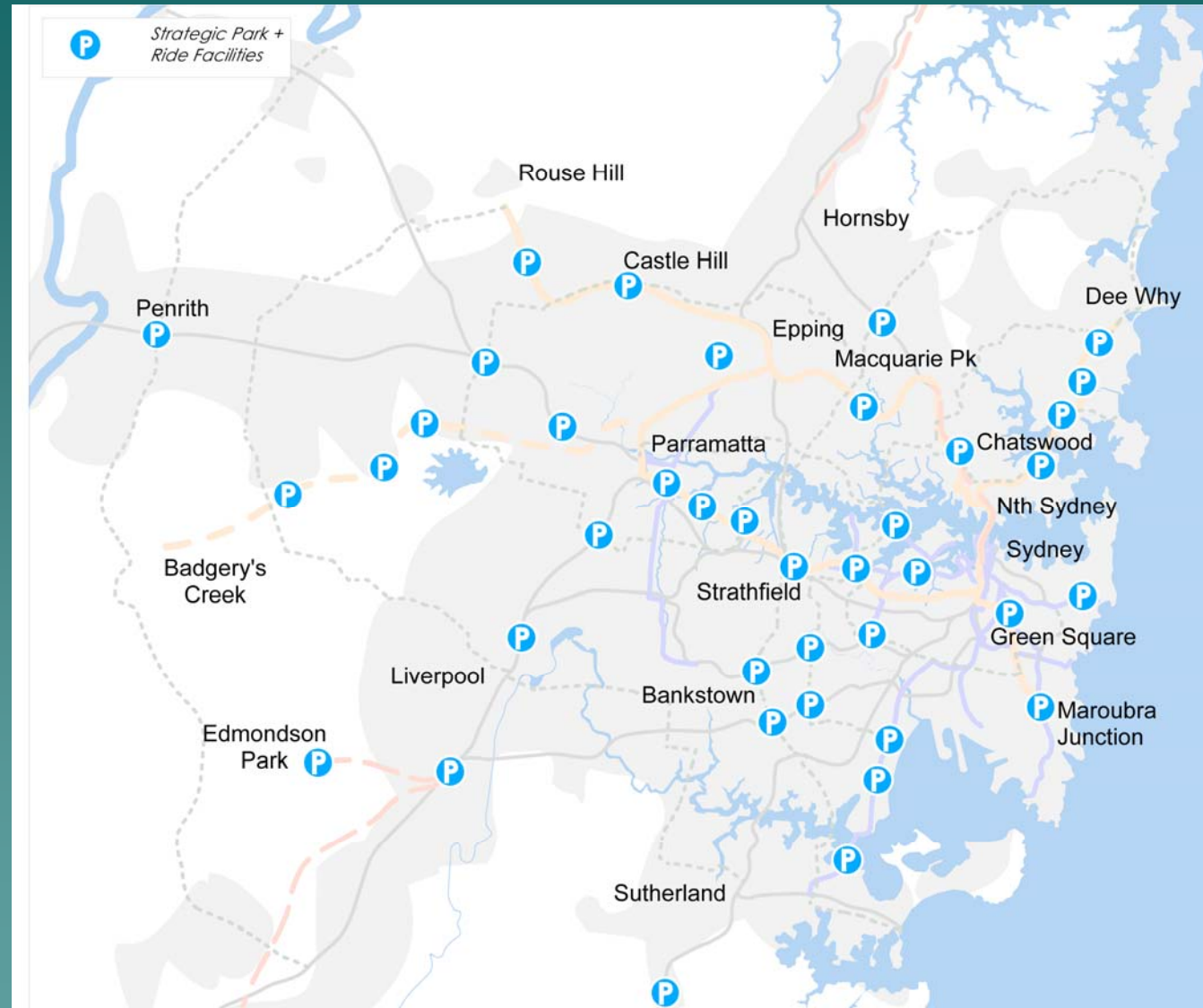
Six Bus-based Ring Routes

Cross-regional access and links to secondary centres.
Three centred on CBD, three on Parramatta



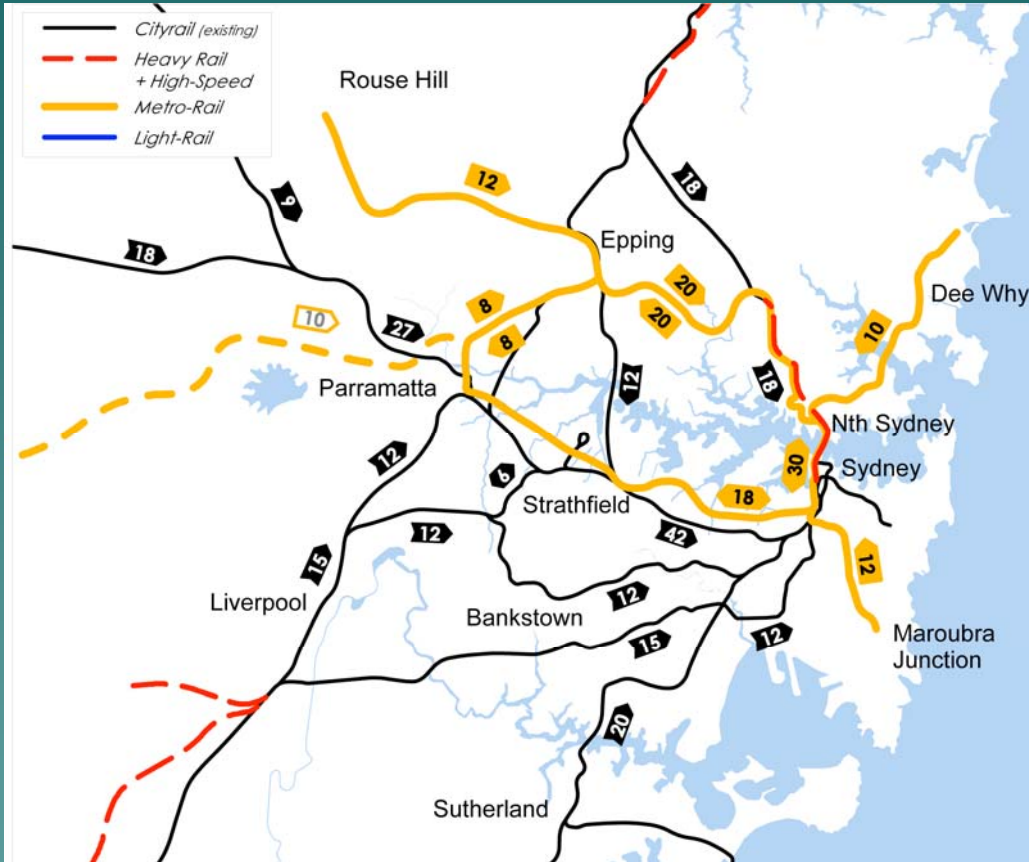
40 Strategic Park and Ride Facilities

- ◆ Junction of major roads and major PT routes
- ◆ Soaks off traffic before it reaches centres
- ◆ 30,000 extra places over 30 years
- ◆ In addition, large expansion of bike / scooter park and ride at all rail, metro, LRT, ferry and many bus stops



Capacity Enhancements

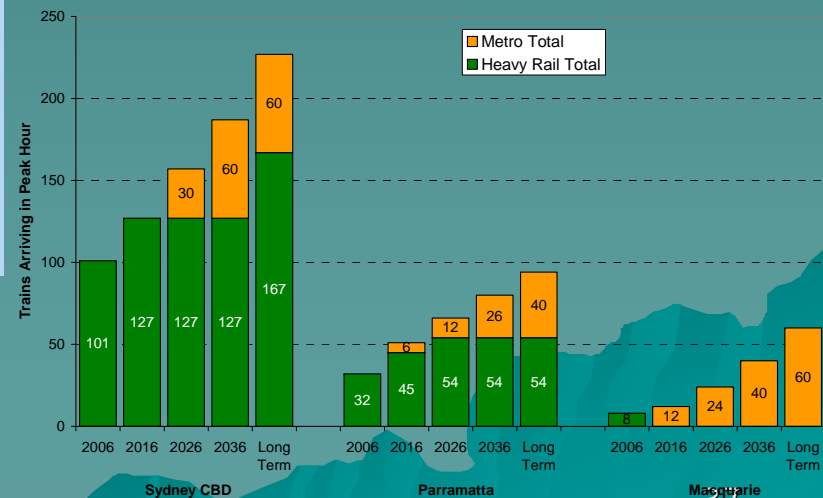
Peak Hour Heavy Rail and Metros - 2036



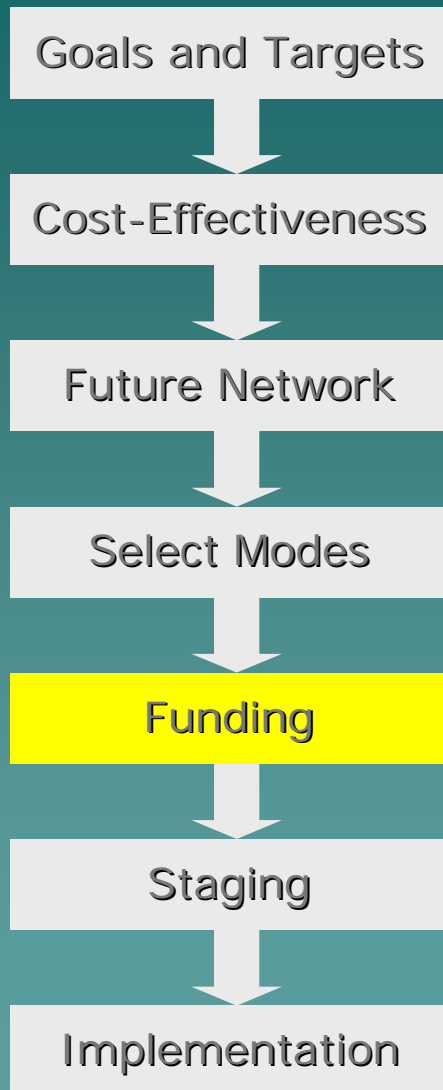
Long Term including High Speed Rail



- ◆ Inbound peak hour trains by route (top)
- ◆ Build up in peak hour trains arriving CBD, Parramatta and Macquarie (right).



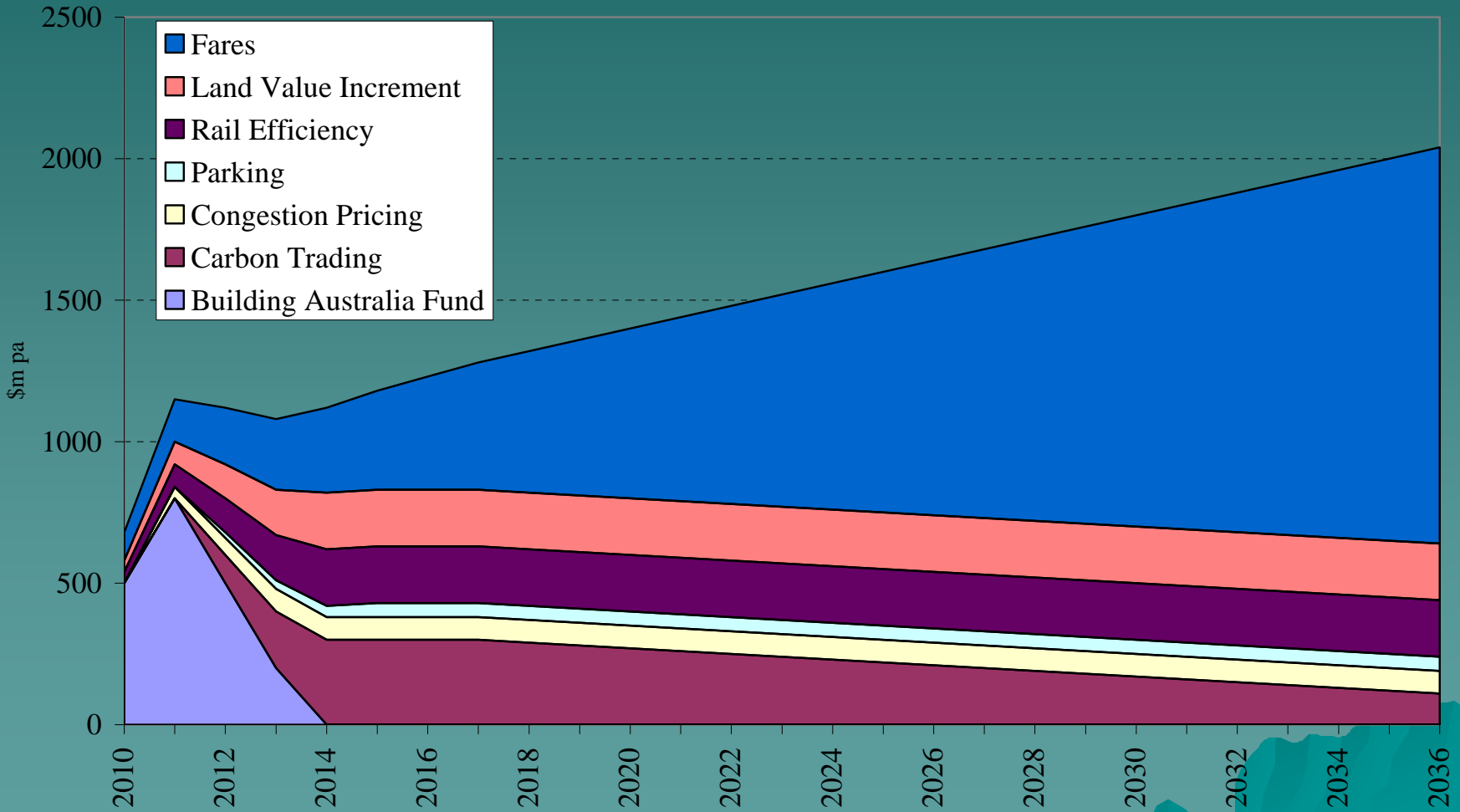
STEP 5: Funding



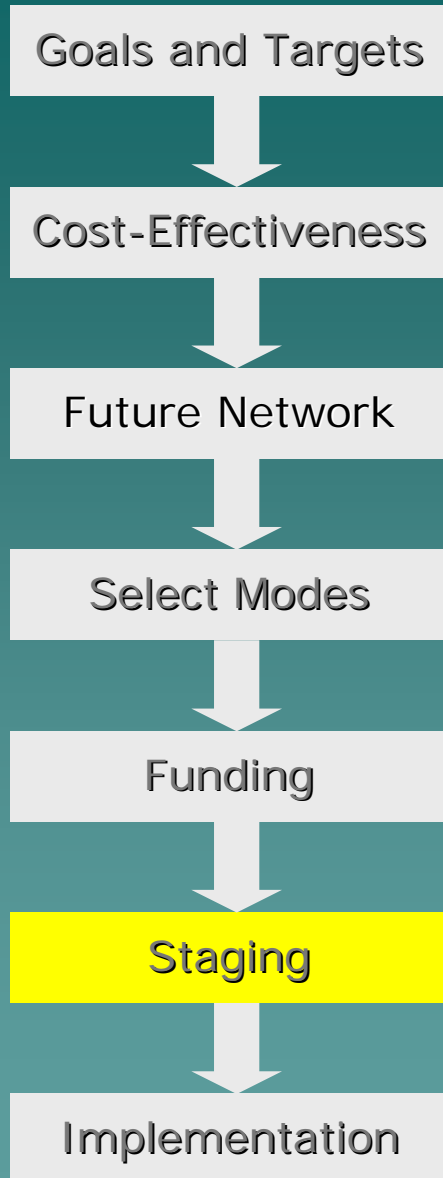
- ◆ Our cars in Sydney cost us **\$22.9b** pa (not counting externalities) – \$660b over next 30 years even without growth
- ◆ Public transport (including fares and subsidies) **\$3.2b** pa
- ◆ Need **\$40b extra over 30 years** for the plan. But **will save at least \$100b** in car operation and road building costs
- ◆ Can be funded from
 - Building Aust Fund
 - Carbon Taxes
 - Extra Fares
 - Congestion and Parking Charges
 - Land Based taxes

Funding...Continued

Potential Additional Finance for Public Transport



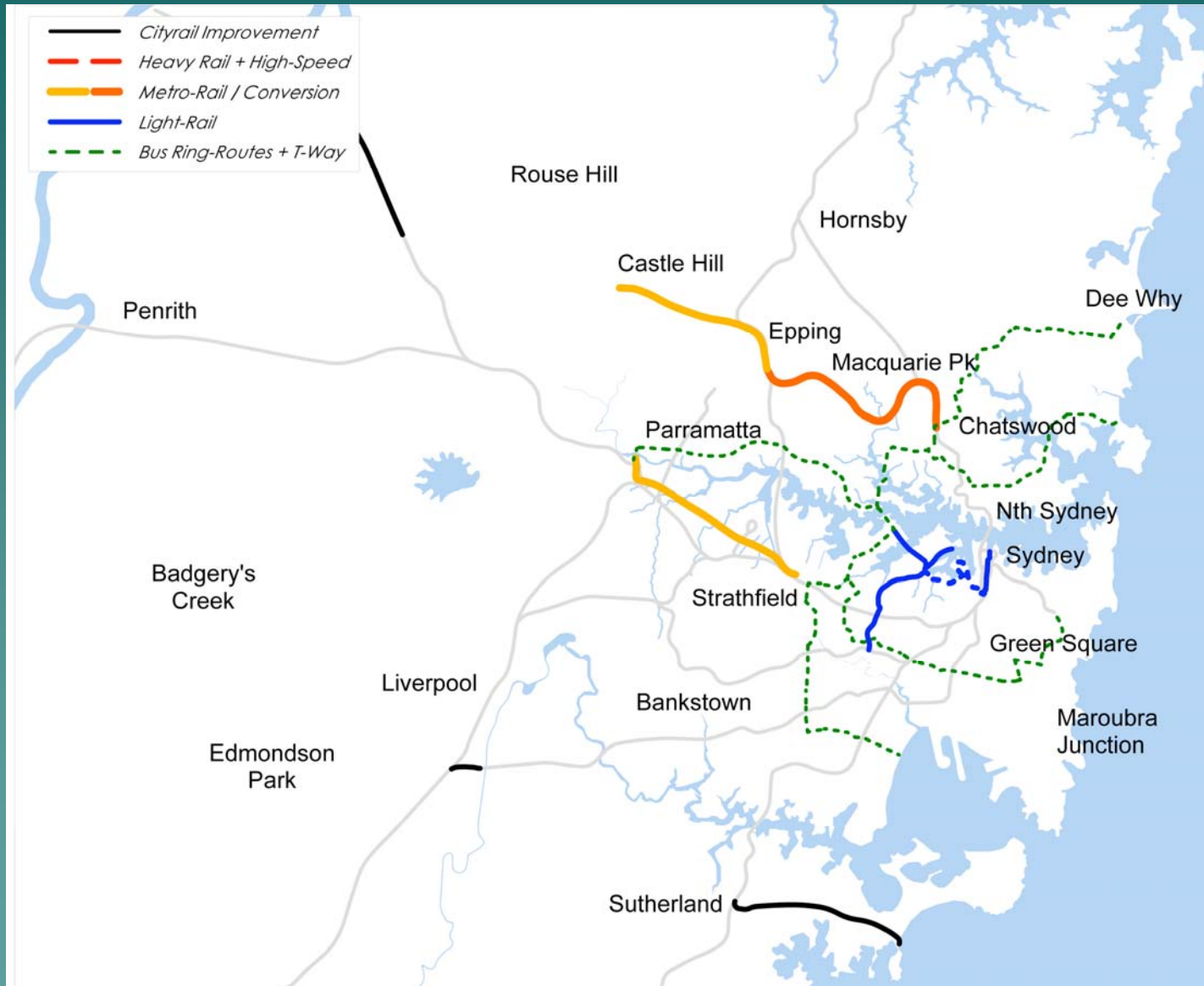
Step 6: Staging



- ◆ Need to consider:
 - Current access needs of different areas
 - Growth
 - Availability of resources
 - Technical Issues (e.g. tunnelling requirements; train stabling, operations)

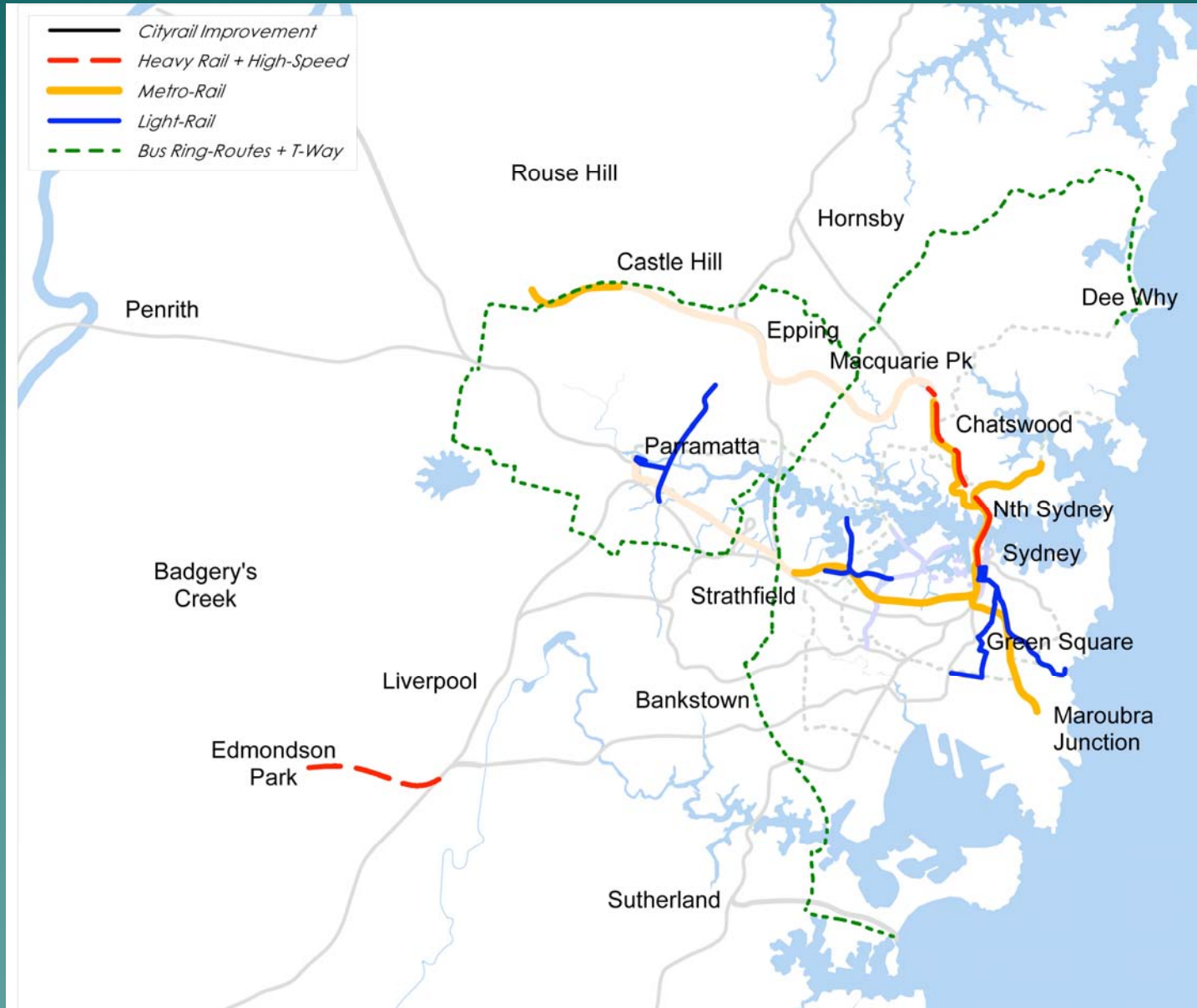
Stage 1

Potential Staging Plan – 2009-2016



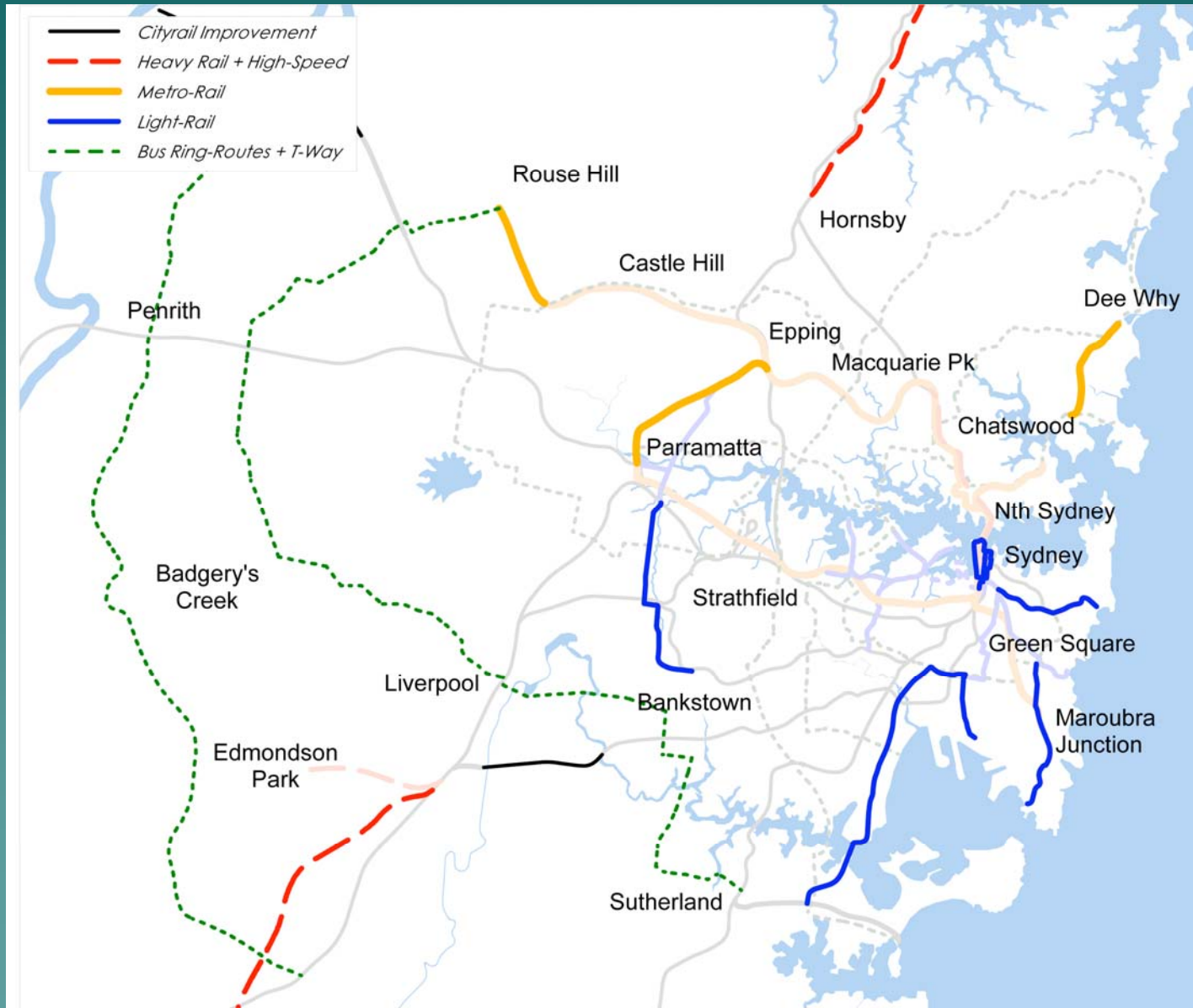
Stage 2

Potential Staging Plan – 2016-2026

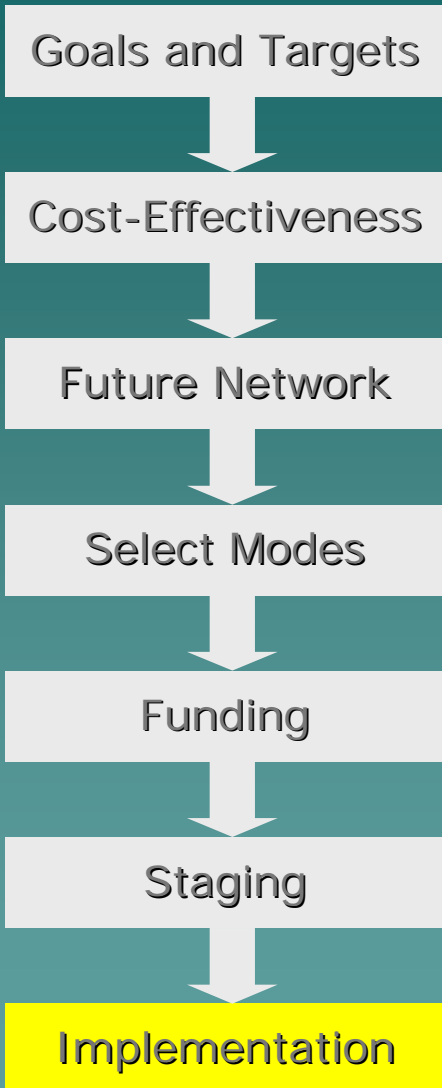


Stage 3

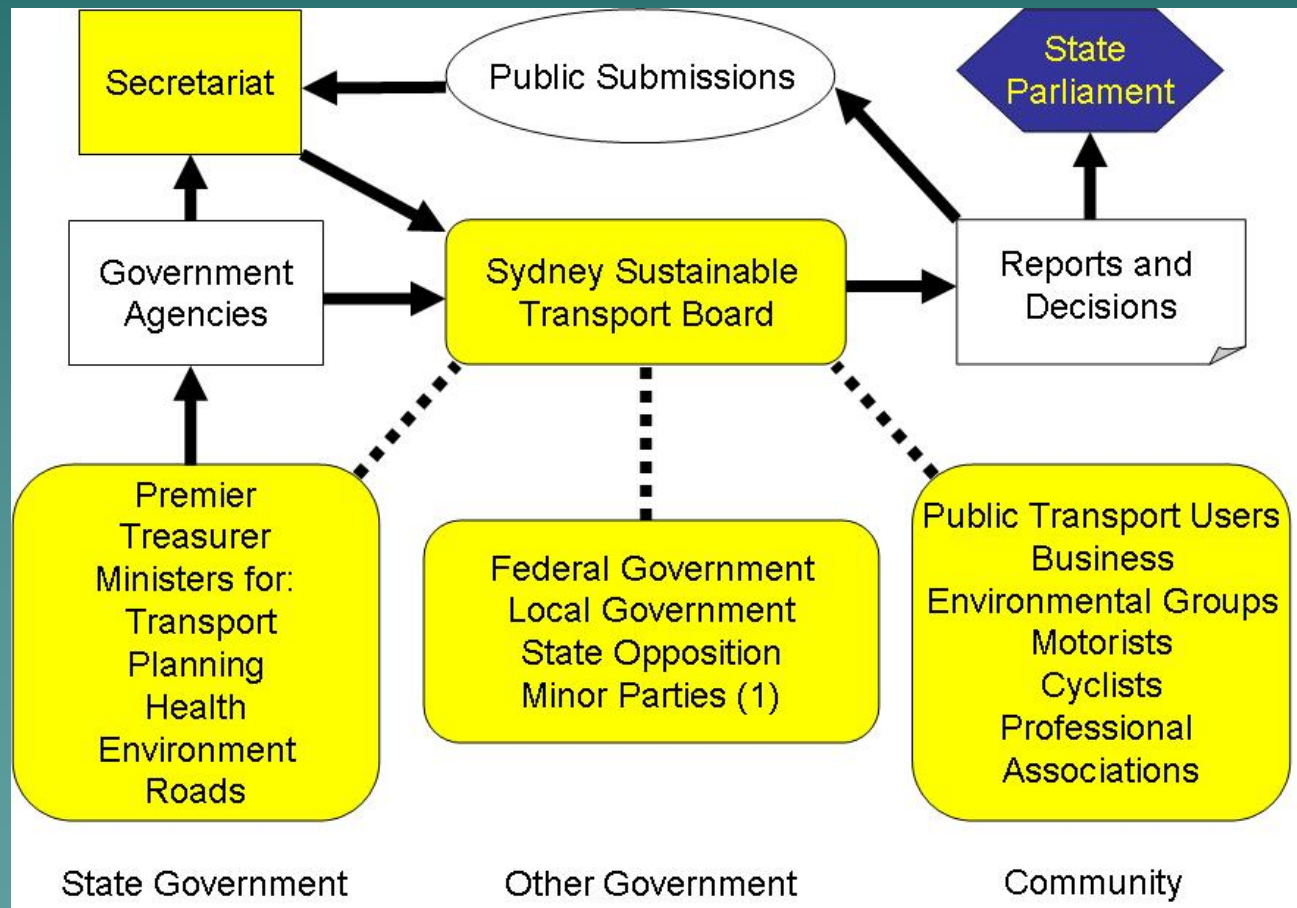
Potential Staging Plan – 2026-2036



Step 7: Implementation



- ◆ In addition to internal bureaucratic reform, need a more open and accountable process



Thank You

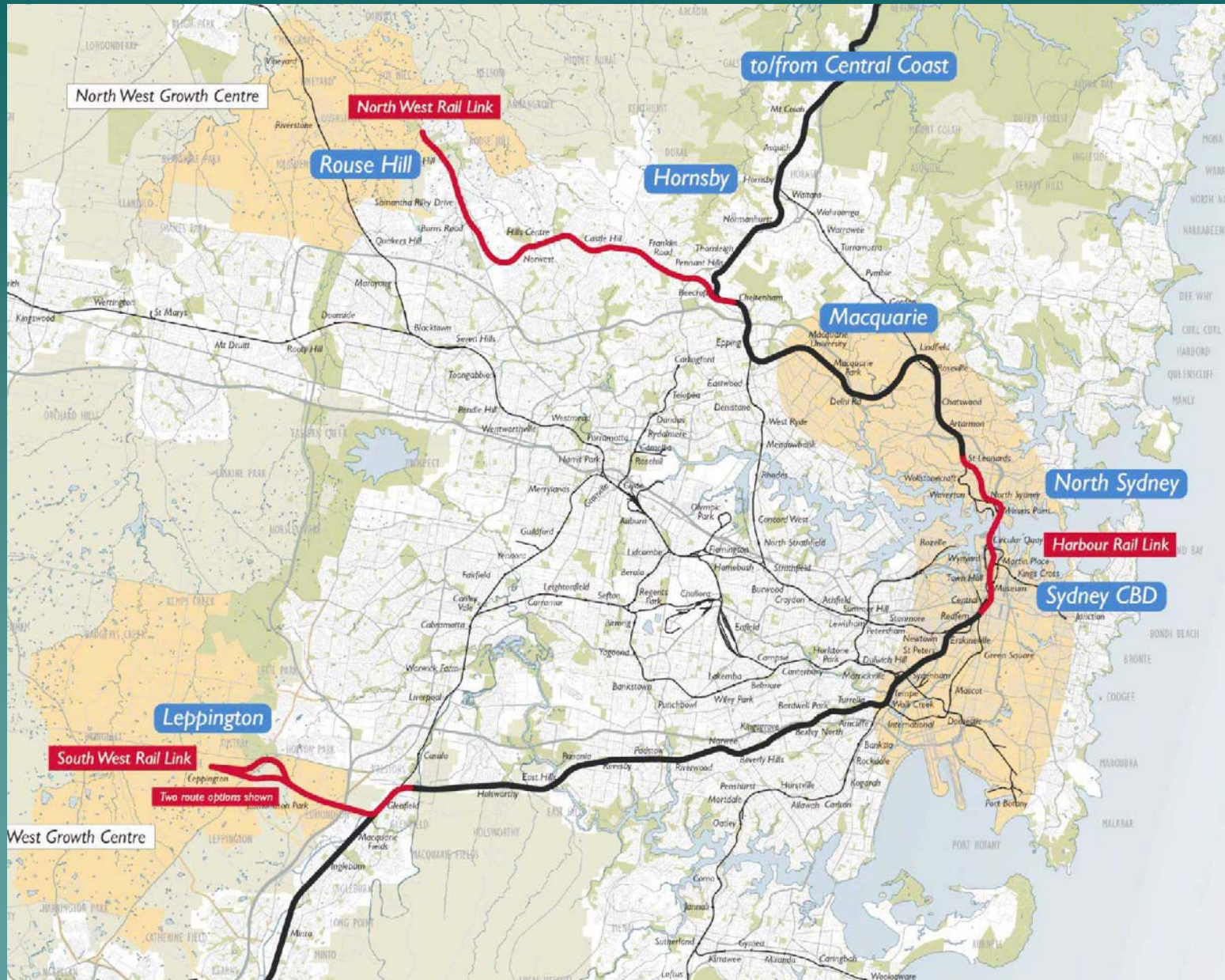
- ◆ A similar presentation and copies of the Summary Report (May 2009), and the Main Report, Attachment Report (March 2009) and Strategic Options and Staging Plan report are available at

<http://www.dab.uts.edu.au/research/outcomes>

What are the Alternatives?

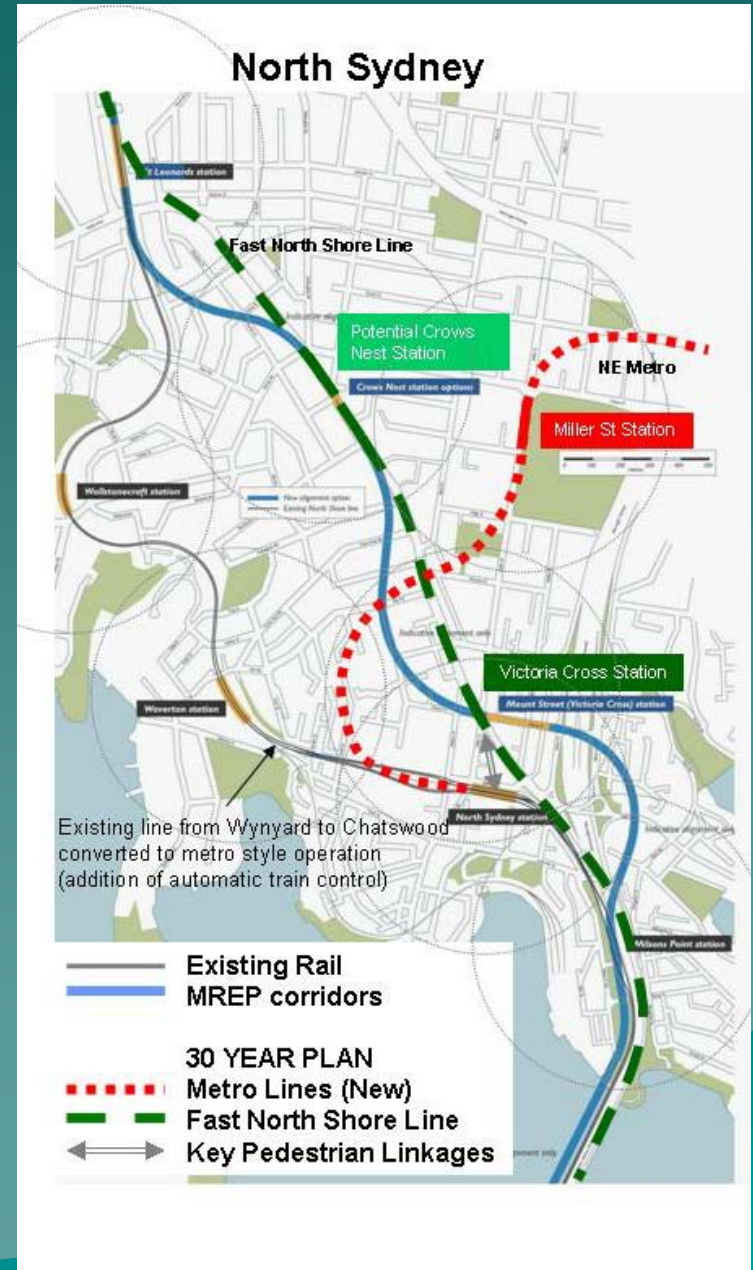
- ◆ *Do nothing*
- ◆ *Go back to the MREP Scheme*
- ◆ *Build the Proposed CBD Metro*

Go back to MREP Scheme



MREP Scheme

- ◆ A solution for outer suburbs (NW and SW) and for CBD capacity.
- ◆ Travel times from NW will be slow because of winding route
- ◆ Doesn't address other corridors – eg NE, SE, West
- ◆ Based on underwater harbour crossing, and another winding alignment to get up to N Sydney



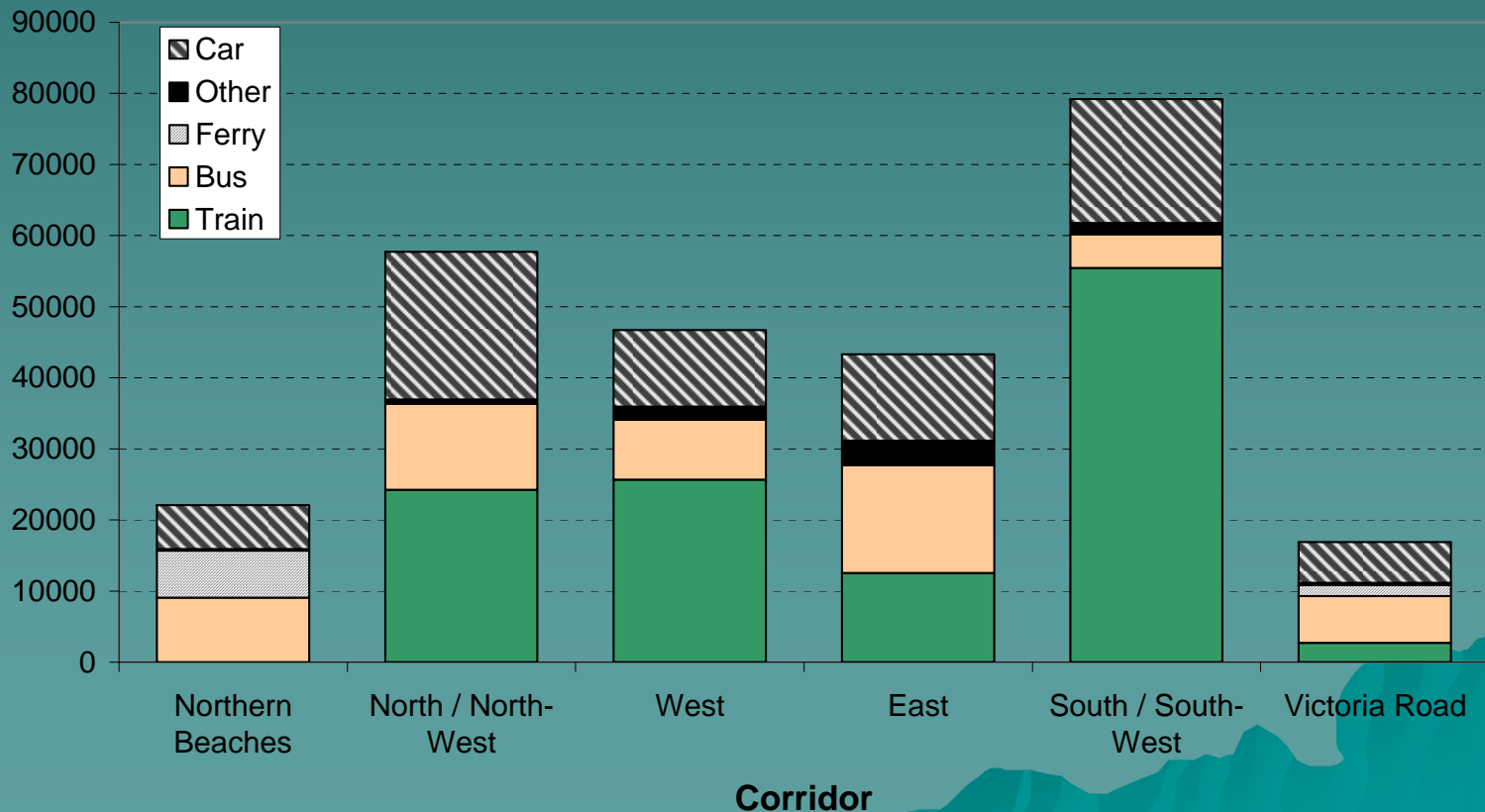
CBD Metro

- ◆ Expensive (\$4.8 b - \$5.3 b) Only makes sense if part of total network. But it:
 - *Means deep stations, 5 underwater crossings and 20 extra km of tunnels. At least \$6b extra costs compared with 30 year plan*
 - *Still doesn't serve Macquarie efficiently*
 - *Uses low capacity trains (110m, max 360 seats)*
 - *Limits growth of heavy rail network*
 - *Threatens viability of existing light rail*
 - *Doesn't maximise accessibility*
 - *Uses valuable land at Rozelle goods yard for metro depot*

Corridor Demands to CBD

- ◆ Victoria Road corridor is the least strategic and most expensive (because of underwater crossings) of the corridors approaching the CBD, and can be served much more cheaply by extension of LRT than by a metro
- ◆ Other key corridors are more strategic and justify a mixture of metros, LRT and heavy rail upgrades

Passengers Travelling to CBD, 2006 Weekday



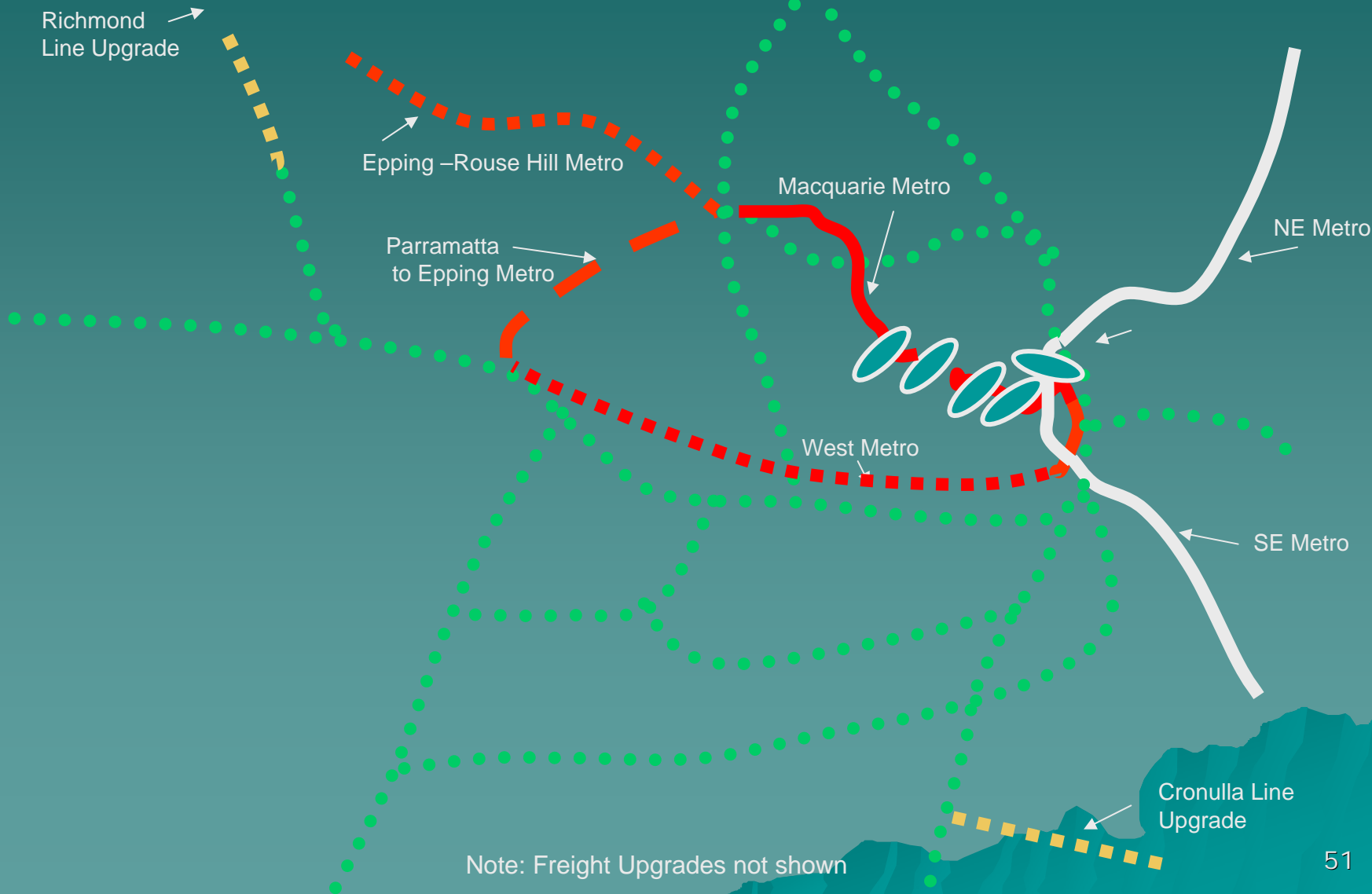
GOVERNMENT'S CBD METRO PLAN PLUS EXTENSIONS

Heavy Rail

- Existing
- Upgrade / New

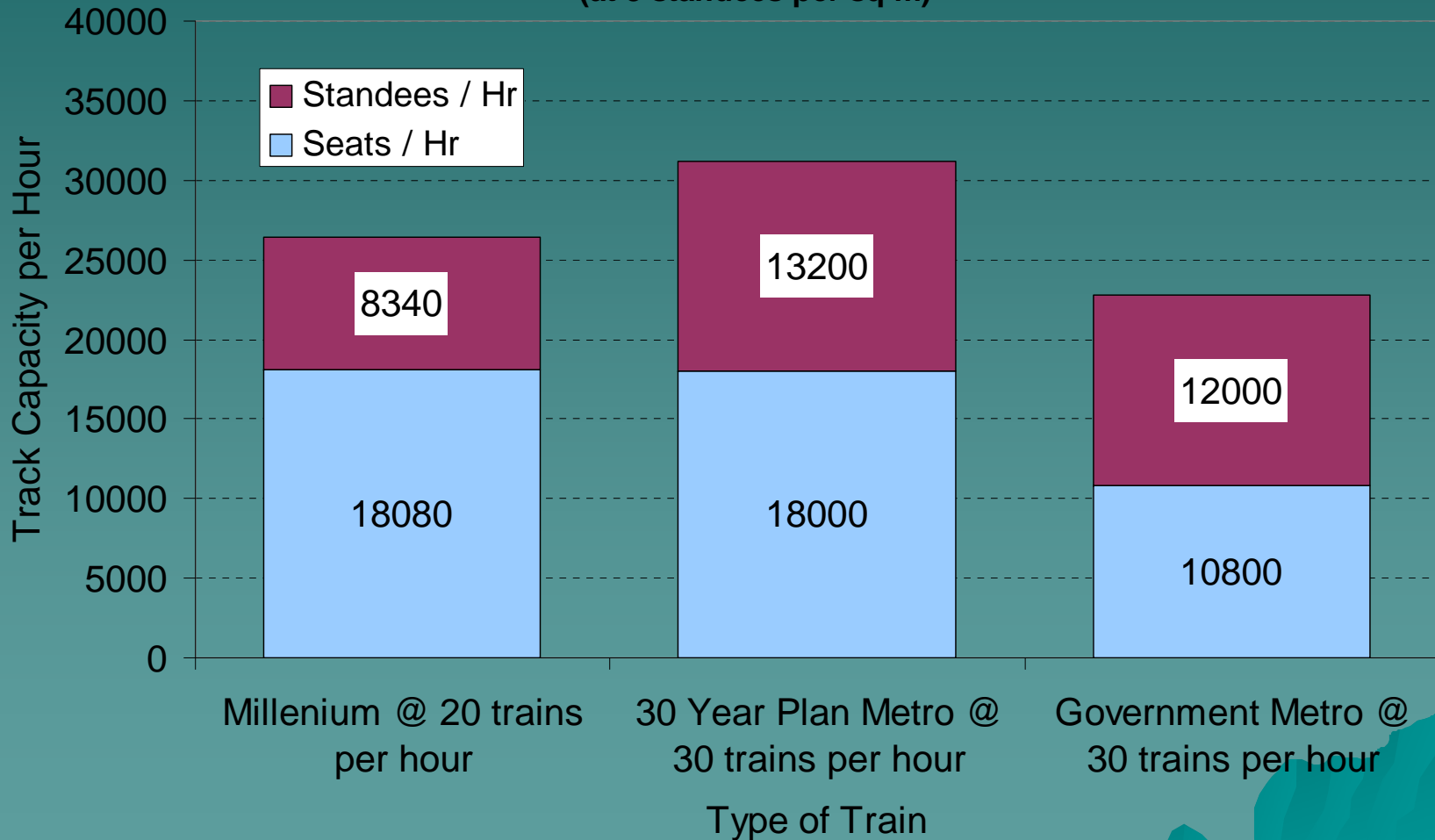
Metro

- West and NW
- NE and SE
- Long-Term Potential
- Underwater Crossing



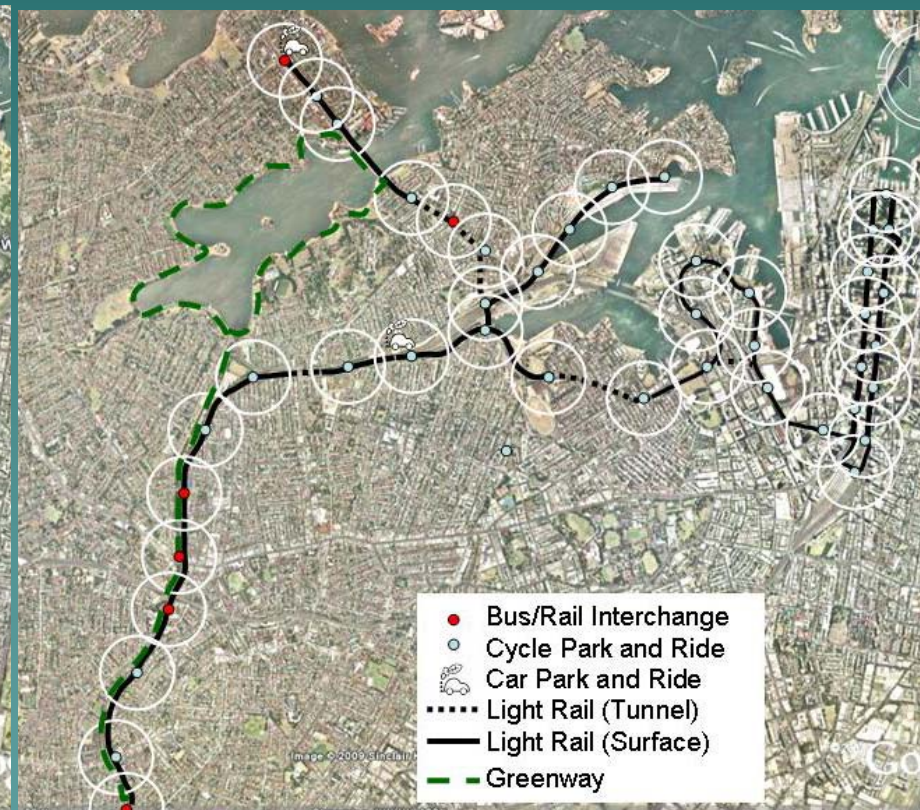
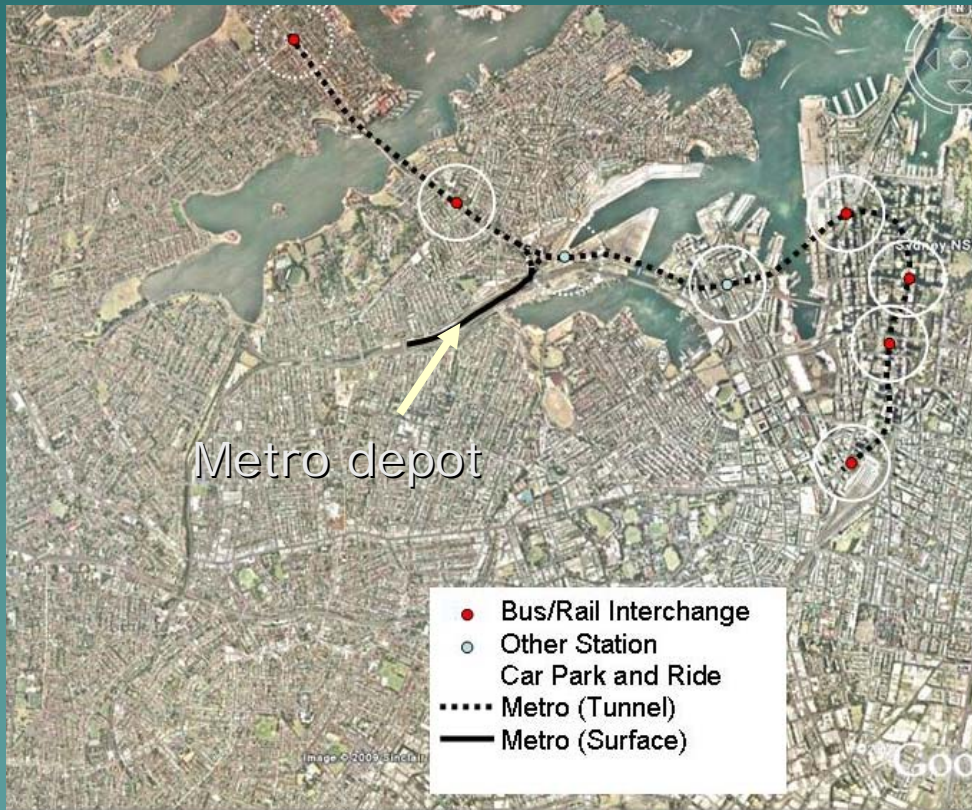
Seats and Track Capacity

Line Capacity for Different Rollingstock Designs
(at 3 standees per sq m)



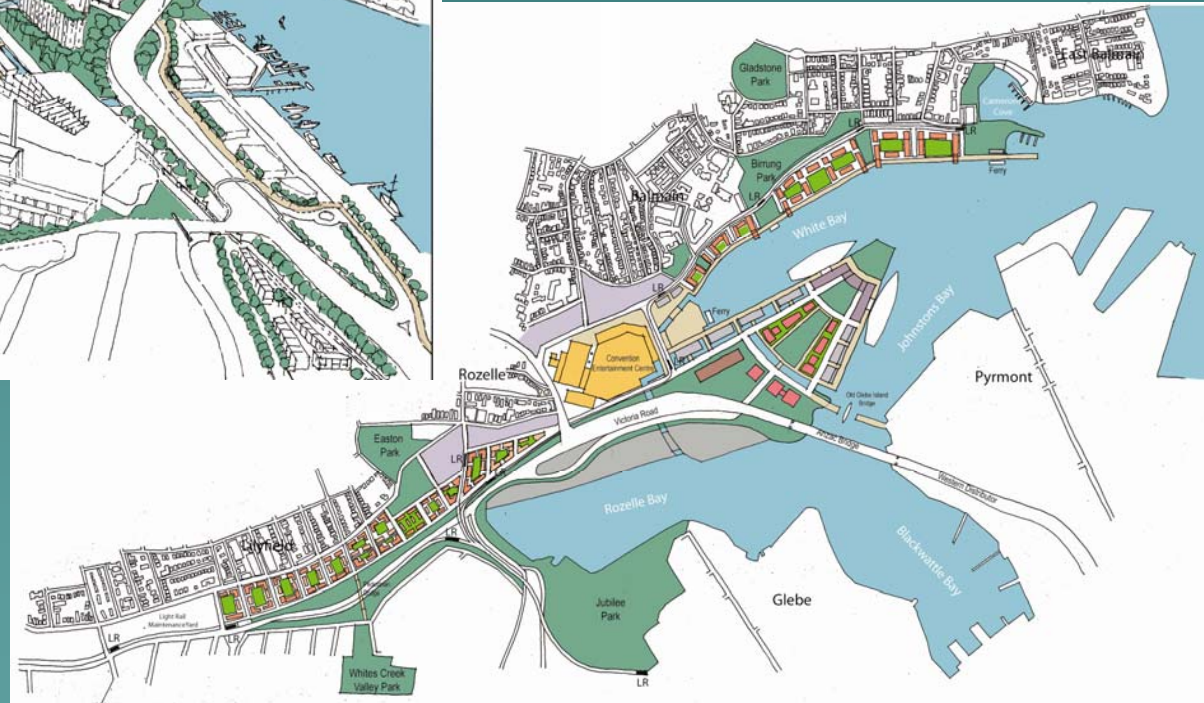
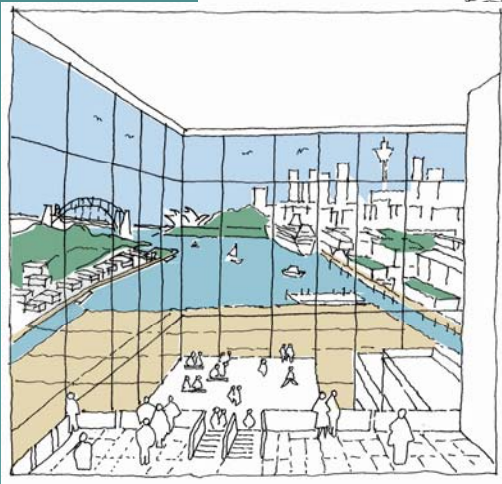
CBD Metro

Inner West / CBD Light Rail



Potential development for White Bay, Glebe Island and Rozelle, served by proposed LRT network

- ◆ Illustrates how Rozelle Goods yard could provide 1,000 affordable housing units, with further housing in White Bay, and Convention centre, Hotels and Cruise Liner Terminal on Glebe Island.



Impact on Car Use

- ◆ Neither MREP nor the CBD Metro specifically *reduces* car use
- ◆ The 30 Year plan does:
 - Provides enhanced PT capacity on all key corridors
 - Speeds up public transport and makes it more time competitive
 - Includes extensive strategic park and ride to soak off traffic before it reaches town centres
 - Involves actual reduction in car traffic to the CBD (loss of 3 of the 30 lanes of traffic approaching the CBD)
- ◆ Enhances livability and facilitates walking & cycling
- ◆ Reduces / Eliminates need for very expensive road projects like M4 East, M5 duplication, F3-M2 link, new roads to the Warringah peninsula, F6 motorway etc.
- ◆ These road projects would cost a similar amount to the 30 year plan but not lead to increased sustainability. On the contrary they will leave Sydney vulnerable to peak oil and measures to combat climate change

Comparison

<i>Plan</i>	<i>MREP</i>	<i>CBD Metro</i>	<i>30 year Plan</i>
<i>Outer Suburbs</i>	Yes	No	Yes
<i>Inner Suburbs</i>	No	Yes	Yes
<i>Key Centres</i>			
- <i>CBD</i>	Yes	Yes	Yes
- <i>Parramatta</i>	No	No	Yes
- <i>Macquarie</i>	Yes	Potentially	Yes
<i>GHG and Oil</i>	?	?	50% Reduction
<i>Reduces car Use</i>	?	?	Yes
<i>Funding Proposals</i>	No	No	Yes
<i>Integration</i>	No	No	Yes

Conclusion

- ◆ Sydney badly needs a long term plan which improves sustainability and which has wide support
- ◆ No plan can be costless and some hard decisions need to be made
- ◆ The public will support such a plan if a political party is brave and far sighted enough to propose it.

Thank You

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