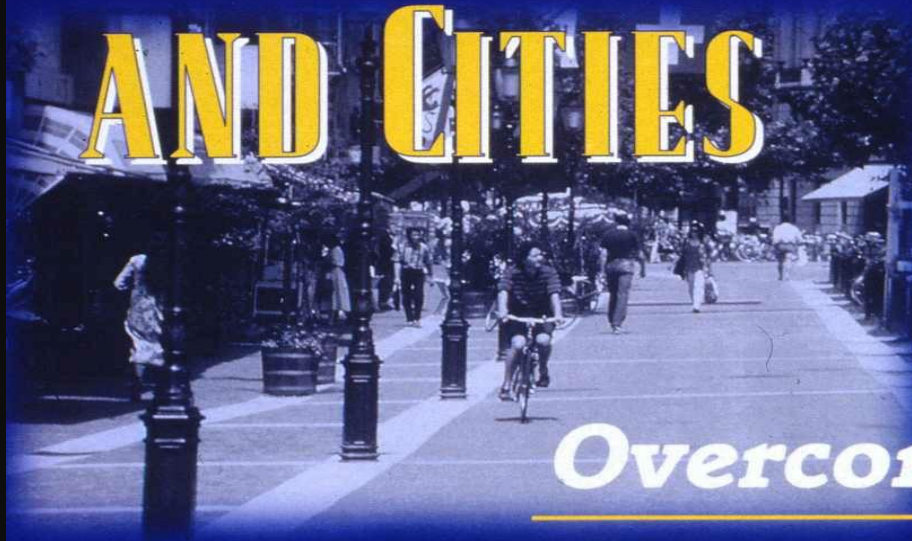


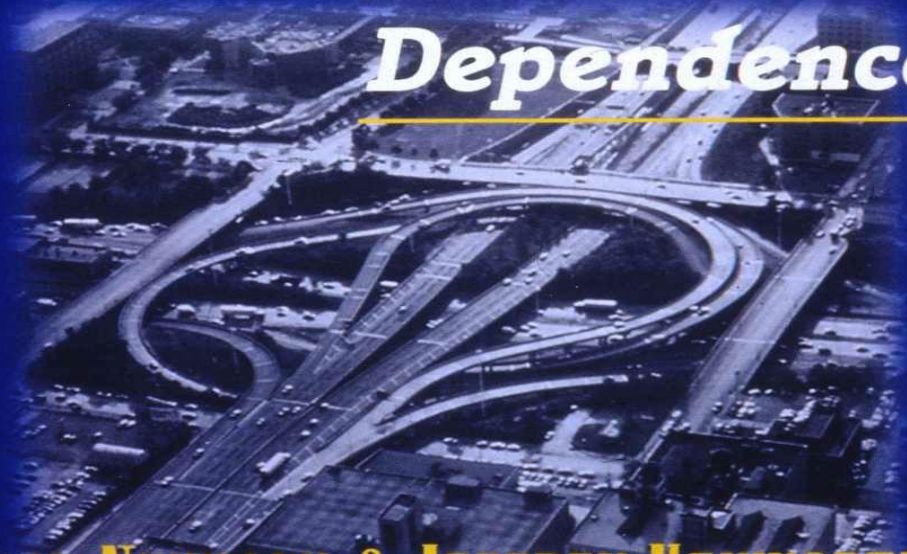
LRT Background and Funding Options: *the next generation of city building in Perth*

Peter Newman

SUSTAINABILITY AND CITIES



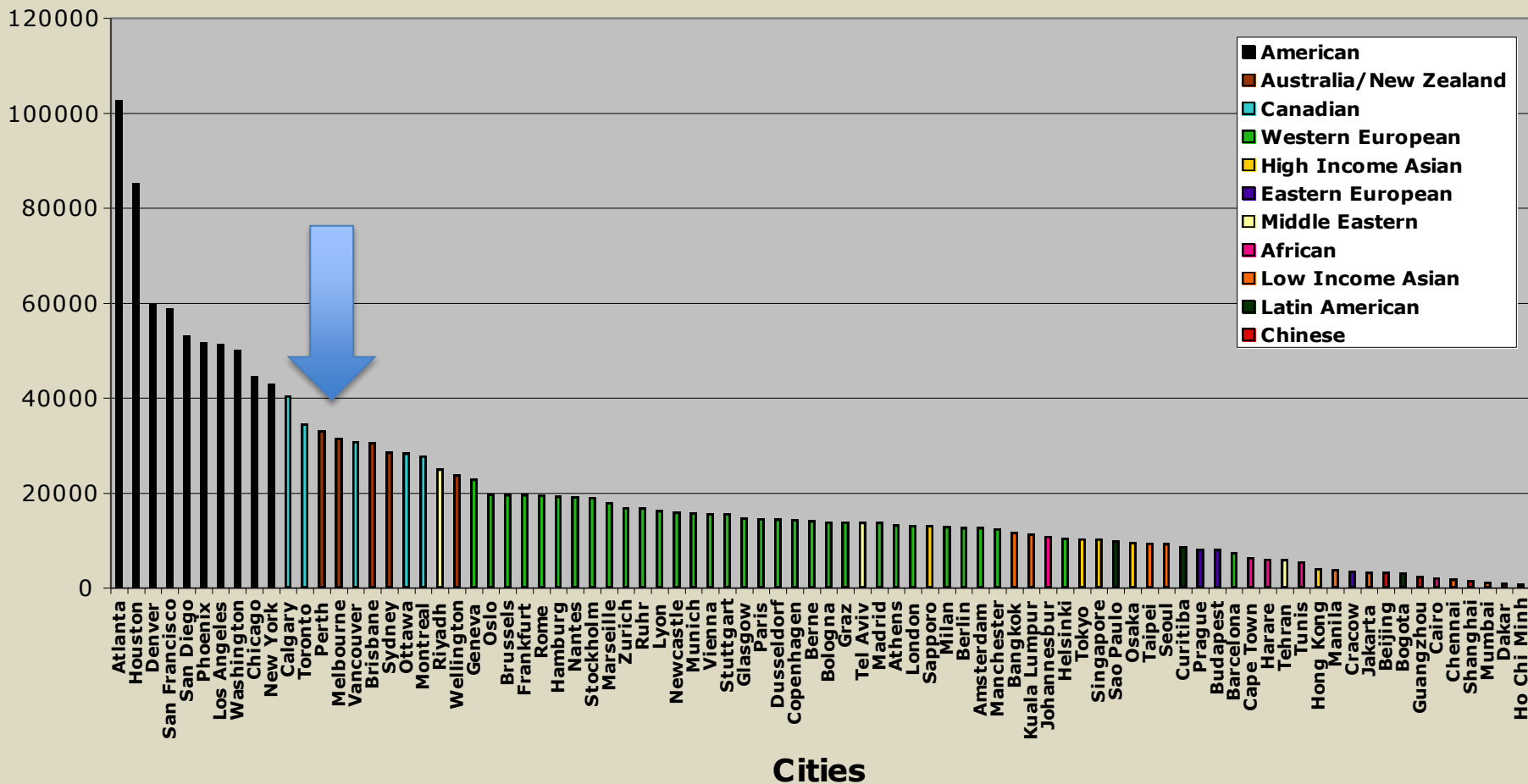
*Overcoming
Automobile
Dependence*



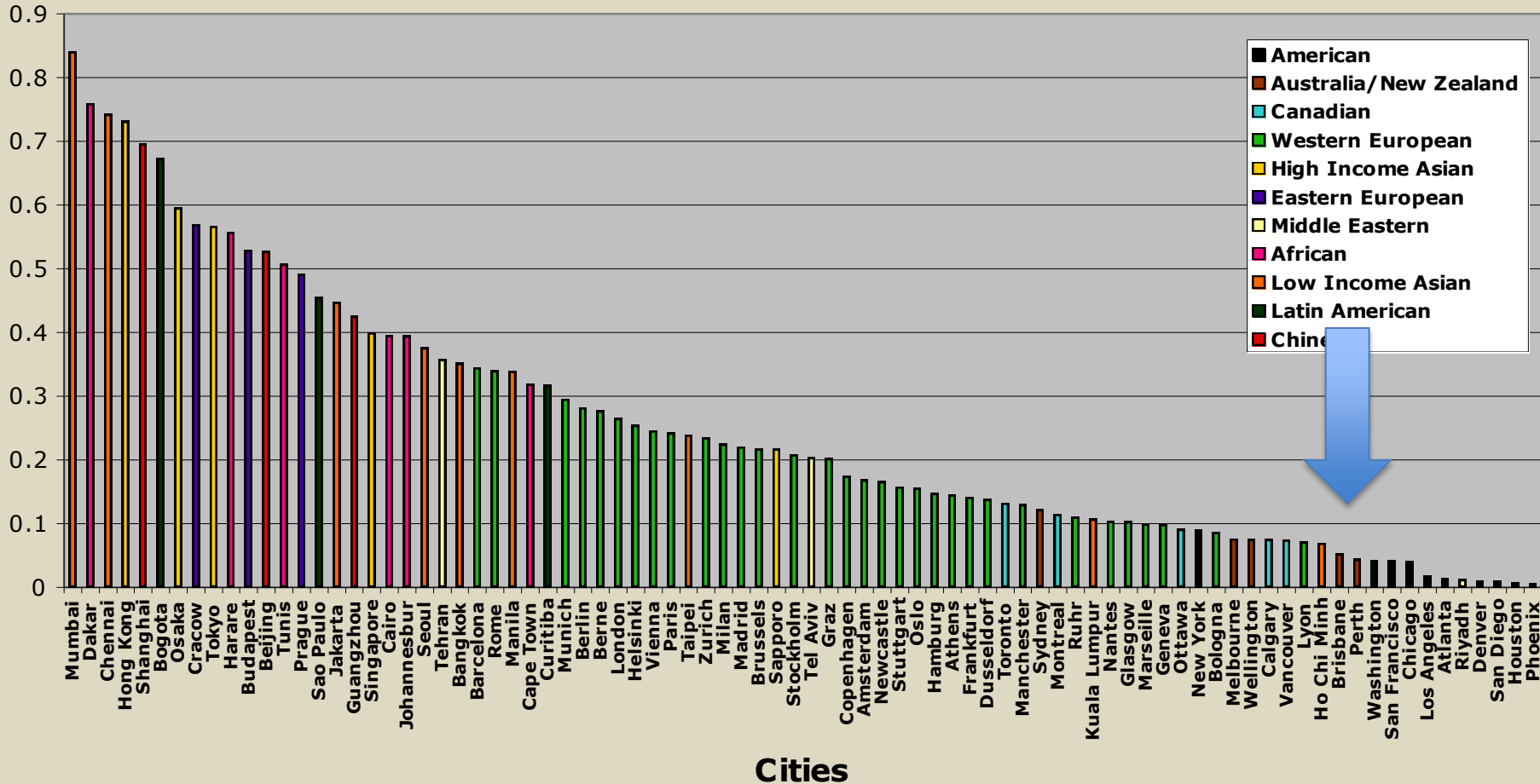
PETER NEWMAN & JEFFREY KENWORTHY

Global Cities
Database on
100 cities....

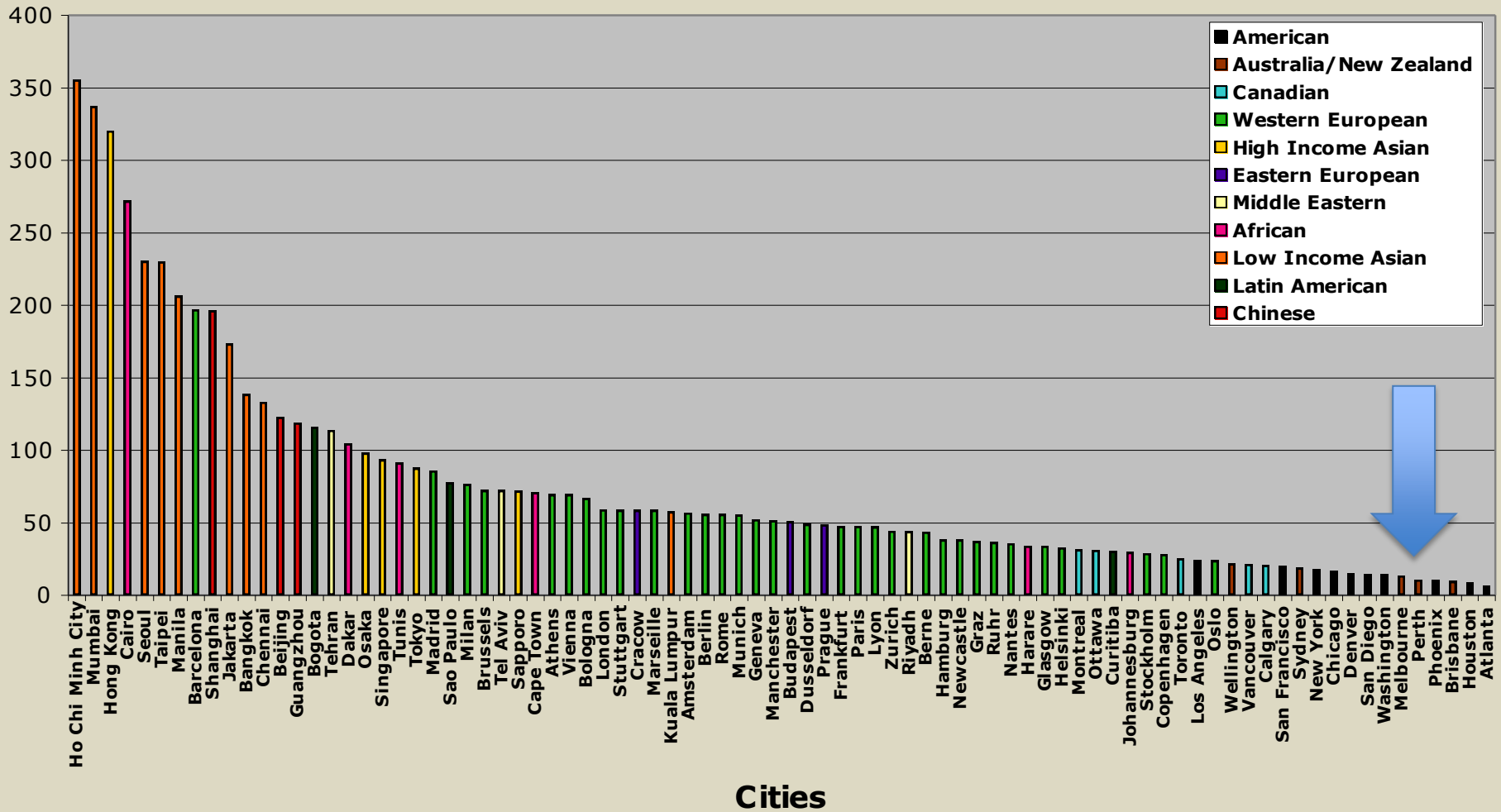
Private Passenger Transport Energy Use per Person, 1995



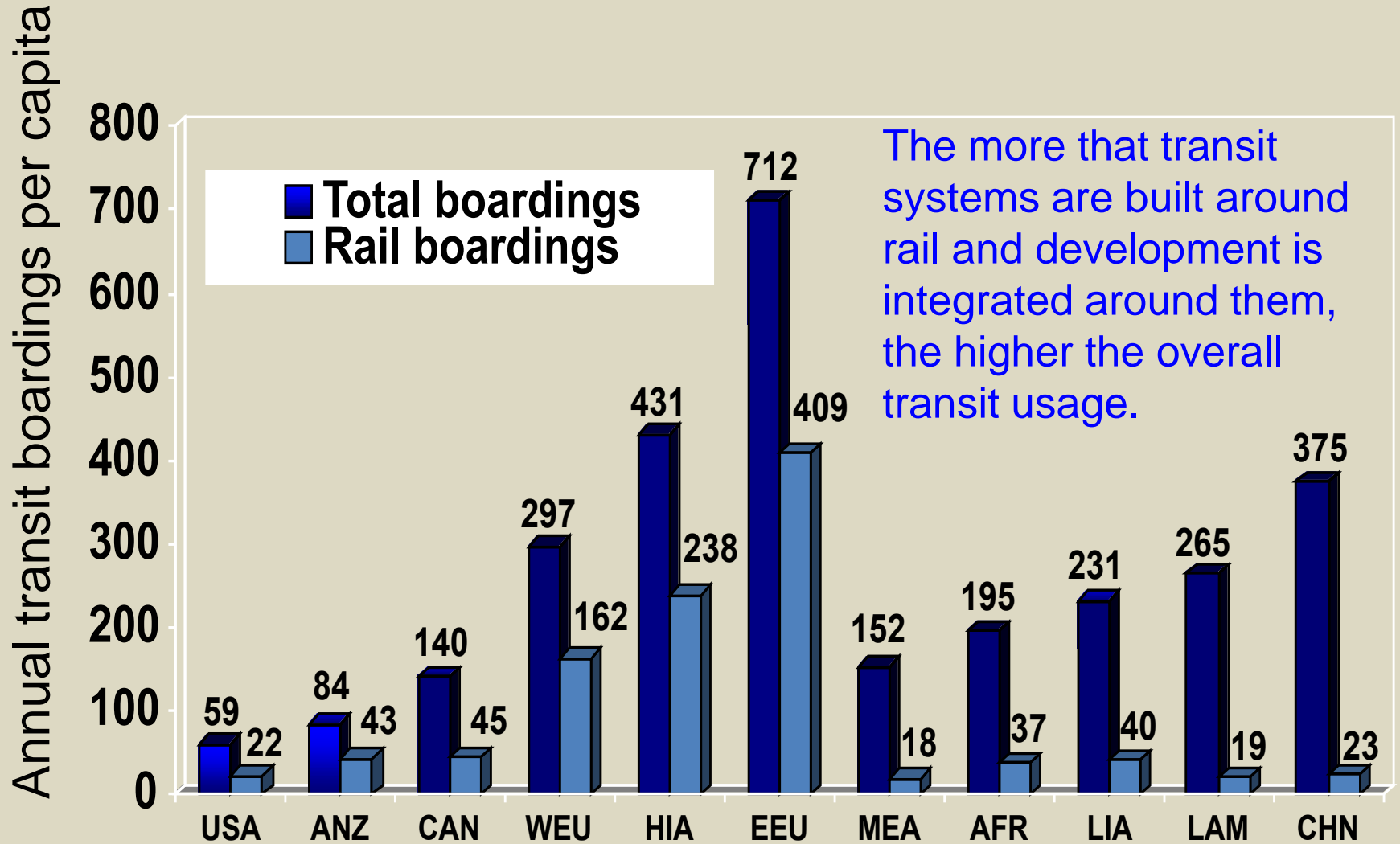
Proportion of Total Motorised Passenger Kilometres on Public Transport, 1995



Urban Density, 1995 (Persons/Ha)



Transit Use and Rail Use per Capita in World Cities, 1995



Strong Rail Versus Weak Rail Cities:

Economic Indicators

	Strong Rail Cities	Weak Rail Cities	Difference
GRP Per Capita (\$US, 1990)	\$29,493	\$20,352	45% More Wealthy
% of GRP Spent On Operating Pass. Transport	9%	13%	2/3 The Wealth On Transport
Road Expenditure Per \$1,000 of GRP	\$5.96	\$9.07	34% Less Road Expenditure
Transit Cost Recovery	53%	51%	4% More Cost-Effective

Source: Kenworthy and Laube (1999) The significance of rail in building competitive and effective urban public transport systems: An international perspective. *Business Briefing: Global Mass Transit Systems*, pp69-74.

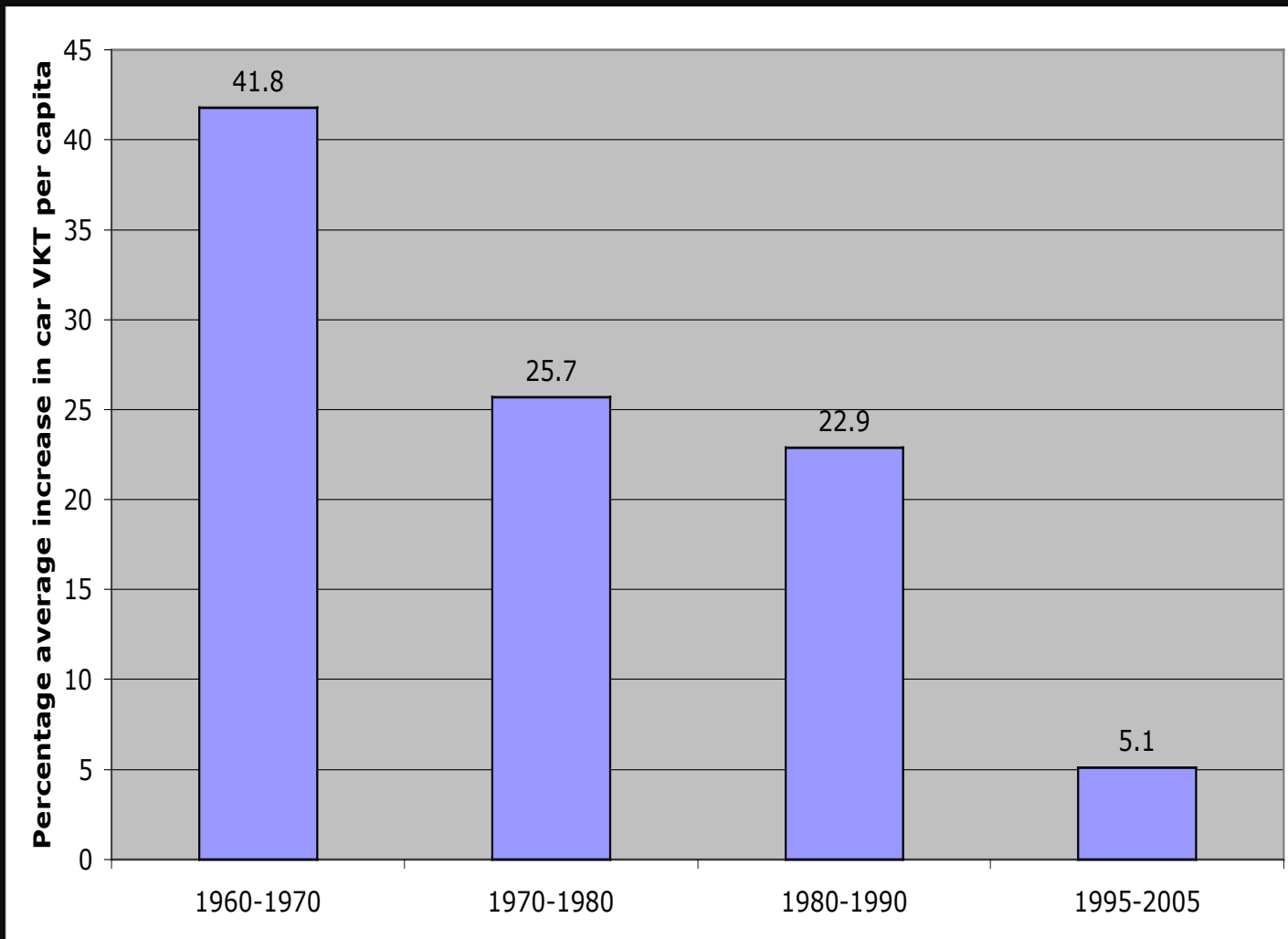


CITIES WITH MODERN STREETCARS:

- **41% lower energy use per passenger/km than bus cities**
- **18% lower automobile passenger kms per capita**
- **23 % lower transport emissions per capita**
- **38% fewer transport deaths**

Source: Kenworthy and Newman

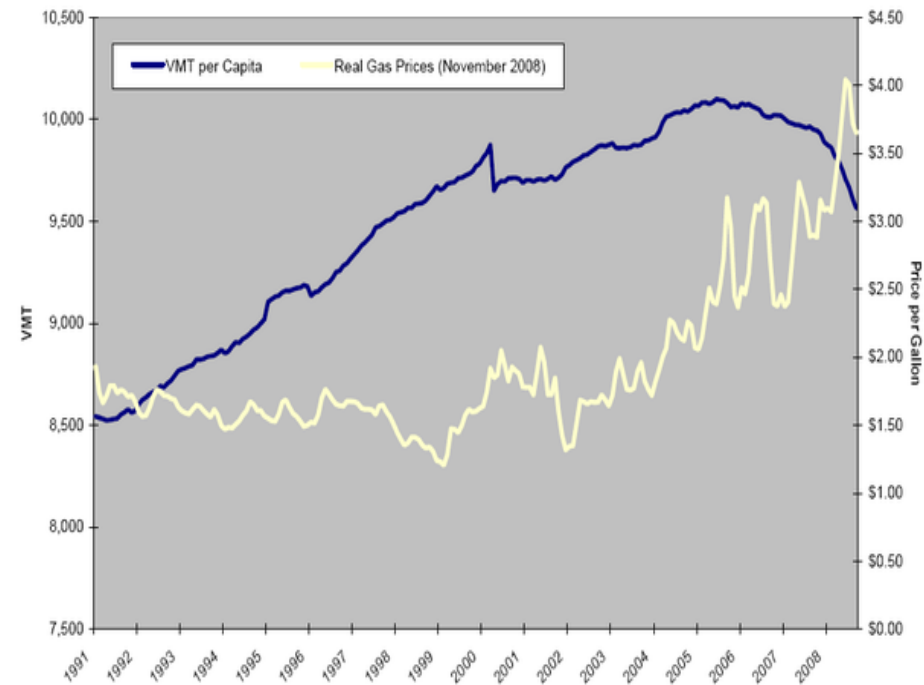
Car use growth trends in developed cities from 1960 to 2005 using Global Cities Database.



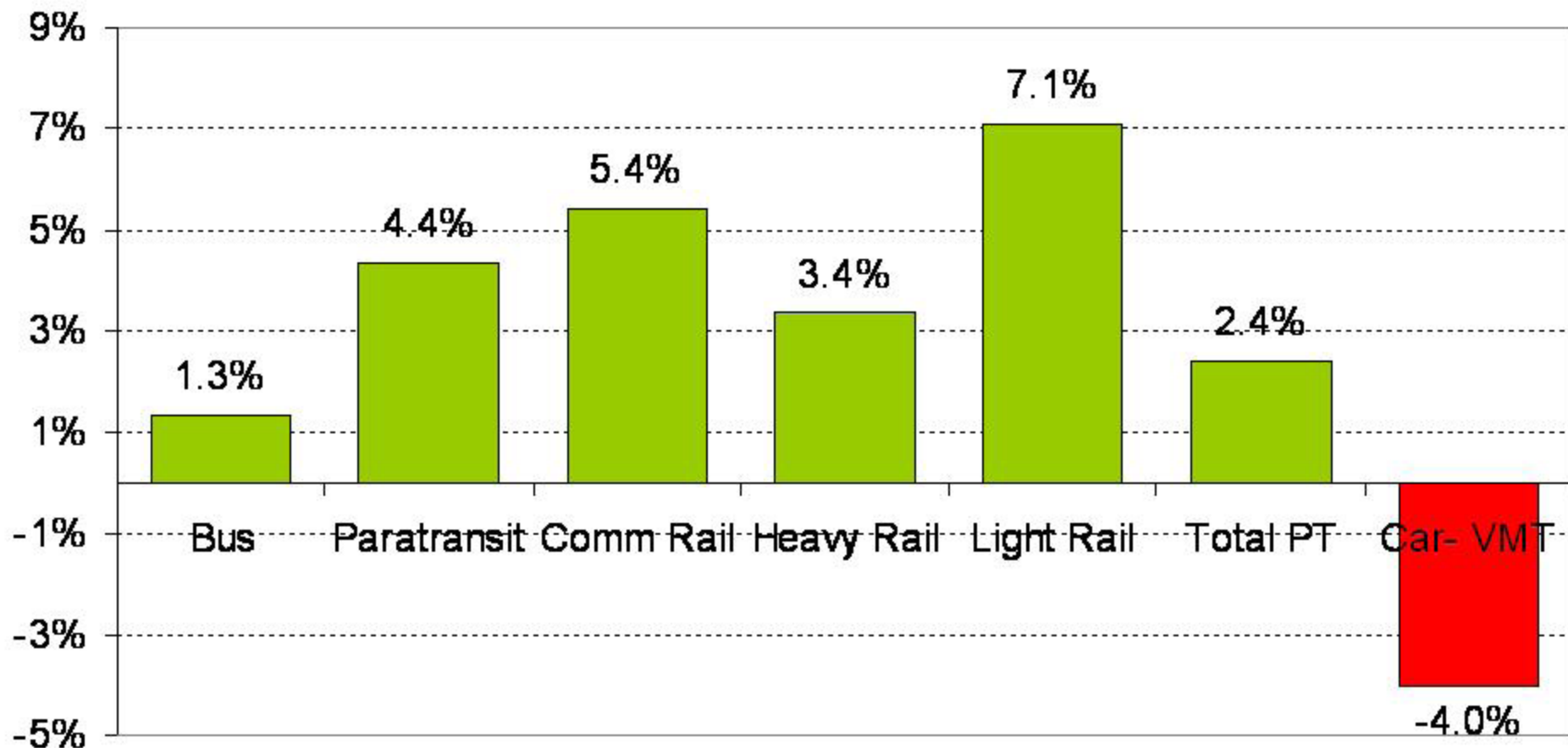
Peak Car Use - US cities...

- Declining in **car use** – 4.3% in past year, plateau over the past 5 years.
- Increasing **transit use** – 6.5% in past year.
- Cities coming back in..

U.S. Vehicle Miles Traveled Per Capita, Annualized and Real Gasoline Pump Prices
January 1991–September 2008

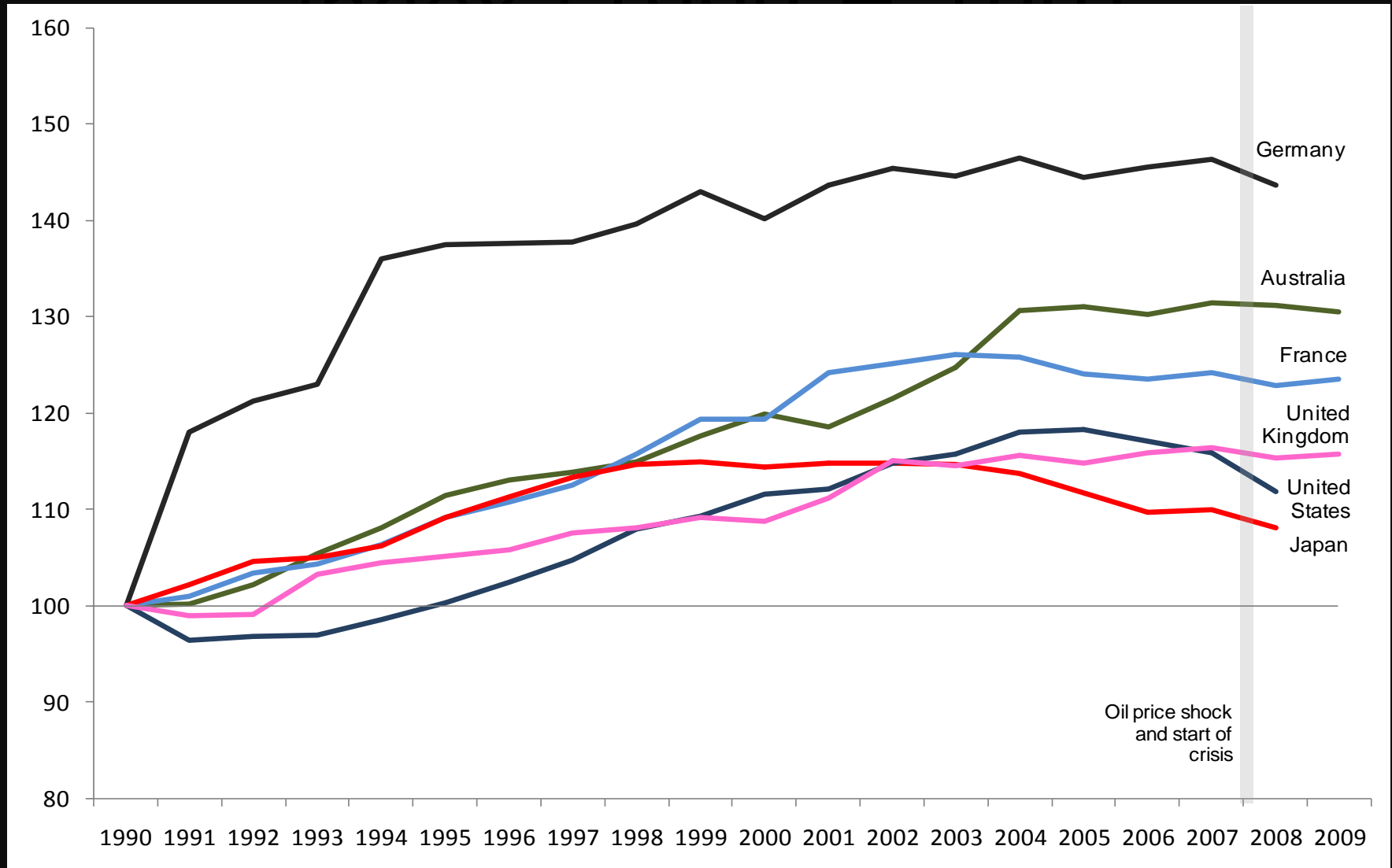


Public Transit Boardings and Vehicle Miles Travelled in US: March Quarter 2008 vs March Quarter 2007

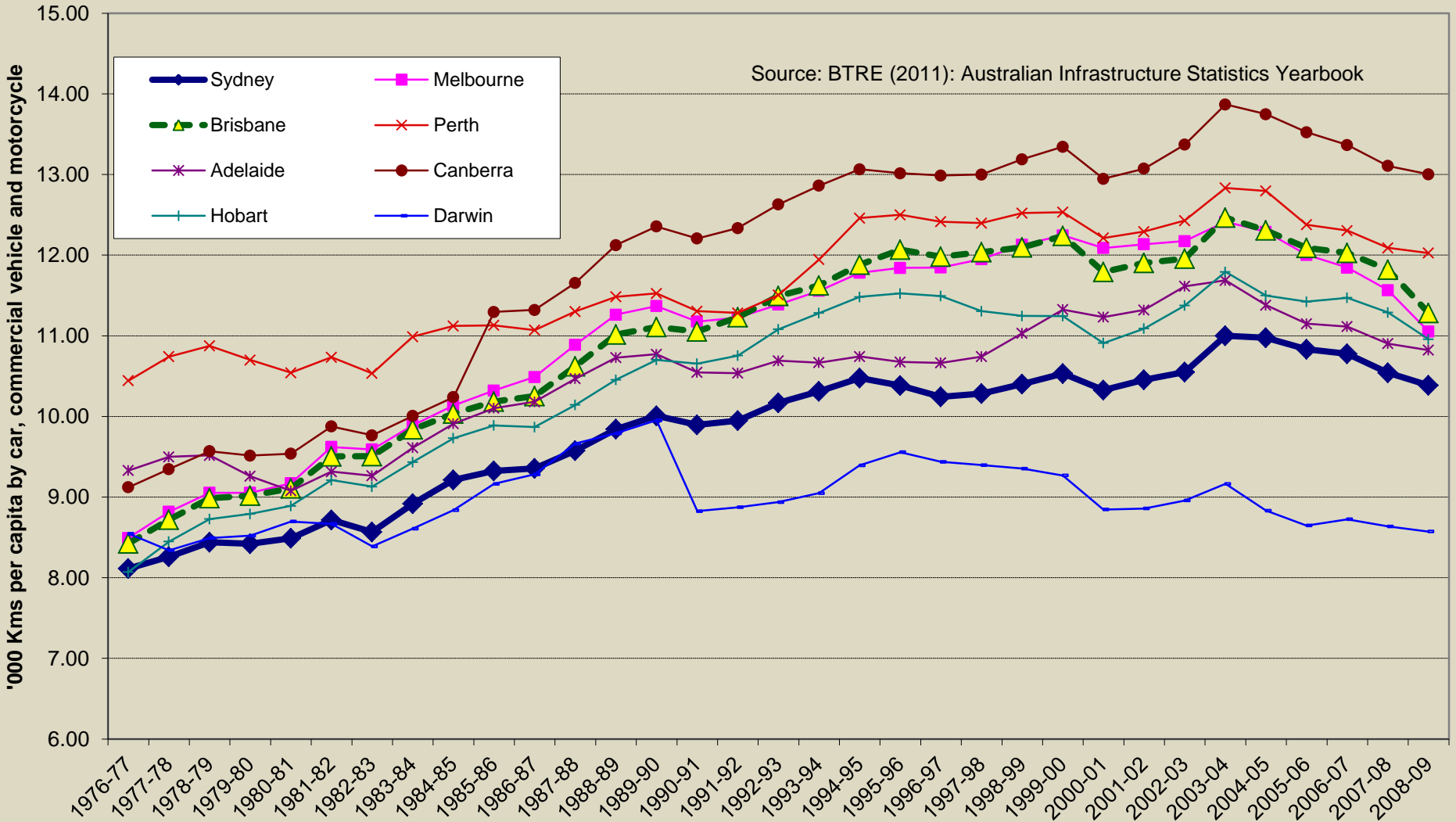


Passenger-kilometres by private car and light trucks, 1990 – 2009,

index (1000 = 100)



Per Capita Private Travel by City



Per Capita Public Transport Travel by City

Source: BTRE (2011): Australian Infrastructure Statistics Yearbook

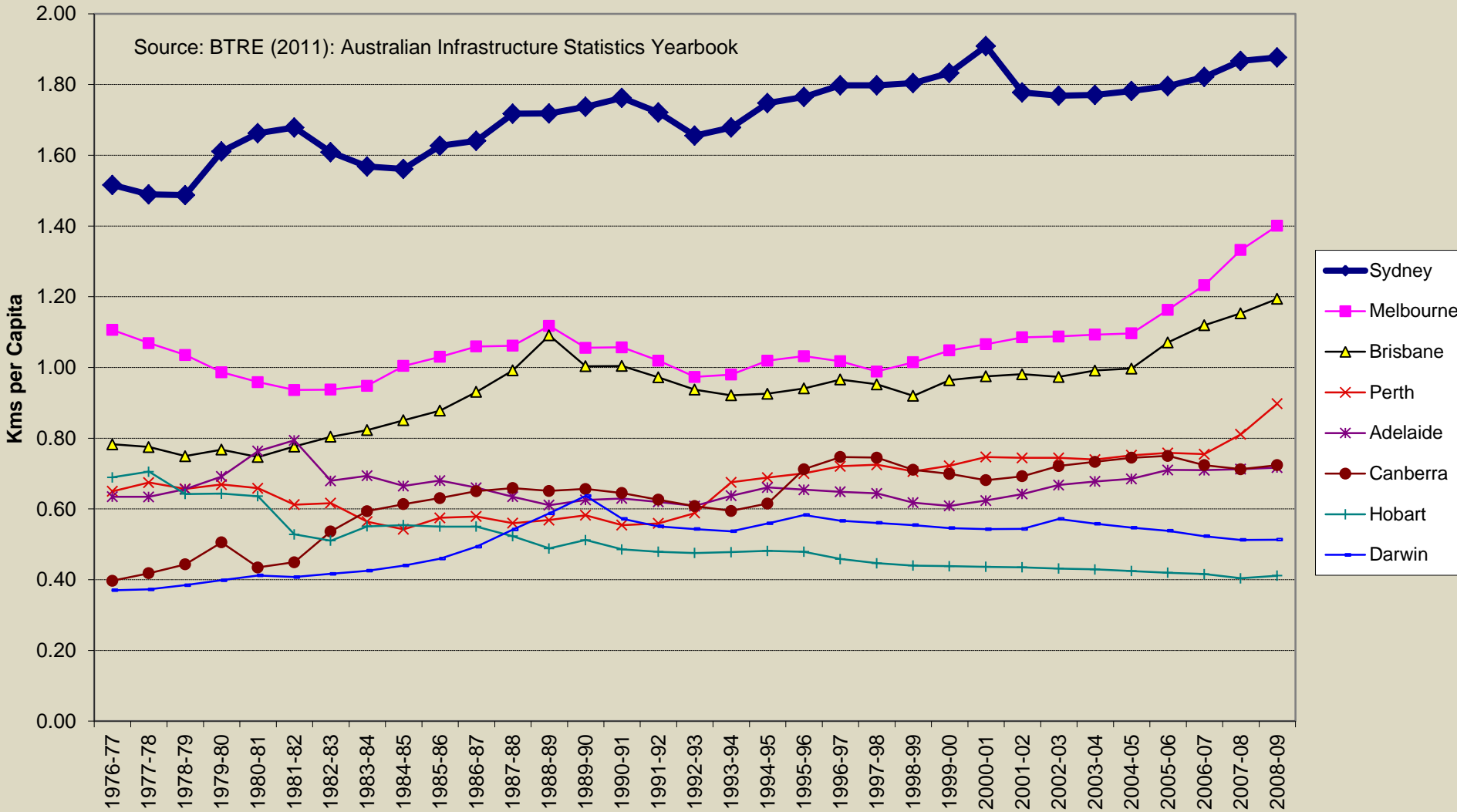
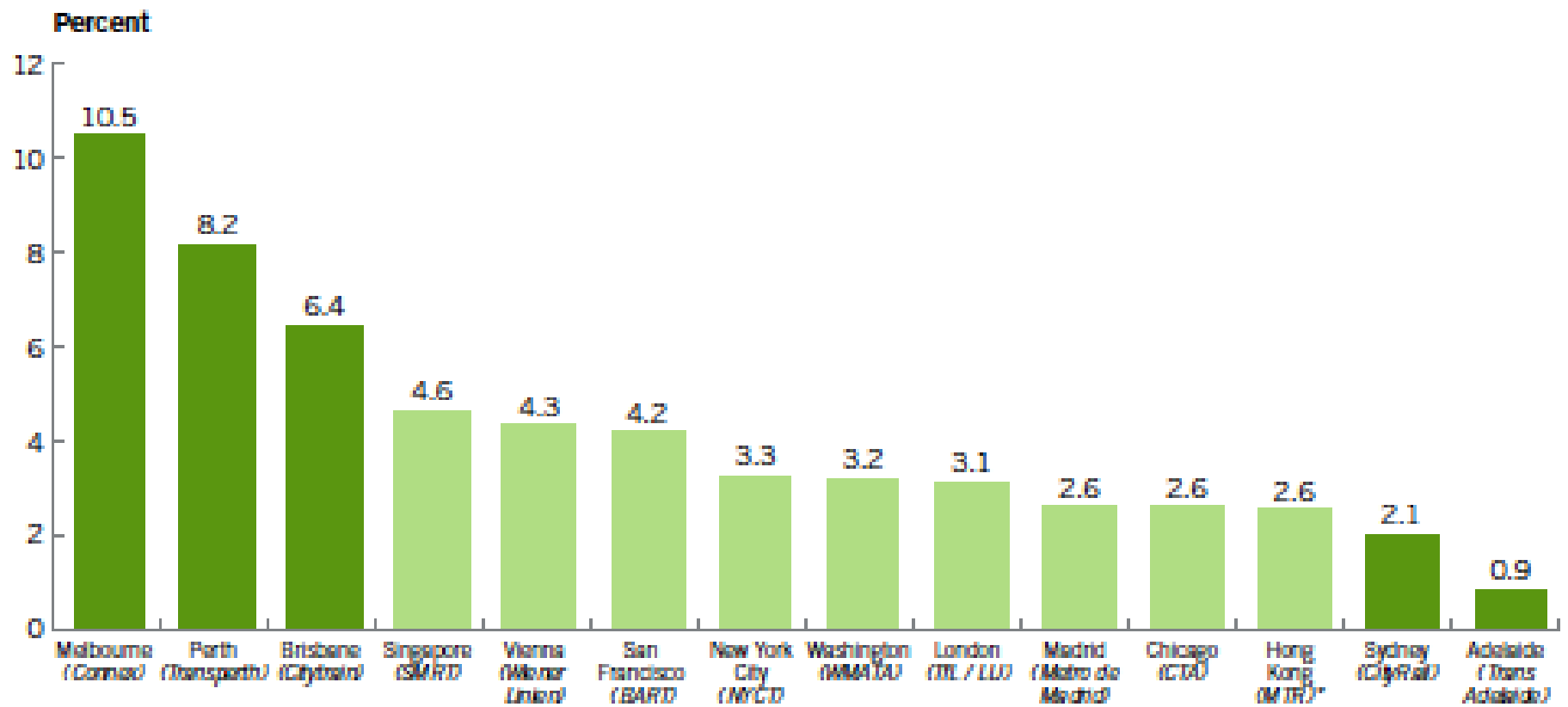


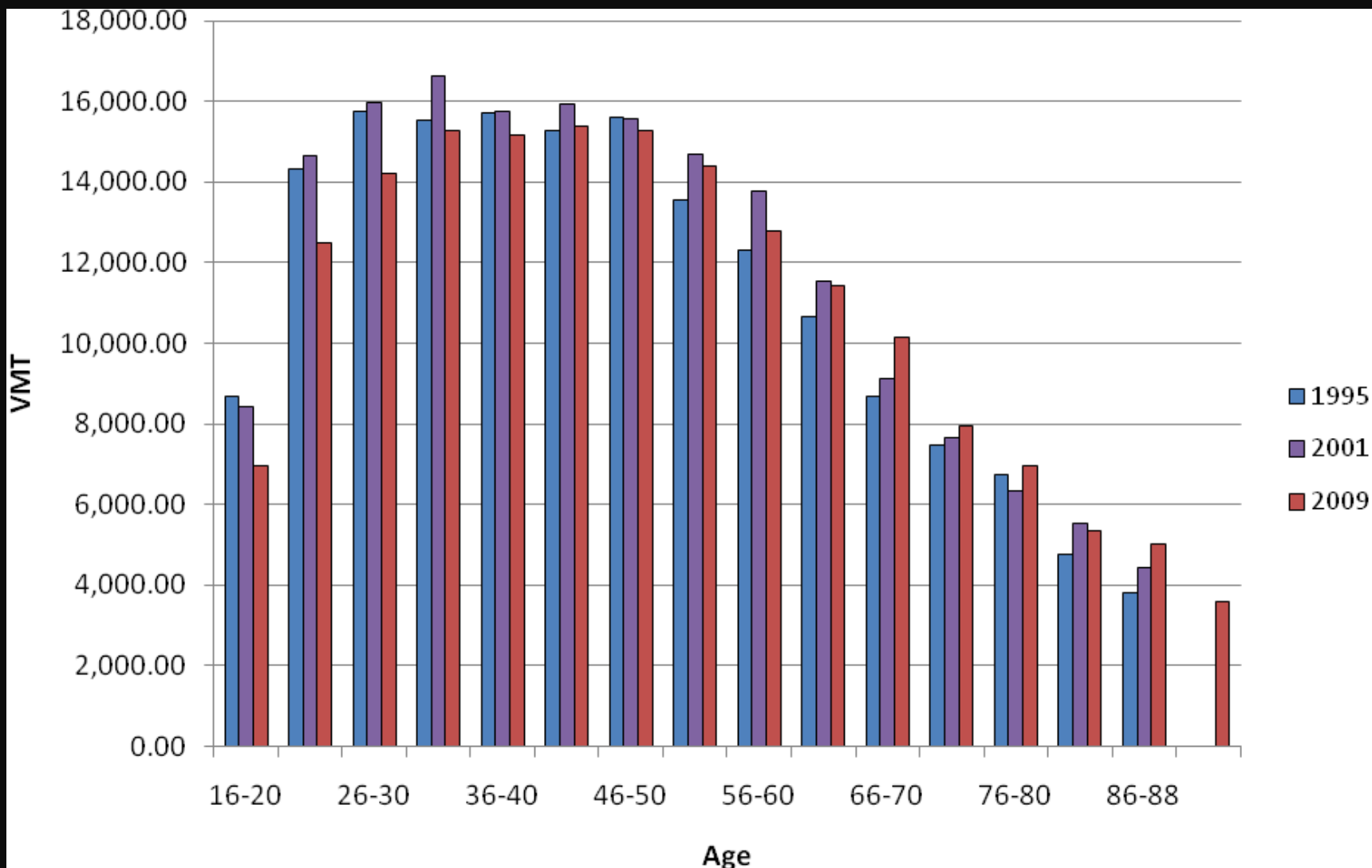
Figure 2.4: Rail patronage growth per annum in major international cities (2004–08)



Note: *Domestic lines including KRC East & West lines, excluding airport and cross-boundary

Source: Rail operator annual reports and statistics; Government statistics; I.E.K. Analysis

Annual vehicle miles per driver by age, USA, 1995, 2001, 2009



Density is going up after 100 years of decline

Cities	1960 Urban density persons/ ha	1970 Urban density persons/ ha	1980 Urban density persons/ ha	1990 Urban density persons/ ha	1995 Urban density persons/ ha	2005 Urban density persons/ ha
Brisbane	21.0	11.3	10.2	9.8	9.6	9.7
Melbourne	20.3	18.1	16.4	14.9	13.7	15.6
Perth	15.6	12.2	10.8	10.6	10.9	11.3
Sydney	21.3	19.2	17.6	16.8	18.9	19.5
Chicago	24.0	20.3	17.5	16.6	16.8	16.9
Denver	18.6	13.8	11.9	12.8	15.1	14.7
Houston	10.2	12.0	8.9	9.5	8.8	9.6
Los Angeles	22.3	25.0	24.4	23.9	24.1	27.6
New York	22.5	22.6	19.8	19.2	18.0	19.2
Phoenix	8.6	8.6	8.5	10.5	10.4	10.9
San Diego	11.7	12.1	10.8	13.1	14.5	14.6
San Francisco	16.5	16.9	15.5	16.0	20.5	19.8
Vancouver	24.9	21.6	18.4	20.8	21.6	25.2
Frankfurt	87.2	74.6	54.0	47.6	47.6	45.9
Hamburg	68.3	57.5	41.7	39.8	38.4	38.0
Munich	56.6	68.2	56.9	53.6	55.7	55.0
Zurich	60.0	58.3	53.7	47.1	44.3	43.0

Table 1. Trends in urban density in some US, Canadian, Australian and European cities, 1960-2005

because it reflects the entire market and brings to an end a run of 10 quar-

tors predicting that Perth house prices will fall over in 2007, REIWA has con-

stamp duty on first home purchases. This had led to an increase in sales of

While the price drop is hardly enough to make a difference to a home

inning towns, with one South Hedland tenant hit with a rise from \$500 to \$800 a week.

City living means leave the car keys at home

NATASHA GRANATH

David Dragun loves leaving the car keys on the table when he heads out the door to work.

The inner-city real estate agent bought an East Perth apartment four years ago and believes he will be a city dweller for life.

He is one of the growing band of young professionals who call this area home, a trend that has pushed the inner-city population to 13,500.

Typical of this new breed, he is under 35, single and his apartment has doubled in value since he bought it.

Mr Dragun loves the convenience and lifestyle of inner-city living. He makes the most of his favourite nighttime haunts in nearby Subiaco and Mt Lawley and loves an after-work drink in Perth on Fridays.

"For young people it's got every thing at your doorstep," he said. "It's five minutes from my work and if you're young, you go out a lot, so it's great. My job is 24 hours, so it's nice not to have to drive home if you finish at 9 o'clock at night.

"One of the biggest attractions for me was the river, where I go riding and jogging or paddling.

"East Perth's redeveloped area is starting to build up its infrastructure, so it's nice to go there to eat. There's good shopping, the restaurants rock and everything is stumbling distance home. A cab ride home from the Brisbane Hotel (in Highgate) is less than \$10 and I can walk to the Skyshow or the WACA."

Couples and singles are more likely to call the inner city home than families but Mr Dragun said he would stay in the area if he had a family.



Great Australian dream ditched for a life in town

KELLY DAVIS

West Australians increasingly are shying away from the great Australian dream of owning a big house on a quarter-acre block, with a new survey confirming record numbers are flocking to central Perth.

Single, cashed-up professionals are driving record demand for apartments and units in the city centre, according to a survey of hundreds of residents by the City of Perth and Property Council of Australia (WA).

The survey supports findings by the Australian Bureau of Statistics that the City of Perth is growing faster than any local government area in Australia. With 4000 new apartments scheduled for release by 2010, the pace of change shows no sign of slowing.

But the residents of the new breed of dwellings, which include multi-million-dollar "sky homes" with stackable carparks, say Perth still has a long way to go before residents can enjoy the cosmopolitan lifestyle people living in inner-city Melbourne and Sydney take for granted.

The survey showed that they want new supermarkets, facilities for families, a more sophisticated cafe culture and a swimming pool.

More than 80 per cent of those sur-

CITY LIVING

One or two-person households	84%
Catch public transport	36%
Own a bike	43%
Plan to stay for up to 5 years	50%
Work in City of Perth	60%
Private renters	42%
Owner-occupiers	34%
Largest age group	25-35 year olds

SOURCE: CITY OF PERTH 2007 SURVEY OF RESIDENTS

veyed lived in a one or two-person household. Commentators say the rise in the number of people living alone, combined with an ageing population, will result in a sharp rise in demand in coming years for apartments. There are 30 medium and high-rise apartment buildings going up in the city centre and east end of Perth.

The survey showed the biggest age group was from 26 to 35. Most worked in the city centre or nearby in Subiaco or West Perth. A central location and proximity to work were the main factors behind residents wanting to live in or near the city centre.

> APARTMENT LIVING REAL ESTATE

DO YOU KNOW THE SCORE?

GASCOIGNE LEATHER CENTRE
 Buy Quality, Buy Gascoigne
 HUGE JULY SALE ON NOW
 MASSIVE SAVINGS ON 100% LEATHER

Perth's rail revival began as a political movement in 1979





7 mill pass/yr to 57 mill/yr in 15 years



New southern line completed 172 kms of electric rail with 72 stations in 20 years.... Built with \$17 million per km.

Year	Route Km
1982	42km
1983	63km
1993	92km
2004	96km
2005	100km
2006	172km
Total	172km

54 kms within freeway median



Next phase for Perth



Curtin-UWA LRT The 'Knowledge Arc' Rail



THE KNOWLEDGE ARC LIGHT RAIL:

A CONCEPT FOR DELIVERING THE NEXT PHASE OF PUBLIC TRANSPORT IN PERTH

By Peter Newman and Jan Scheurer, Curtin University Sustainability Policy (CUSP) Institute
with assistance from Diana Ryan, Michael Kane, Jeff Kenworthy, Mark Bachalo and Brian McMahon



RAPID TRANSIT INFRASTRUCTURE COMBINED STAGE 1 & STAGE 2 PROJECTS



“Decade of
light rail’
Centres based
on value
capture

The Polycentric City... Walkable, green, smart centres linked by quality transit – and much more self sufficient – from LUTI to GLUTI

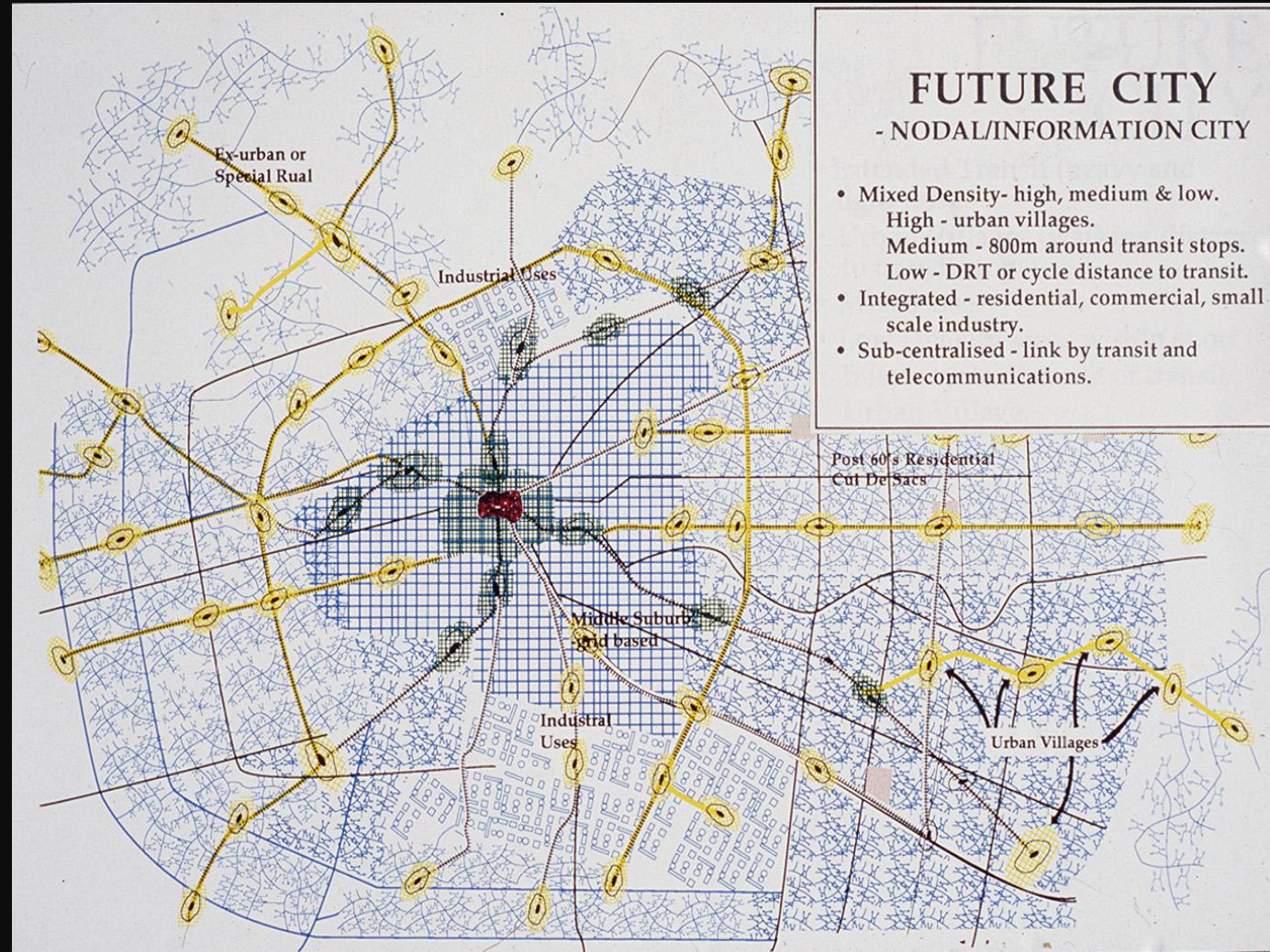
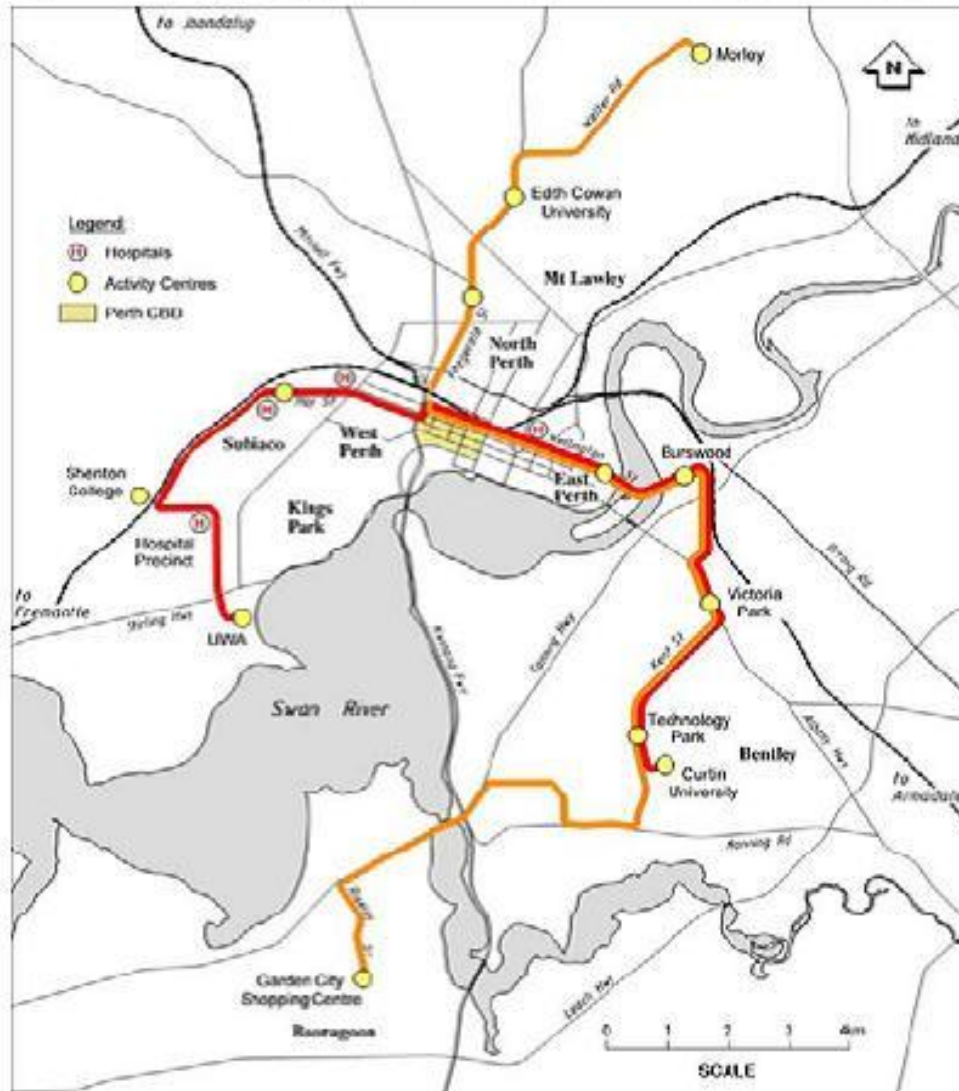


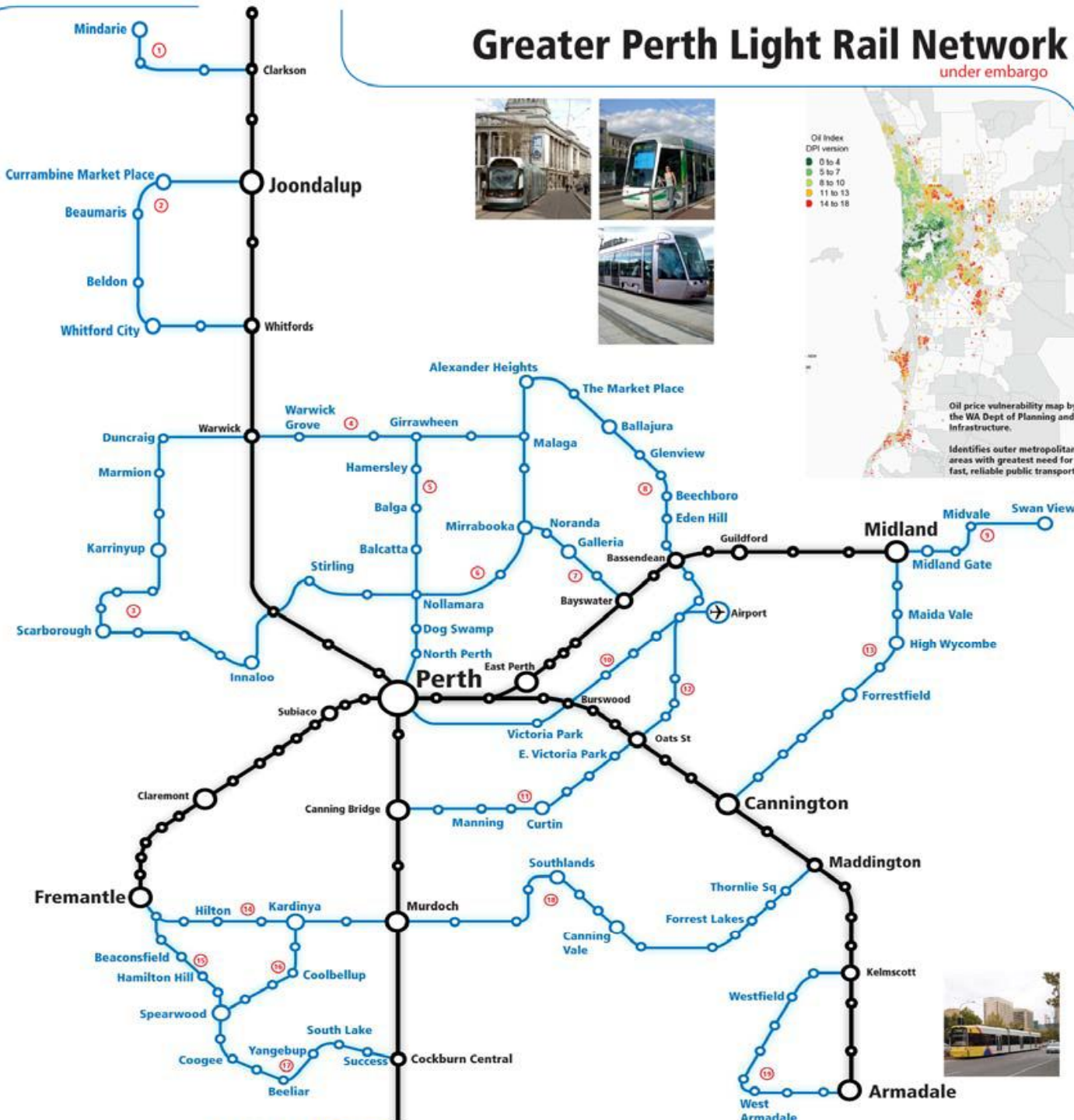
Figure 2.2 Perth Light Rail Network Proposed in the City of Perth Study



Source: HGM, 2002

Greater Perth Light Rail Network

under embargo

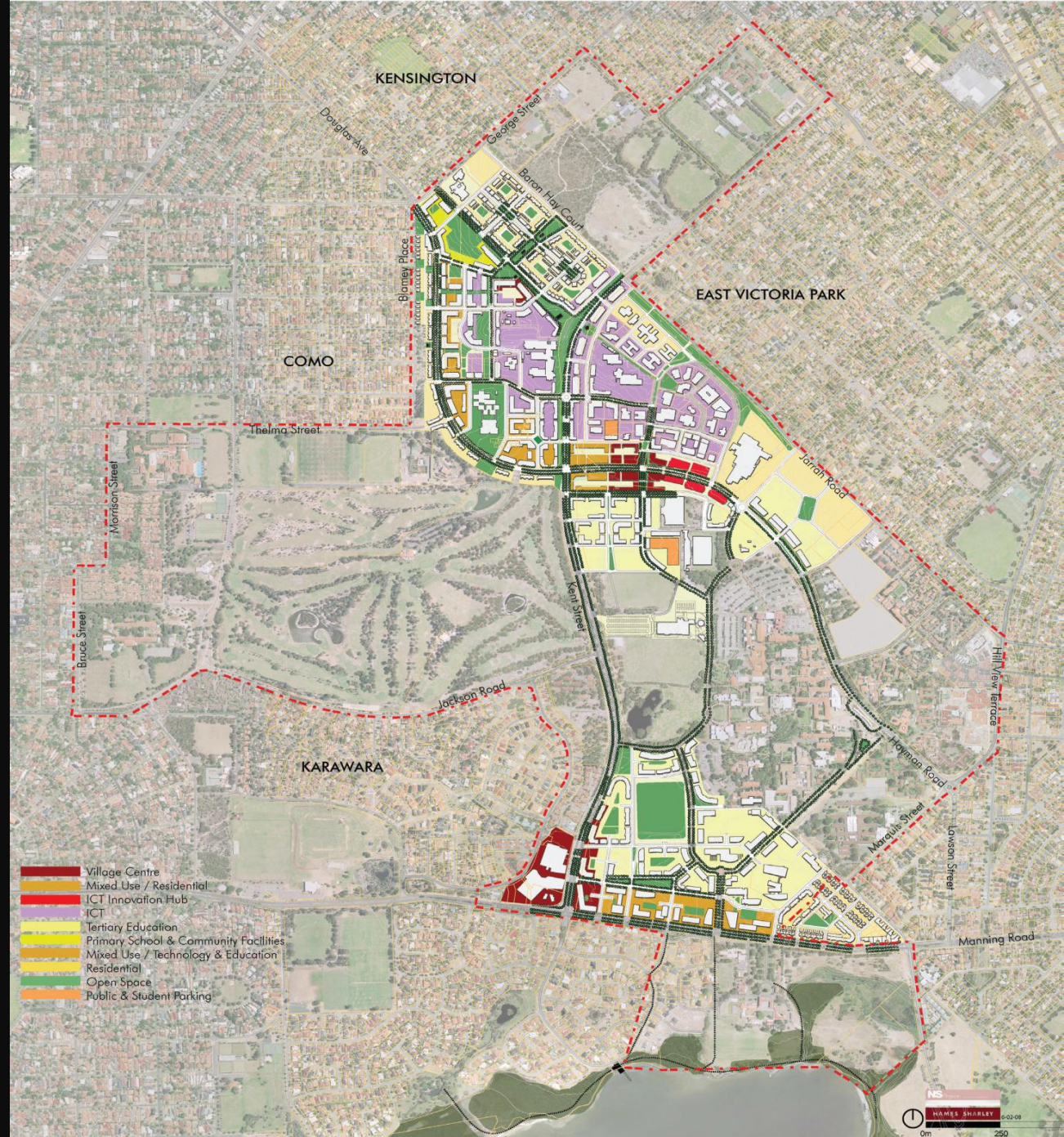




Tram land
use...
We need
centres,
thus LRT

Curtin City

- Potential to create a 'city'
- Can do as TOD, sustainability model.
- Only if LRT through it.



Vic Park old tram route... now ready for redevelopment?



Riverside development, also WACA and Trinity developments





Charles Gardiner Hospital with PMH

New car park will be biggest in Perth with 4500 spaces costing \$180 million...



UWA doubling but no parking....

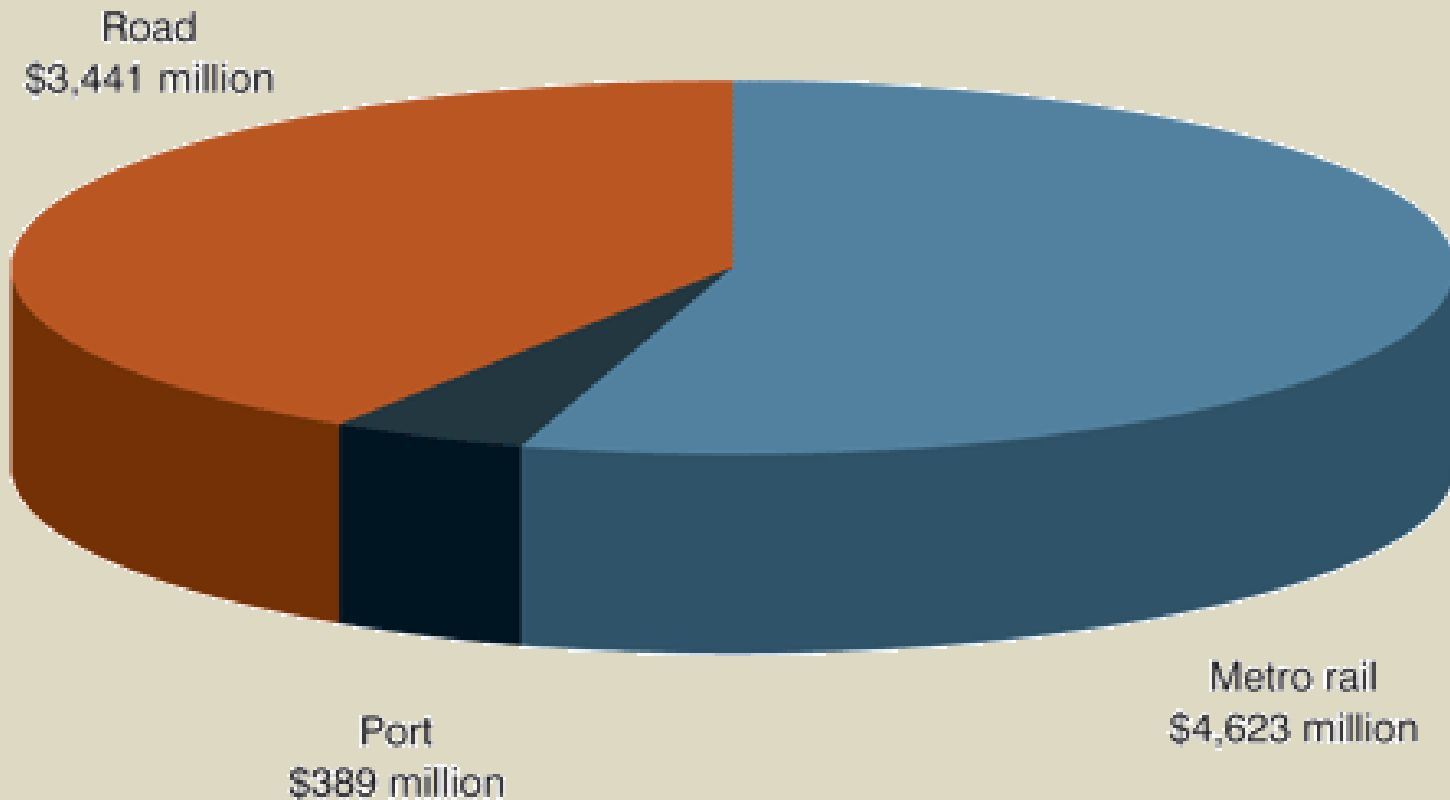


How do we do it?

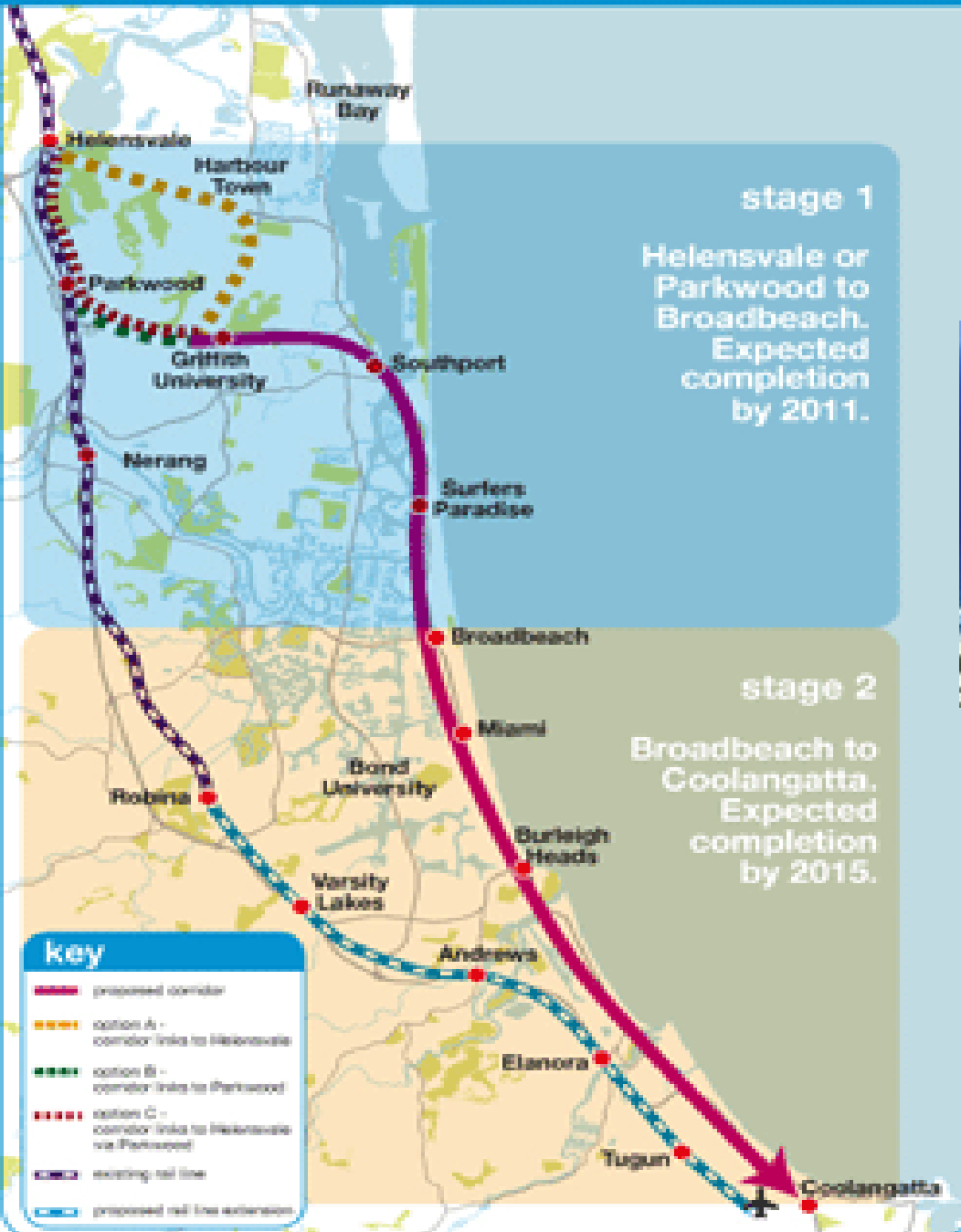
- Need to finance the LRT or the centres wont work?
- Need other centres and other LRT's
- Perth is growing fast but its all going to greenfields, awful infill and top end apartments
- Perth at a turning point in its urban model

**Infrastructure Australia funding –
\$4.6b or 55% on urban rail....historic!**

PERTH HAS NOT APPLIED



proposed alignment for Gold Coast Rapid Transit



The Gold Coast – Small town light rail.. New funding model



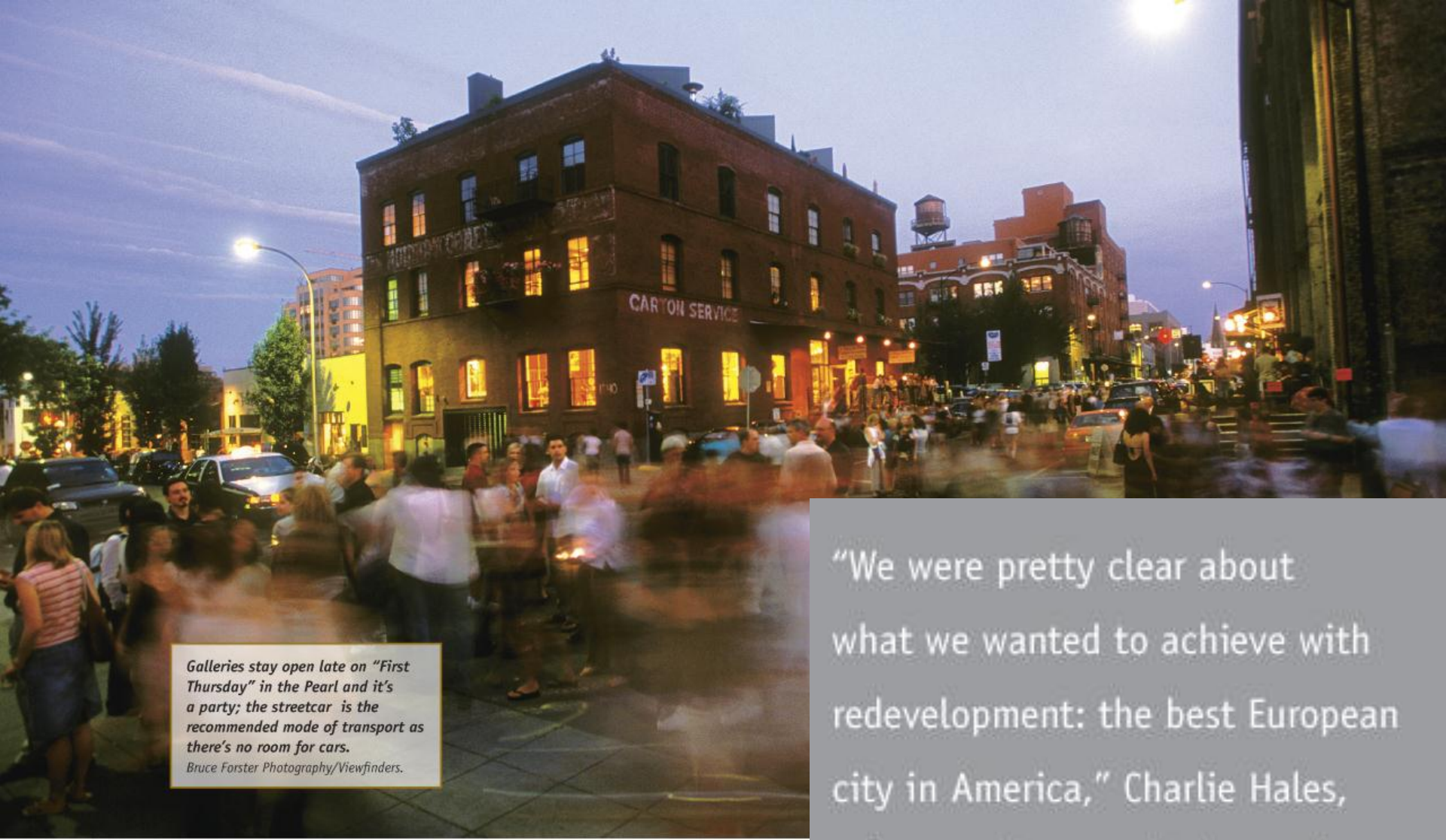
IA Public transport funds...

All require TOD plans and PPPs.



Pearl District LRT paid for entirely through land development...





Galleries stay open late on "First Thursday" in the Pearl and it's a party; the streetcar is the recommended mode of transport as there's no room for cars.

Bruce Forster Photography/Viewfinders.

"We were pretty clear about what we wanted to achieve with redevelopment: the best European city in America," Charlie Hales, a former city commissioner who now works as a consultant, told *The New York Times* in 2006.



This complements other City initiatives, such as:

- Integrated Transport Strategy
- Local Housing Strategy
- Stirling City Centre
- Single bin recycling
- Recycling of road material



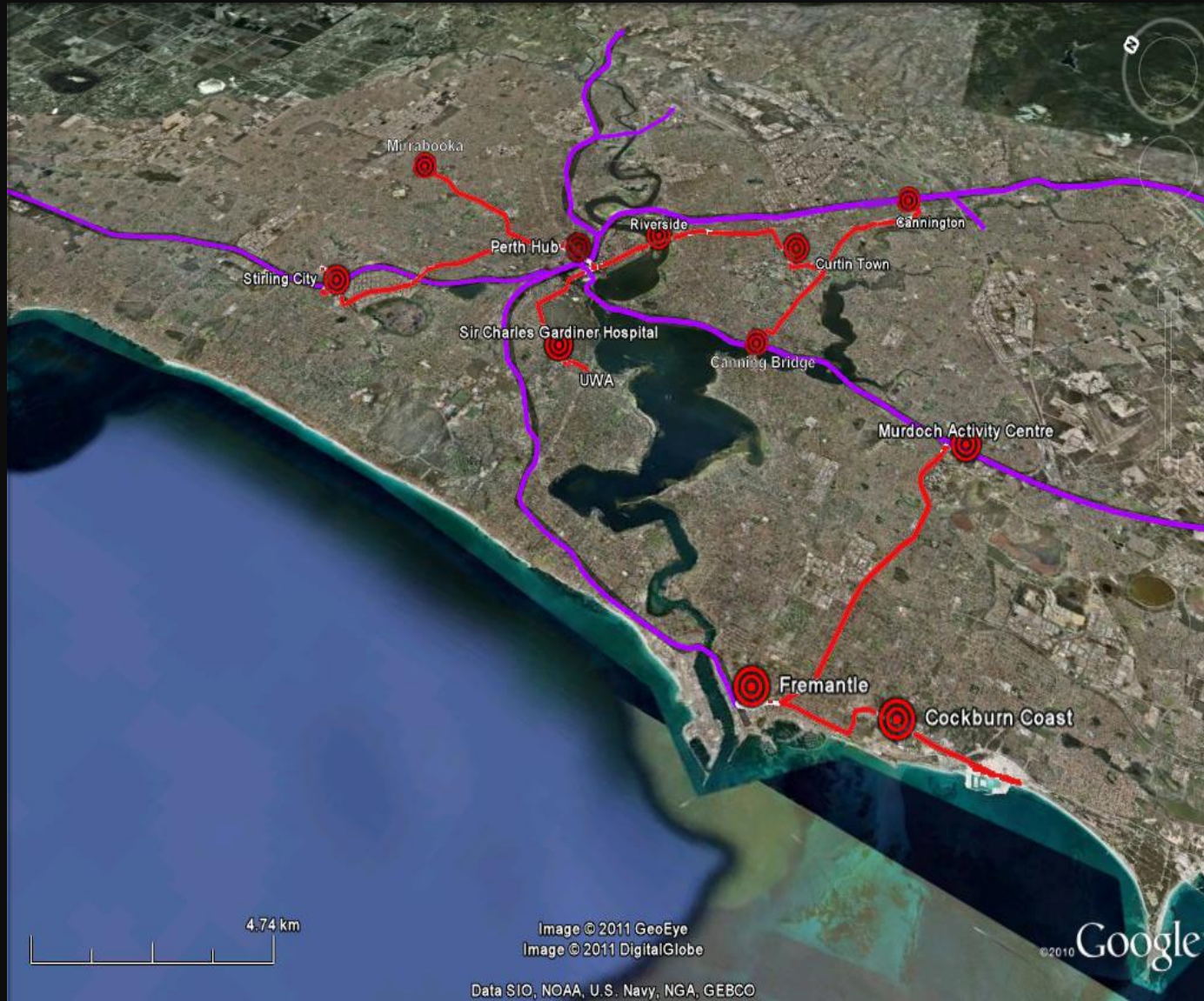
Stirling – one of 11 centres needed in the ‘inner growth ring’



This complements other City initiatives, such as:

- Integrated Transport Strategy
- Local Housing Strategy
- Stirling City Centre
- Single bin recycling
- Recycling of road material

The next phase in Perth...



Perth: 21st Century City

- Innovative *integration of centres and public transport* (two Plans in place.... 11 centres the focus of market development – break the cycle of ‘affordable housing’100, 000 apartments)
- Innovative *green infrastructure* in the centres
- Innovative *funding* through value capture to build the new rail links that enable the centres to happen.