

Designing a Thirty Year Public Transport Plan For Sydney



DRAFT DISCUSSION PAPER

EXECUTIVE SUMMARY

Version 14
February 2009

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Acknowledgement

Numerous people have provided inputs and comments which have assisted in the preparation of this report, and their help is gratefully acknowledged. However any mistakes or inaccuracies are the responsibility of the author.

The report is an evolving document which aims to incorporate ideas from others as far as possible. The current version is Version 13, dated February 2009.

PREFACE

Sydney is Australia's world city. It developed in European times initially around the waterways and early roads, and then in the late 19th century around an expanding rail and tramway system. The land use patterns of the current city carry the imprint of those investments. But like many cities, it has evolved in the last fifty years largely around the automobile.

Sydney has a unique geography and history. It is large in both area and population, and still growing. It is not like most cities in Europe, which are much more compact, or in Asia, which have much higher densities, or in the United States, which are almost totally car dependent. But Sydney faces the same transport challenges faced by any large city – how to become more sustainable in the face of climate change and peak oil. In confronting these challenges, we have the same tools available as other cities in terms of transport technologies – predominantly cars, trains, metros, light rail and buses.

The task for Sydney is to design, finance, build and operate a world class transport system. This system needs to reflect our unique history and geography, make the most appropriate use of those technologies, integrate them with each other and with an evolving land use pattern, and support them with appropriate policies.

Over the last twenty years Sydney has built an extensive motorway network. But it has fallen behind comparable cities in its public transport, as well as in its use of walking and cycling. This report therefore focuses on the need to restore a balance. It concentrates on passenger movement in the Sydney basin in the next thirty years, but also considers the long term, the wider region, and the movement of freight.

Many of the transport ideas in this report draw on the ideas and work of others, and few are completely original. The emphasis however is on developing a longer term perspective together with some ideas for funding, and to highlight the contribution an improved public transport system can make to Sydney.

The task at hand requires planning, technical and financial expertise, but most of all, political will. This can only occur with strong public support. This report aims at making that task a little easier, by contributing to a growing debate about a more sustainable transport future for this city.

DESIGNING A THIRTY YEAR PUBLIC TRANSPORT PLAN FOR SYDNEY

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EXECUTIVE SUMMARY

Sydney's Public Transport Planning Challenge

In the last decade, Sydney has produced a range of transport plans embracing major upgrades to public transport for the city, including Action for Transport 2010, the Christie Report, the Metropolitan Rail Expansion Plan (MREP) and the Rail Clearways Plan. Other proposals such as the Bondi Beach Heavy Rail extension and the Western Fast Rail Line have been put forward by the Private Sector, while individuals such as Chris Stapleton and community-based organisations such as 10,000 Friends of Greater Sydney and Ecotransit have also put forward plans.

However only a few projects included in these plans have actually been delivered, and many have been cancelled or deferred. Examples include the Parramatta – Epping Rail Link, the NW Rail Link, the SW Rail Link, the Harbour Rail Link, and the NW Metro.

In the last few months there have been new proposals for rail in Sydney, including a “mini-metro” from Central to Rozelle, a Western Metro between Sydney and Parramatta, and a plan to introduce metro-style trains onto the existing heavy rail network. There are few details available, and at this stage it is not clear how these plans are integrated to form part of a longer term strategy. These announcements have sparked a debate on the role of metros versus heavy rail, to add to earlier debates as to the merits of light rail versus buses. There has also been an ongoing debate on the future of Sydney in land use terms.

The confusion over public transport planning and funding in Sydney and the failure to invest sufficiently has seen Sydney fall behind other Australian and world cities in its public transport performance. In the last decade public transport patronage has grown by 30-40% in Brisbane, Melbourne and Perth, but only 5% in Sydney.

The lack of a robust long-term public transport plan with strong public support also means there is a risk that Sydney will not maximise the benefits from the Building Australia Fund, just when Federal Government support for public transport has emerged for the first time in fifteen years. This would be a major tragedy for this city.

A Way Forward

While there is often criticism made of “end-state” and long-term planning, the costs of not having a clear, well-understood and well-supported transport plan for Sydney are now becoming obvious. Examples of these costs include the underutilisation of the airport line (due to inappropriate pricing policies); the virtual abandonment of the Y-link at Parramatta (because of lack of rollingstock and operating budget); the failure to design the Olympic Park rail loop as part of a longer term link between Parramatta and Strathfield; and the failure to rationalise and integrate fare structures before attempting to introduce integrated ticketing technology.

In contrast, cities like Singapore and Hong Kong have pursued long-term transport plans over many decades, steadily building integrated and well-designed networks.

This report aims to help establish a way forward. It argues that we need a structured approach to planning transport in this city. This needs to start with realistic targets for mode shares and total travel demand taking into account current trends, likely developments in relation to peak oil and global warming, and the potential for behavioural change. It then needs to be developed into a strategic transport infrastructure and operations plan derived from land use trends and accessibility needs. Finally the plan needs to include realistic funding options, based on a solid understanding of the real costs of different modes of travel, taking account of externalities such as congestion, pollution, accidents and subsidised parking.

This paper argues that while the debates over metros versus heavy rail, single versus double deck trains, and buses versus light rail are important, they need to be seen in a wider context.

Future Targets and Environmental Sustainability

A review of the land use assumptions in the Metropolitan Plan, together with trends in housing and employment, likely future movements in petrol prices and other factors suggests that Sydney can expect to experience:

- Potential growth of 30%-40% in population and jobs over the next 30 years
- A similar growth in peak trips but a slower growth in total passenger-kilometres as a result of higher fuel prices and travel costs generally
- A 10 - 15% increase in the overall urban area of Sydney, and a 15 – 20% increase in average density
- A rising mode share for public transport, walking and cycling as densities increase and as fuel prices, parking charges, carbon trading and the drive for sustainability reduce the share of travel undertaken in cars.

Accordingly, a 30 year target of doubling Sydney's total public transport use would seem prudent and appropriate. This would increase public transport's mode share of journeys to work from 25% now to 40%, and of all travel from 15% to 25%.

Together with efficiency increases and changes in vehicle technology, this would **reduce total oil use and greenhouse emissions by more than 50%** for passenger travel in Sydney over the next thirty years, despite 30% population growth.

Making the Most of What We Have

An examination of the current rail system for Sydney found that contrary to popular belief, there is substantial spare capacity on the track infrastructure. Indeed there is the potential to increase the number of peak hour trains into the CBD by 25% with minimal additional infrastructure investment. A revised operating plan has been developed to take advantage of this capacity. Other measures are also needed to improve the efficiency, speed and effectiveness of the rail system, including extension of park and ride, acceleration of timetables, and further improvements to reliability and on-time running.

Similarly the current embryonic light rail system is only utilising around 10% of its potential capacity. It can be readily extended, and form the basis of a light rail network for the city which can help reduce congestion and improve amenity in the inner suburbs and the CBD.

There have been some enhancements to the efficiency of bus based systems for Sydney, including two busways in western Sydney; provision of bus lanes and bus priority measures; use of articulated buses; and introduction of pre-paid only buses. These initiatives need to continue.

But an analysis of the task ahead indicates that substantial enhancement of our public transport systems will be required if we are to achieve a more sustainable transport future for this city. This would be in line with the trend back to public transport which is now evident around the world, with most major cities engaged in significant upgrades to their systems. For example there are now 400 light rail systems in operation worldwide, with another 60 under construction and a further 200 planned, while many cities are now also investing in metros and busway systems.

The question is how best to achieve this.

Designing the Future Network

Analysis of the likely growth patterns for Sydney suggests that the original “global arc” hypothesis of strong employment growth from the Airport to the Macquarie area remains valid. Strong job growth is also expected in other key centres including Parramatta, Norwest, Liverpool, Penrith and the Western Sydney employment lands. Housing is also expected to continue broadly in line with the metropolitan strategy’s assumptions of 30-40% in fringe areas and 60-70% in established areas, particularly in areas with good public transport accessibility.

The original Metro Plan and Metropolitan Rail Expansion Plan (MREP) provided a good example of land use-transport integration. However the axing of the MREP scheme has destroyed the nexus between land use and public transport in Sydney. This threatens to undermine the rationale of the whole planning basis for the city.

The off-centre location of Sydney's CBD and geographical and topographical features such as the Harbour mean that Sydney needs a “double-cobweb” design for its strategic public transport network. This requires radial networks centred both on the Sydney CBD and on Parramatta, together with a number of circumferential links to facilitate cross regional travel.

Examination of the current network against this design objective identified some 26 key links which need to be added or strengthened in order to enhance accessibility and connectivity and to respond to land use trends. These links vary widely in potential demand, corridor length and other characteristics, which means that a range of modes are needed to provide an efficient and effective transport system. More detailed analysis of the priority links identified the preferred modes for each link, taking into account network linkages as well as the characteristics of particular links and of specific modes.

Key Features of the Thirty Year Plan

Making the most of what we have by:

- Providing a detailed **operations plan** to increase the number of peak trains using the existing Cityrail network, by 25% to the CBD and 36% overall.
- **Accelerating rail** services by an average of at least 5%, and increasing reliability by dividing the network into separate sectors.
- **Utilising the capacity** inherent in the light rail network.

Developing a “Double Cobweb” Network over the next thirty years by:

- Constructing a **new metro network** for Sydney with five new lines:
 - West Metro (Parramatta – CBD via Strathfield)
 - NW Metro (Epping – Rouse Hill)
 - NE Metro (N Sydney – Dee Why)
 - SE Metro (Central – Maroubra)
 - Parramatta – Epping Metro

These lines are supported by a “Macquarie Metro” from Central to Epping, created by building a CBD metro from Central to Wynyard using the metro west alignment, and by converting the existing heavy rail line from Wynyard to Chatswood for metro operation.

- Building a new **“Fast North Shore”** heavy rail link from Wynyard to Chatswood, utilising the eastern lanes of the Harbour Bridge. This will improve travel times from the north and maximise the potential of the heavy rail network to handle traffic from the **SW rail link**, as well as future high speed rail links to Canberra and Newcastle. Other remaining **Clearways Projects** (especially Cronulla and Richmond line upgrades) are to be completed.
- Creating **light rail networks** based in the CBD and serving the inner western, southern and eastern suburbs, plus a secondary network serving Parramatta.
- Adding a network of **six ring routes** (based on buses) to provide improved circumferential travel options.

Improving Service Quality by:

- Providing **high frequency** services across the strategic network (in general at least six services per hour in peaks and four off-peak).
- Adopting **rollingstock design standards** to take advantage of new technology and to ensure comfort is not sacrificed for capacity.
- Developing a **seamless multimodal system** through integrated fares and fare collection, real-time information, well-designed interchanges and a single marketing plan and image, similar to “Transport for London”.

Maximising Cost Effectiveness and Strategic Benefits by:

- Using the **most appropriate mode** for specific tasks
- **Avoiding underwater crossings** of the Harbour or Parramatta River, saving up to \$6 billion
- **Catering for freight, intercity and high speed trains**
- **Retaining the “Metro Pitt” alignment** under the city for very long-term rail expansion needs.

next 30 years (in constant dollars). By contrast we spend only \$3 billion annually on public transport, including both fares and government subsidies.

Cars are our most energy and greenhouse intensive mode, using 2.7 times more primary energy per passenger-km than public transport. Cars are also our most expensive mode, costing 86c per passenger-km compared with 47c for rail and 57c for bus (all figures include externalities). Our current transport system is too heavily weighted to cars, the most expensive and least sustainable mode. As a result Sydney is vulnerable to future oil price rises and to measures to reduce greenhouse gases.

The overall 30 year plan is designed to restore some balance by allowing a doubling of public transport patronage. It is estimated to cost \$40 billion above the \$90 billion which maintenance of the current spending level over thirty years would entail. This would require allocation of resources equivalent to only 6% of our current car-related expenditures and would lead to substantial long term financial as well as environmental savings.

In terms of how such a plan could be financed, it is expected that there would need to be significant borrowing to enable the infrastructure to be put in place. There are many options for raising the estimated \$40 billion needed over the next thirty years to finance such borrowings and to cover additional operating costs, including:

- The Building Australia Fund
- Carbon Trading
- Congestion Charging and Parking Levies
- Public Transport Fares
- Land Value Increment Taxes

Options for using a combination of these sources indicate that Sydney can afford to implement the proposed 30 year plan. The question Sydney needs to ask, given likely developments with Peak Oil and Global Warming, is whether it can afford not to.

From Planning to Implementation

Planning is one thing; implementation another. Successful development of a world class public transport system for Sydney will take decades and sustained political will, backed by strong public support and the necessary finance. This in turn will require a mature approach by all parties, and a deep understanding of the issues. This report aims to help facilitate that process.

The present time is an ideal time for Sydney to build for the future. Interest rates are extremely low, and there is a need to stimulate employment and economic activity. Governments are suddenly willing to commence major infrastructure programs after years of running down our assets. Many projects are already substantially planned and can be commenced almost immediately (such as the Clearways Projects, extension of light rail and development of busway networks) while the detailed engineering studies for the metros and other new projects are finalised. Sydney is already behind the eight ball. The time for action is now