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How necessary is more infrastructure for quality public transport?

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Introduction

- Understanding the nature of Australian cities
- Looking at how people travel and what this tells us about public transport use
- Long and short views of infrastructure investment
- Why quality is important
- How to use current infrastructure better – a holistic approach
- What this means for infrastructure investment





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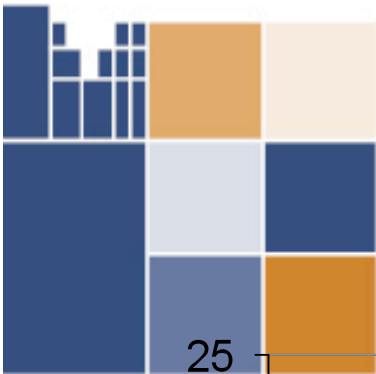
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Nature of Australian Cities

- Australian cities are difficult to benchmark against other world cities
- Different characteristics suggest different comparators
- Need to be careful about ideas which 'import' from elsewhere





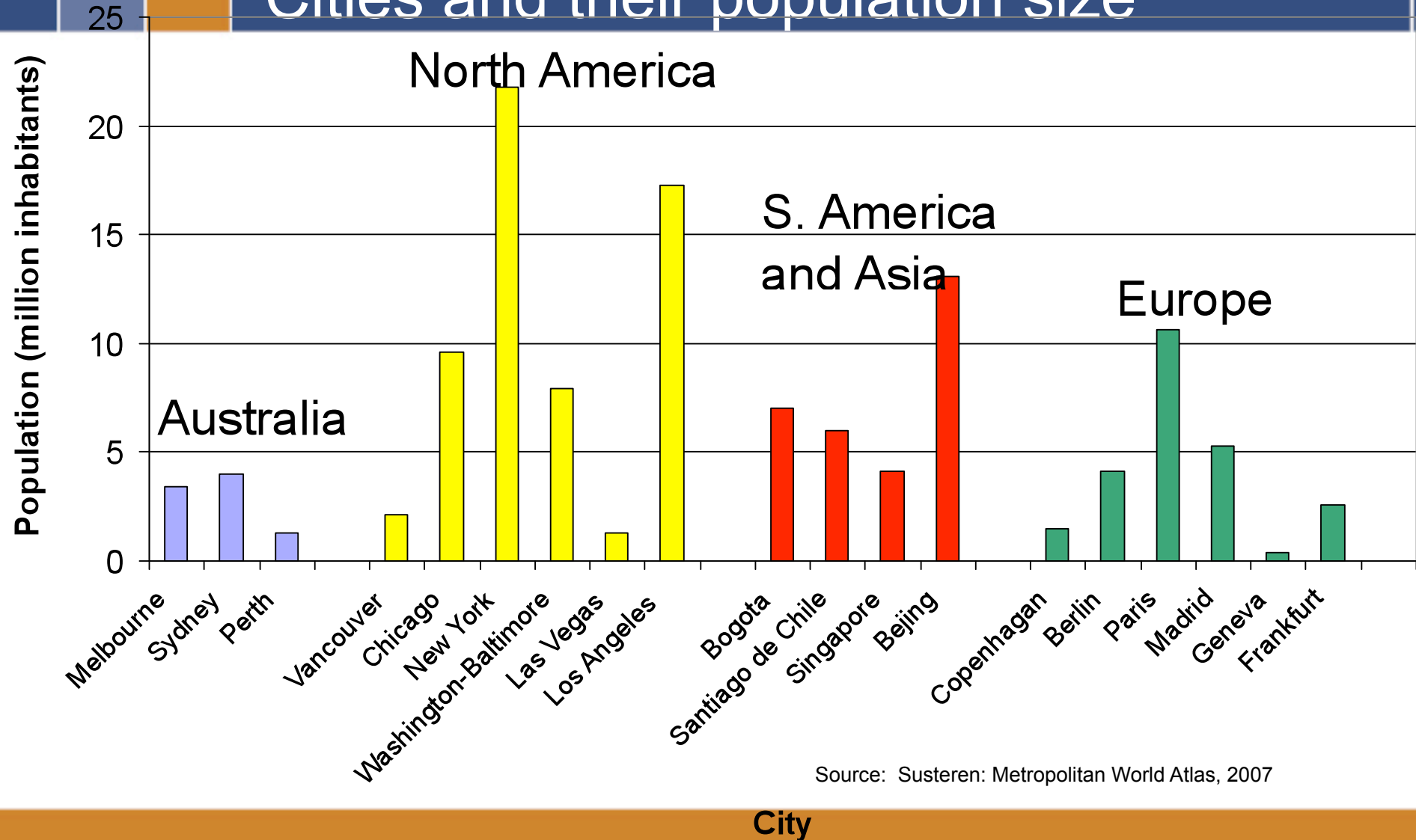
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Cities and their population size



Source: Susteren: Metropolitan World Atlas, 2007



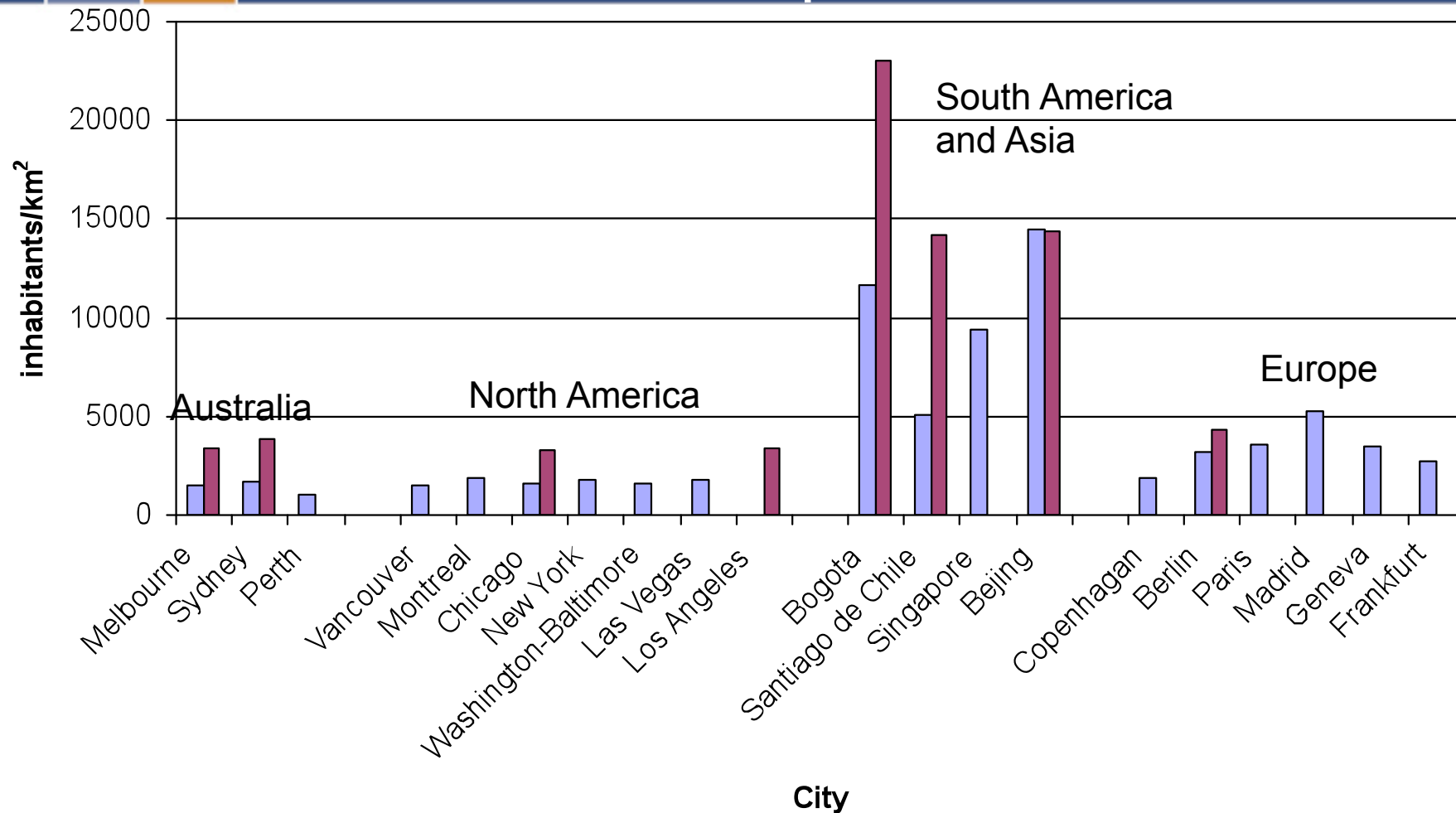
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Densities – metropolitan and residential

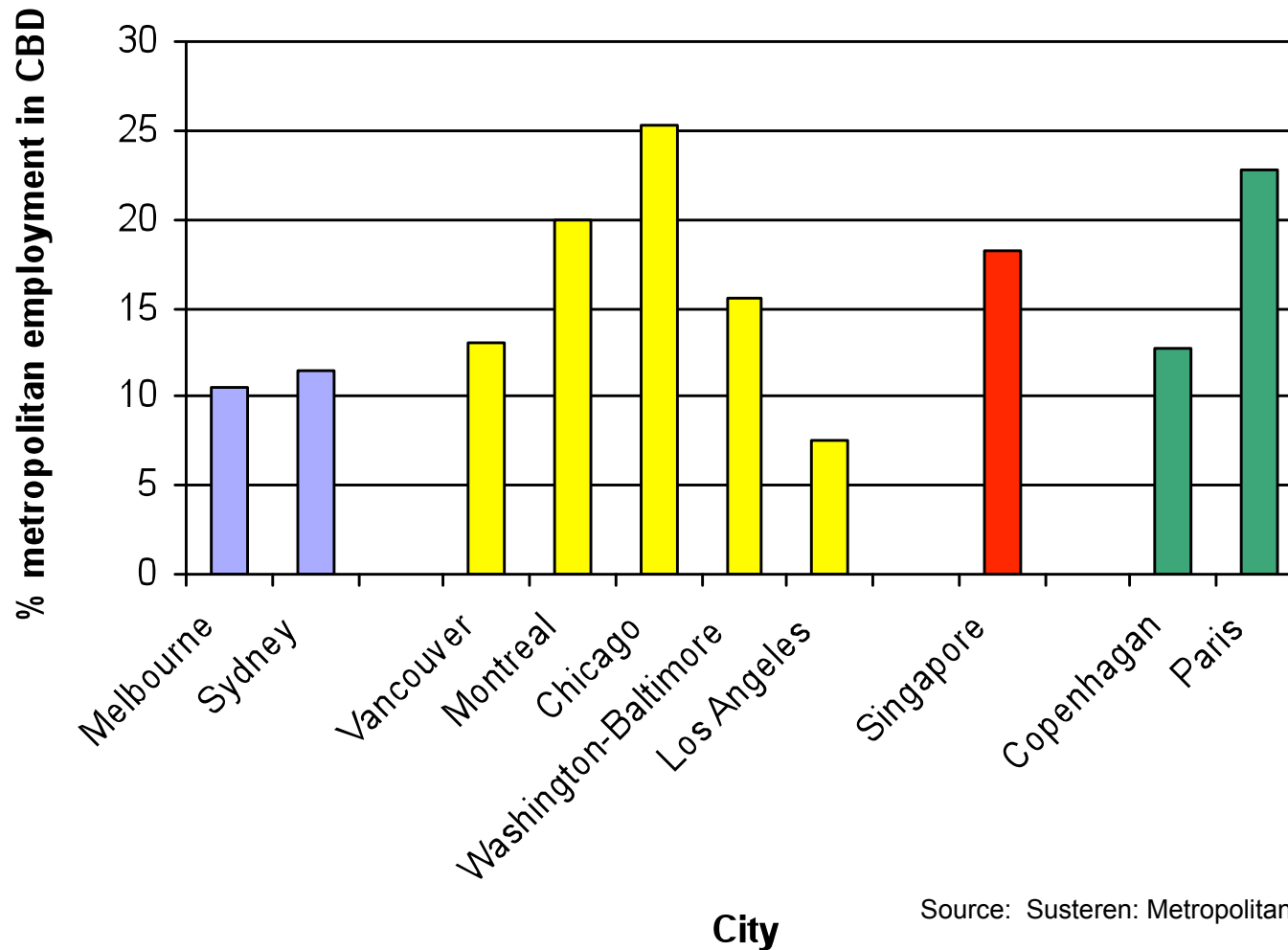


Source: Susteren: Metropolitan World Atlas, 2007

■ Metropolitan density ■ Residential Density



CBD employment share



Source: Susteren: Metropolitan World Atlas, 2007



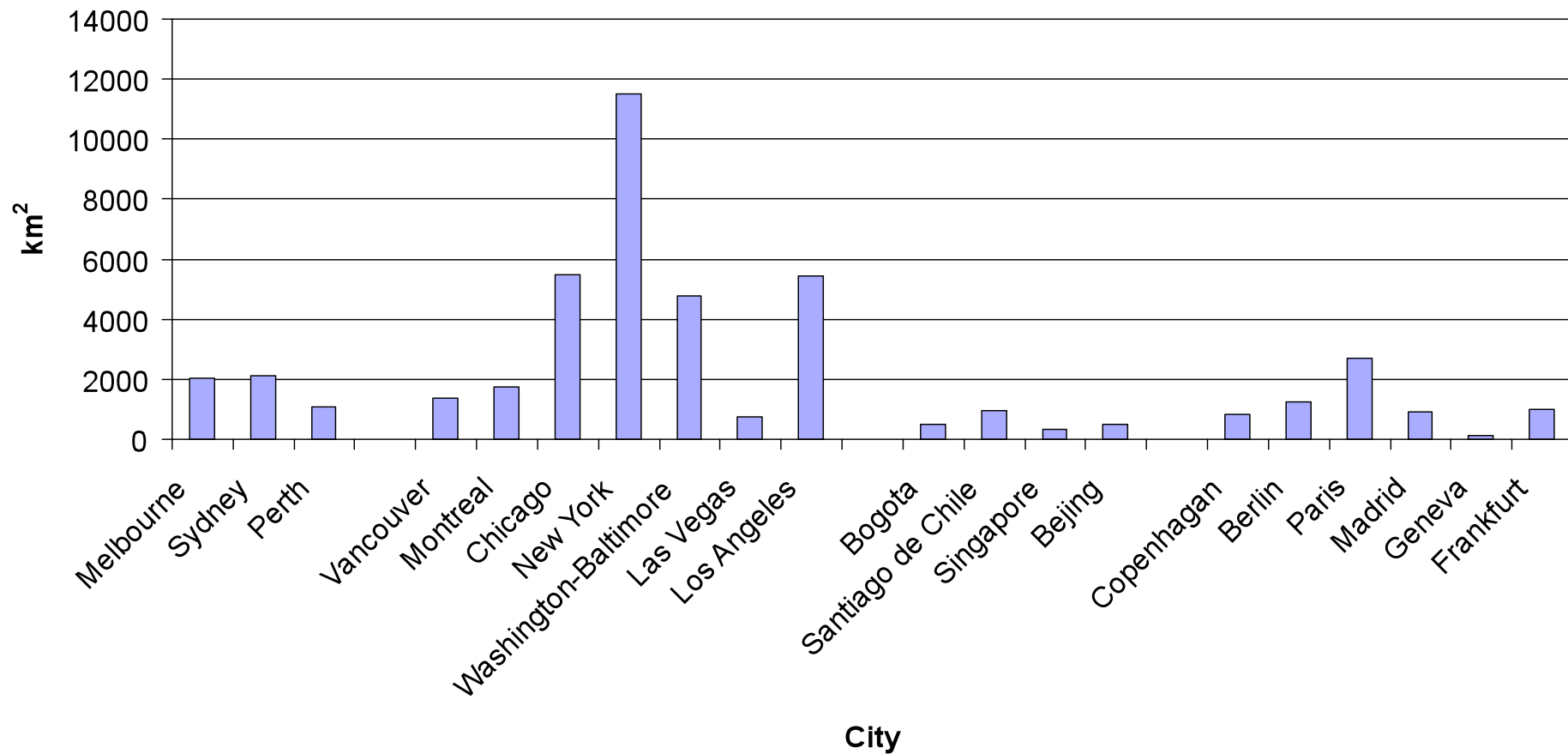
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Built up area



Source: Susteren: Metropolitan World Atlas, 2007



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Australian cities are unique....

- In terms of size, Australian cities have more in common with Europe
- In terms of densities, Australian cities have more in common with North America
- CBD employment shares are at the low, only Los Angeles lower
- Built up area is slightly higher than Europe but considerably lower than North America
- South American and Asian comparators have higher populations, densities of several magnitudes greater as a result of their small built up areas



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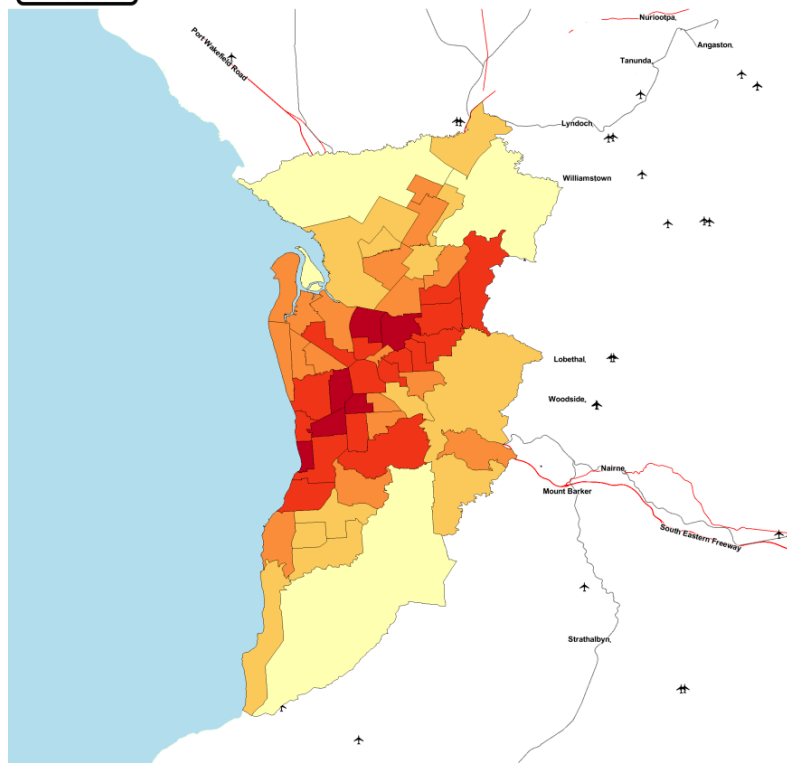


Densities and PT journeys to work 2006



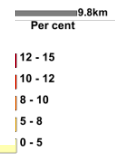
People who travelled to work by Public Transport

As a percentage of all employed people
Based on Place of Usual Residence, 2006
Adelaide (Statistical Division) by Statistical Local Area



Adelaide: 627 people/km²

Max %: 12-15

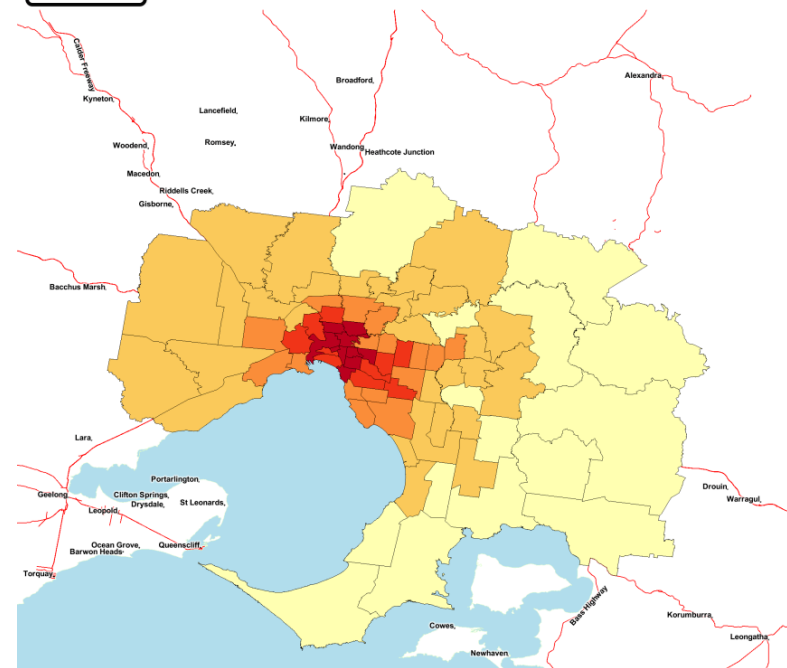


© Commonwealth of Australia & PSMA Australia 2007



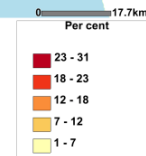
People who travelled to work by Public Transport

As a percentage of all employed people
Based on Place of Usual Residence, 2006
Melbourne (Statistical Division) by Statistical Local Area



Melbourne: 487 people/km²

Max %: 23-31



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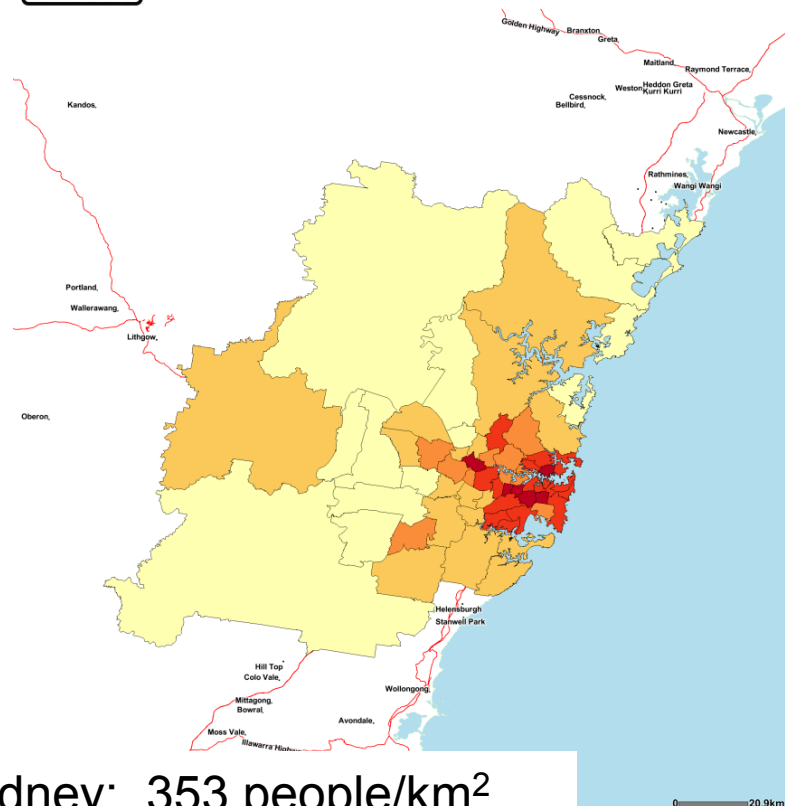


Densities and PT journeys to work



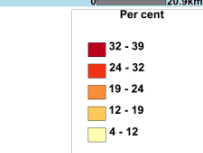
People who travelled to work by Public Transport

As a percentage of all employed people
Based on Place of Usual Residence, 2006
Sydney (Statistical Division) by Statistical Local Area



Sydney: 353 people/km²

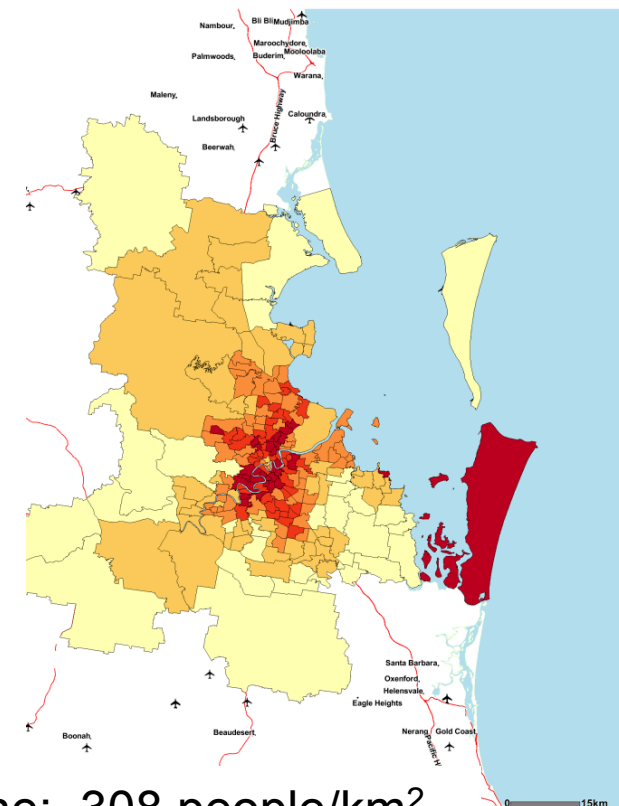
Max %: 32-39



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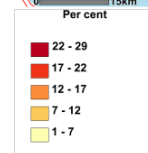
People who travelled to work by Public Transport

As a percentage of all employed people
Based on Place of Usual Residence, 2006
Brisbane (Statistical Division) by Statistical Local Area



Brisbane: 308 people/km²

Max %: 22-29



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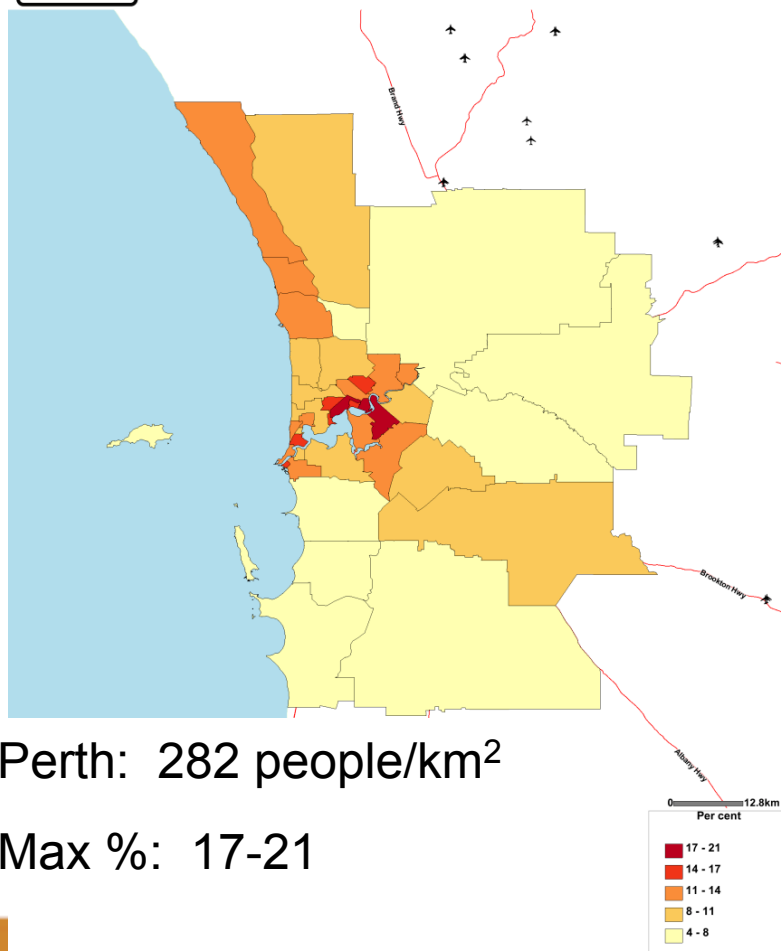


Densities and PT journeys to work



People who travelled to work by Public Transport

As a percentage of all employed people
Based on Place of Usual Residence, 2006
Perth (Statistical Division) by Statistical Local Area



Perth: 282 people/km²

Max %: 17-21

Density clearly helps
in the supply of public
transport

BUT

In Australia not a
clear link between
density and public
transport take-up



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Public attitude – as measured by use..

Australia appears to be very car focussed..

Is this just an attitude?

OR

Is the low demand for public transport trips simply a reflection of poor supply?



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Why am I concerned about p.t. use?

- Public transport has the potential to be most sustainable of all mechanised modes
 - Climate change advantages
 - Congestion and other external cost advantages
- Non-motorised -walking and cycling - are important but only small share of non-discretionary trips.



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People can change their travel behaviour

- Soft measures such as 'Smart travel' have produced 10% modal switch away from private car
- Non-motorised modes can increase with proper incentives – Cycling has nearly doubled in London since 2000; cycling and walking account for 22% daily average journey stages
- Network extensions can bring passenger growth eg 26% more trips in Singapore between 2000 and 2006



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Public attitudes are often sceptical..

Share the risk and stop the fiasco

- The reputation of public-private partnerships has taken a battering recently, particularly in Sydney and Brisbane.....

CBD Metro will run almost empty

- THE CBD Metro will run as much as 87 per cent empty during the height of the morning rush hour when it opens in 2015....

CBD metro 'a waste' of taxpayers' money

- Passenger forecasts for Sydney's CBD metro show the rail project is a waste of taxpayer money that should be spent in other areas....

Outer suburbs 'missing out' on services

- Only one out of every 100 residents in some of Melbourne's outer suburbs use public transport alone to get to work, a report shows...



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So, in the future...

- In the long term, infrastructure investment is needed to extend public transport and to provide for the needs of all non-private car modes

BUT in the shorter term

- there is a need to make better use of the existing infrastructure so as to justify further expenditure
- Investment needs to be targeted at making these improvements happen





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‘Quality’ is the key to improvement

- ‘Quality’ public transport attracts patronage
- Better quality can be brought by infrastructure improvements – new routes, new links, new ‘vehicles’

BUT

- Quality improvements can also come through other policy initiatives





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How to use current infrastructure better?

- Different approach to network planning
 - Planning to meet customer perceptions of high quality
 - Create and operate a simple to understand network
- Aligning the fare structure to allow the approach to work



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Success factors for public transport

Australian cities already have success factors

- Stable funding for the systems in place
- Long term stability of public transport supply





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Additional measures ...

- To improve modal share for public transport
- Integrated and simple fare systems
 - Supporting policies on car use and parking
 - Financial incentives to encourage better modal split
 - Strong land-use transport policies supporting new developments with sustainable transport options



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Why start with network planning?

For demand....

- People vote with their feet – if they don't understand the network, they won't use it
- Attracting new 'customers' is the key
 - Many existing users are 'captive'
 - The occasional users are patronage growth

For supply

- Simple systems are easier to plan, operate and market



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Why is this important?

- Institutional frameworks dictate what can and cant be done

BUT

- Similar frameworks do produce very different results

AND

- It is a holistic approach that makes the difference





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Basic principle – concentrate resources

- Concentrate resources on corridors – and use timetable co-ordination to increase the frequency as density increases.
- Frequencies need to be good (London estimates 12 minute frequency leads to ‘forget the timetable’)
- No advantage from super-high frequency – better to start a new corridor or introduce limited stop



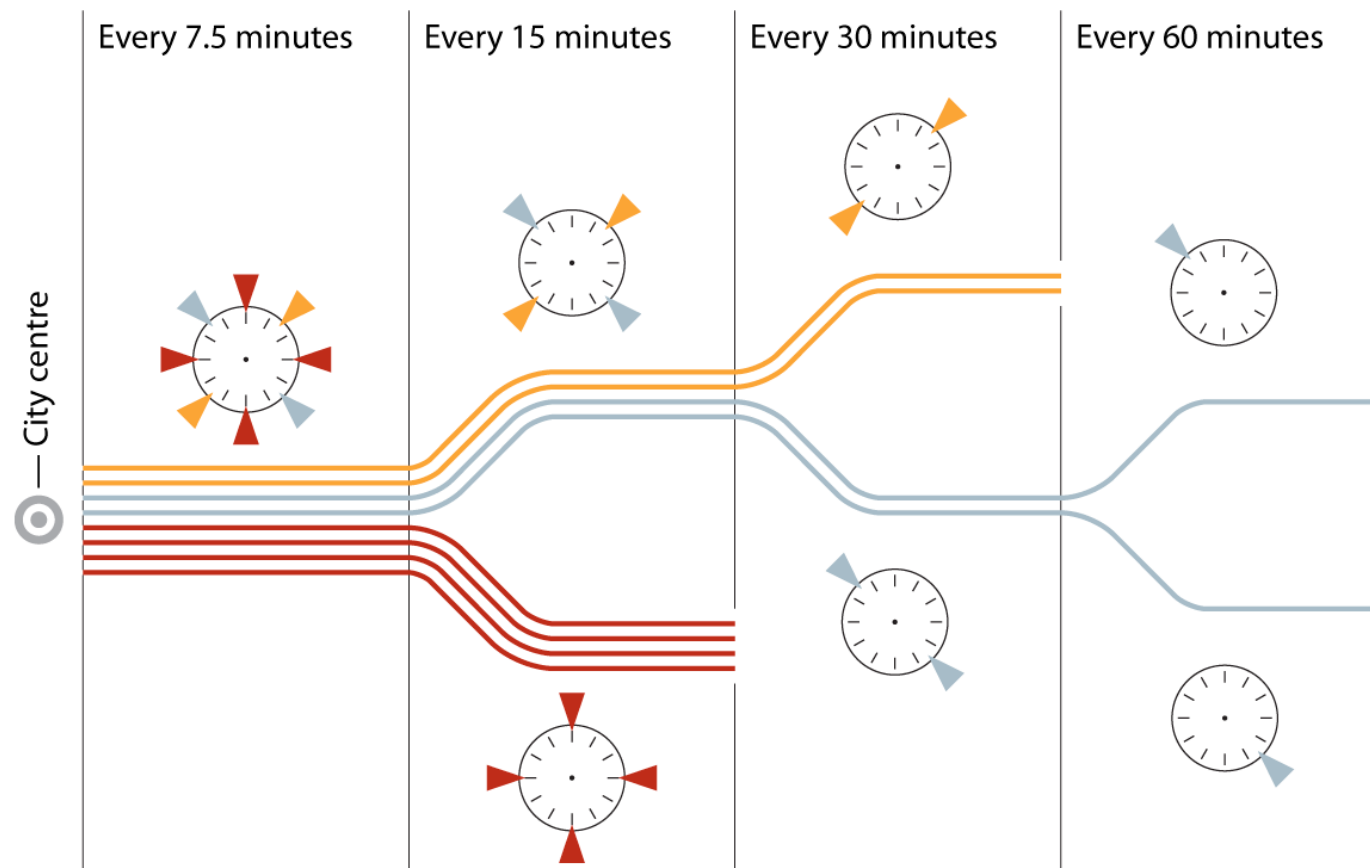
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Use timetables to advantage...



Source: Public Transport – planning the networks. Hitrans Best Practice Guide 2



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Concentrating resources

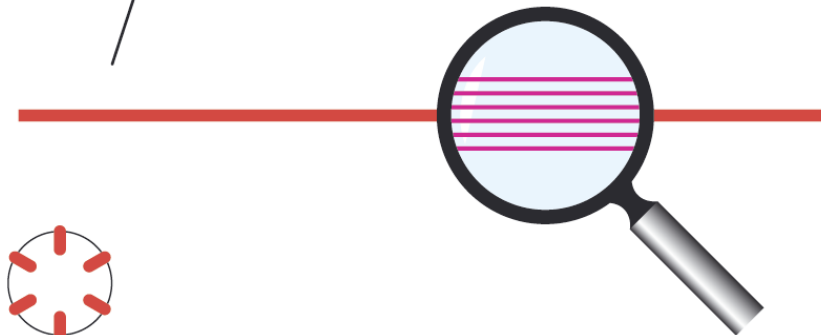
Before

Two low frequency lines that run in the vicinity of each other



After

... replaced by one line with doubled frequency.



Source: Public Transport – planning the networks. Hitrans Best Practice Guide 2



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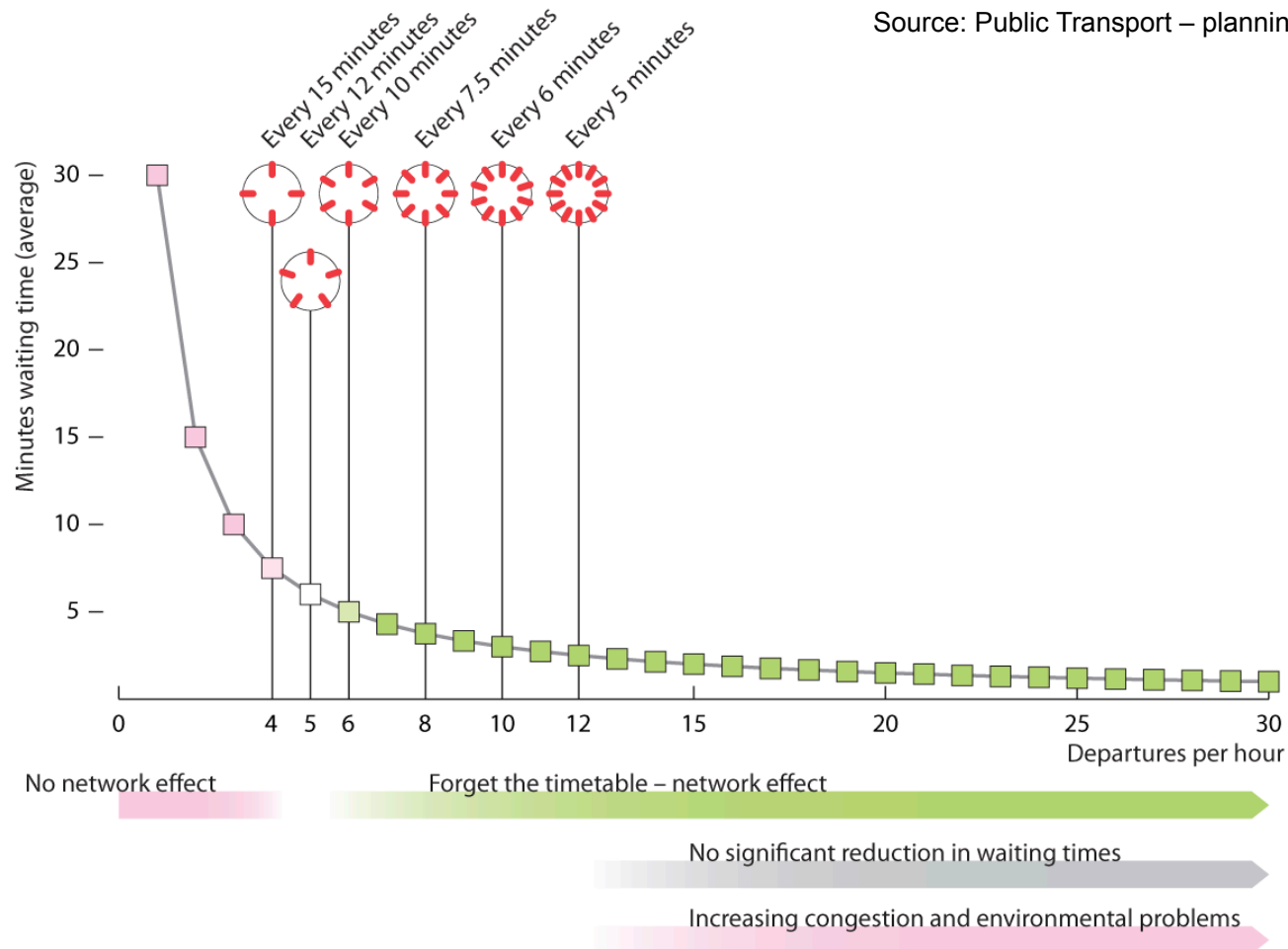


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The effect of frequency....

Source: Public Transport – planning the networks. Hitrans Best Practice Guide 2





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Accept that interchanges are needed

- Simple networks will need interchanges between
 - Lines operated by the same mode
 - Lines operated by different modes
- Accepting interchange means that services do not need to concentrate on 'direct journeys' for all – allows greater coverage
- Interchange allows the best of the mode to be exploited and transfer to another mode where better
- Minimise the cost of interchange
 - Ensure timetable co-ordination
 - Remove fare penalties
 - Create short and easily understood interchanges



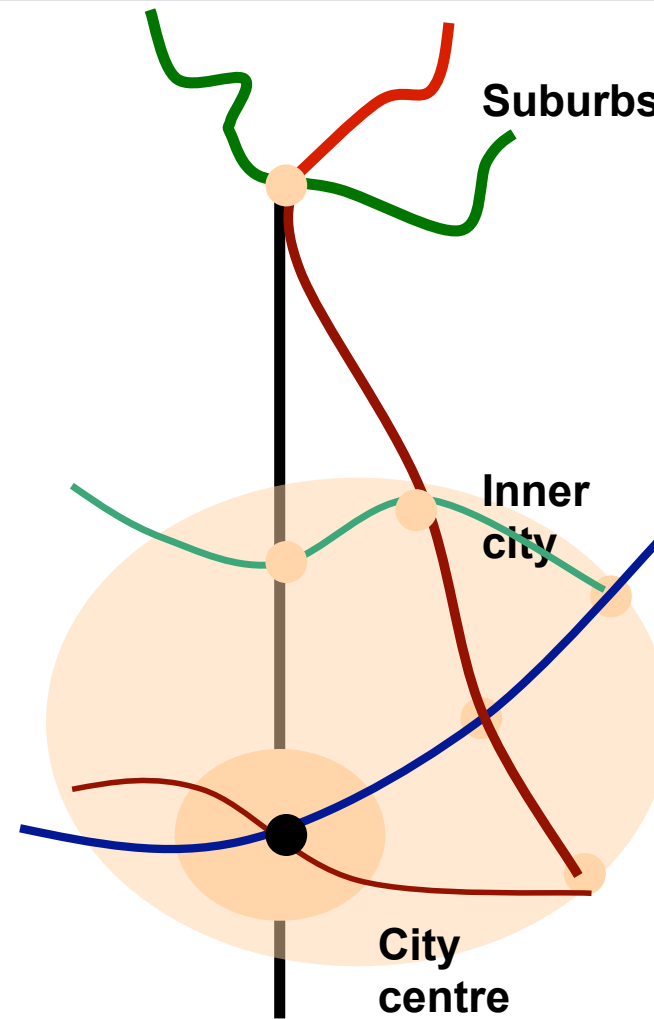
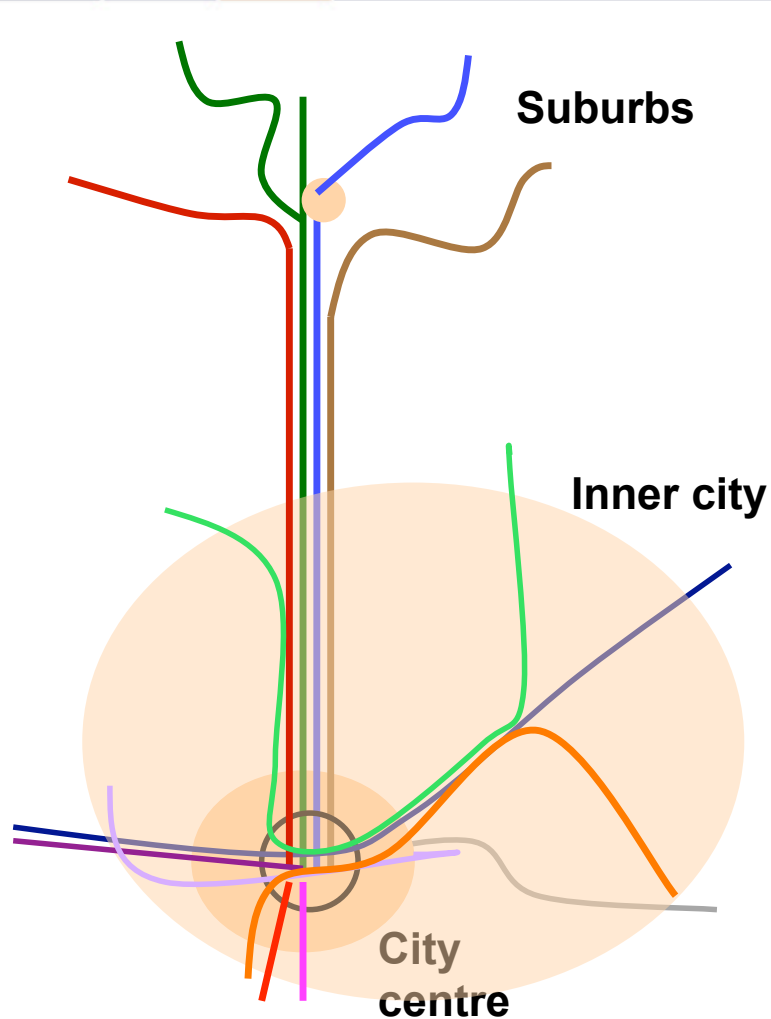
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Join nodes to get greater coverage





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Not this! Who would understand?



?



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Network effects are important

- If the frequency is high, walking further will not have an big impact on combined walk and wait time.
- Having good frequency only on a small part of the network does not get people out of cars
- Having links radially and cross city with good frequency and interchange can speed up journeys



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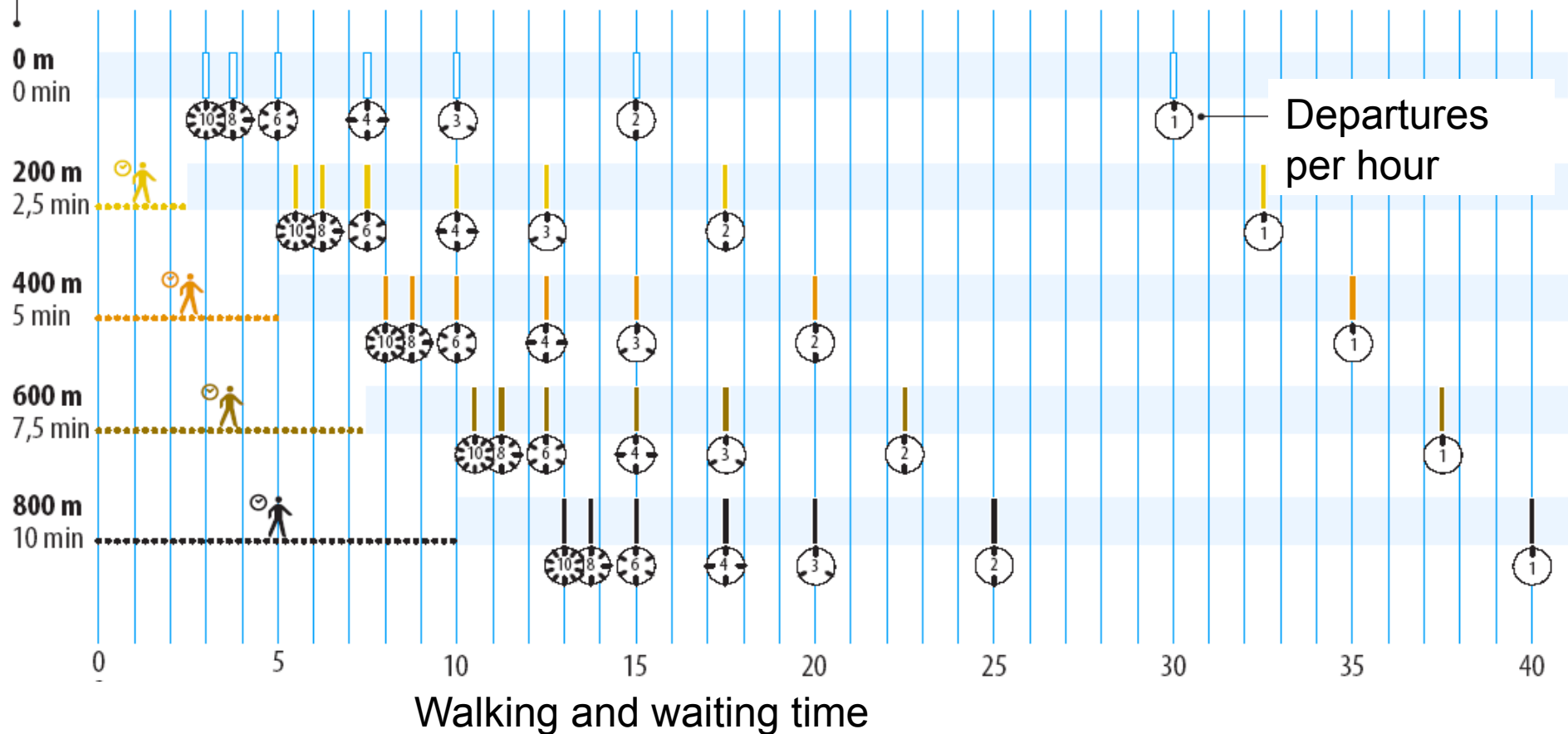


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Walking and waiting and frequency

Walking time



Source: G.Neilson, TOI, Oslo



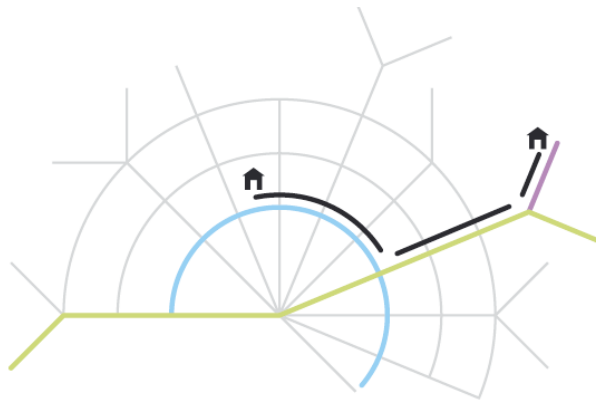
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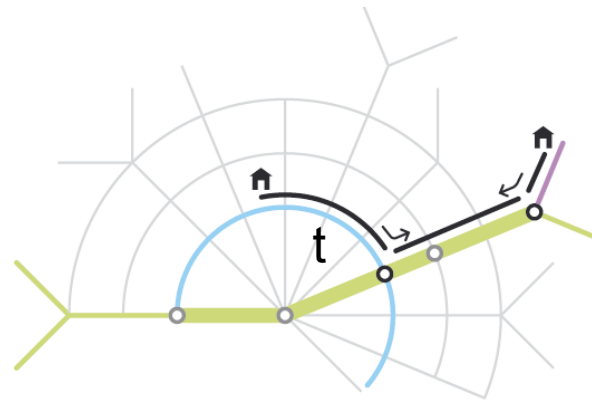


The network effect



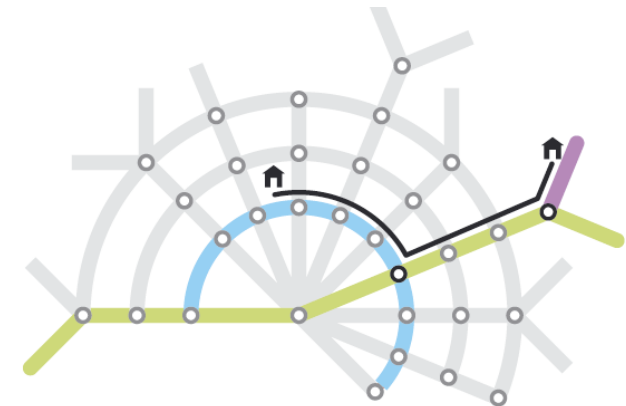
Low frequency network

Little chance of
attracting car users



Network with some
high frequency lines or
sections

Some car users are
attracted on radial
journeys,



High frequency network:
Network effect

Public transport can
become a realistic
alternative for many car
users, even with low
complementary measures
such as parking restrictions



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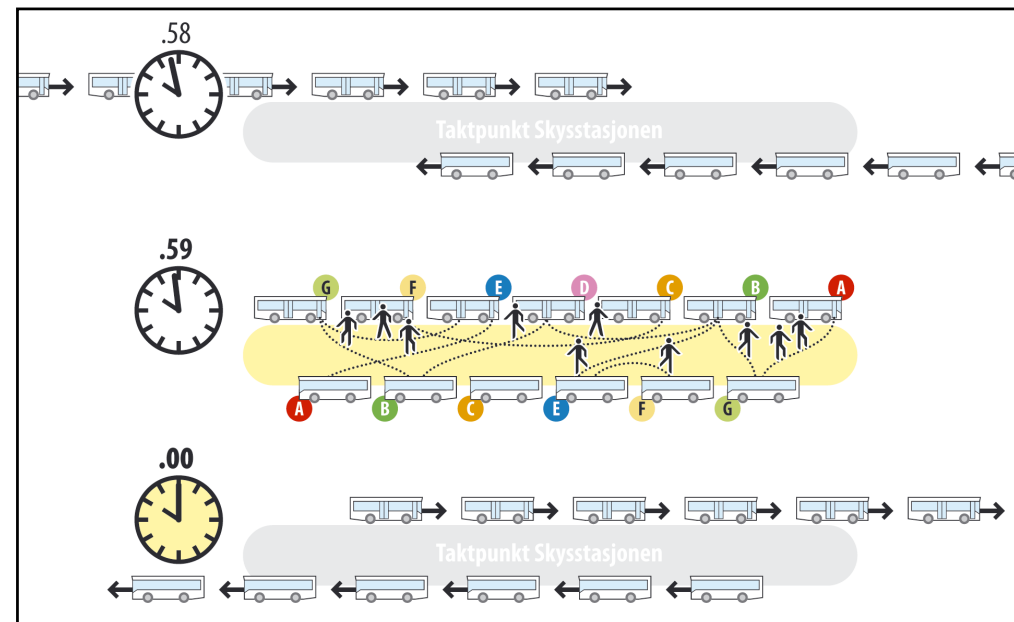


Areas of lower density and demand

- Alternative strategies are needed

- Use the ‘hub and spoke’ approach of airlines to co-ordinate arrival and departure times

Source: G.Neilson, TOI, Oslo



- Use flexible transport when demand will not support use of bigger vehicles



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What about fares?

- All this requires a simple fares system which does not penalise interchange
 - Zonal or time based
- A simple fare system that passengers know what the fare will be before boarding
- Better fares systems will motivate travel behaviour change in line with greater efficiency
 - Lower off-peak fares
 - Significant discount for pre-payment (the 'normal' fare)
 - Caps for extended travel



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More infrastructure in the short run

- Needs to be targeted at supporting a simple but high quality network
 - Electronic ticketing and the supporting infrastructure for operation
- Speeding up the services (even if this is at the expense of speeds of cars)
 - Public transport priority on shared infrastructure
 - Bus lanes – and consider whether reserved space should allow freight/taxis/bicycles
 - Targeted improvements where bottlenecks exist



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'Soft measures' must not be ignored

- Soft measures to increase the 'push' away from private transport are not 'infrastructure' but can return sometimes better cost-benefit ratios
 - Healthy living
 - Smart travel
 - Parking policies
 - Travel planning



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Moving forward

- Using existing public transport infrastructure well and targeting improvements where they would have most impact is only a short-term response
- Longer term, builds public support and commitment to public transport as a means of travel and increases the benefits of future investment making infrastructure provision and investment more justified.





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Thank you for listening!

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