

Integrated Transport Strategy: How it works best

Peter Newman
Professor of Sustainability
CUSP, Curtin University

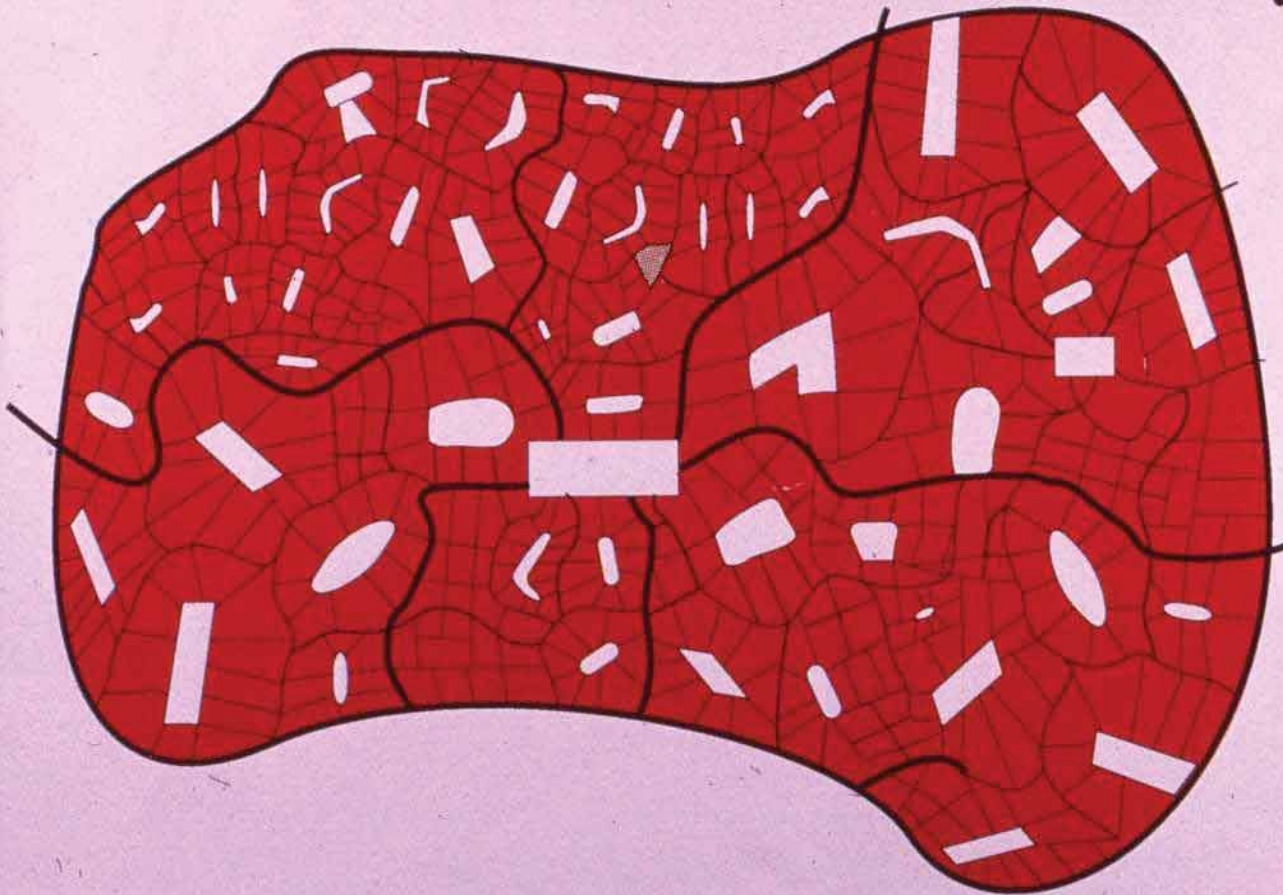
Cities have always been shaped by
transport...

How far can you go in 30 minutes...?

TRADITIONAL WALKING CITY

Up To 1850 In Europe

- High Density
- Mixed Use
- Organic Structure







<http://www.copy-sign.jp/>

サロンパス

もんじゃ

SUPER LISA SHIBUYA

HMV
the music master

大盛堂 店

◇ 韓国 聯合ニュースは3日、1

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MELB

NYC
CulturaFest
Explore Arts in the Park
October 14-15
Battery Park
Free Admission
11am-6PM
www.nyc.gov
Merrill Lynch

NEW ST

WAY

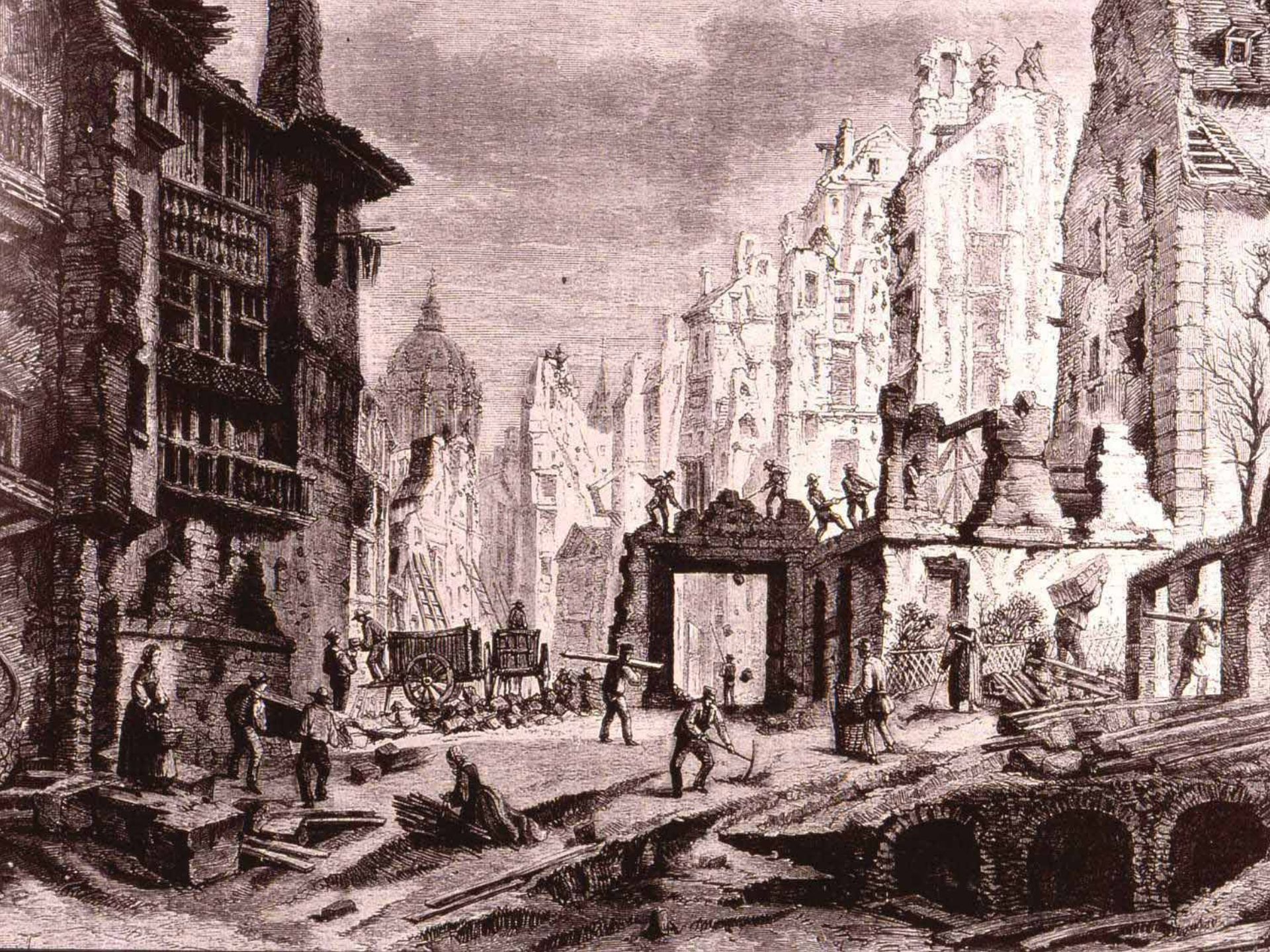
14 WALL ST.

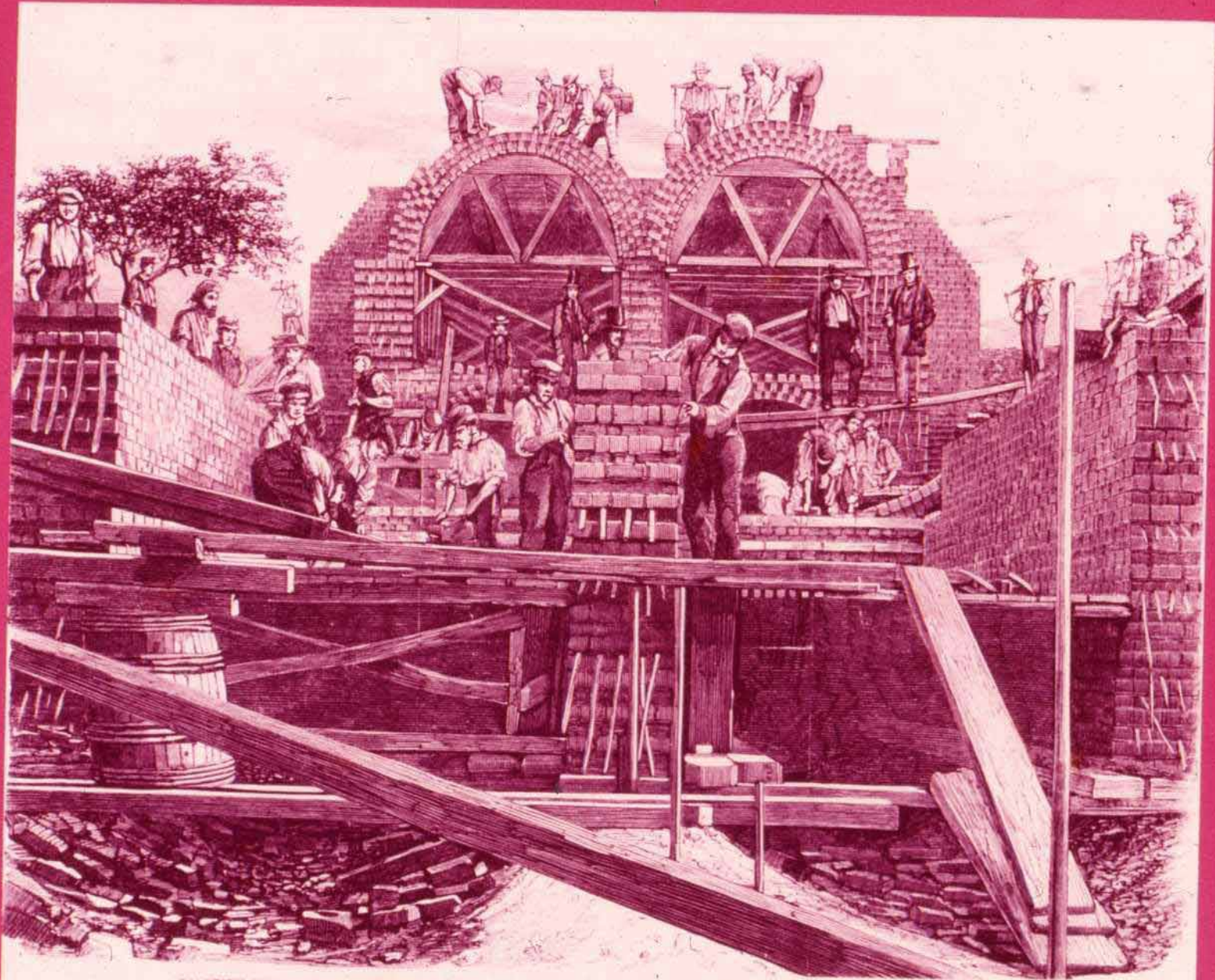
NYC
CulturaFest
Explore Arts in the Park
October 14-15
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11am-6PM
www.nyc.gov

NO PARKING

69



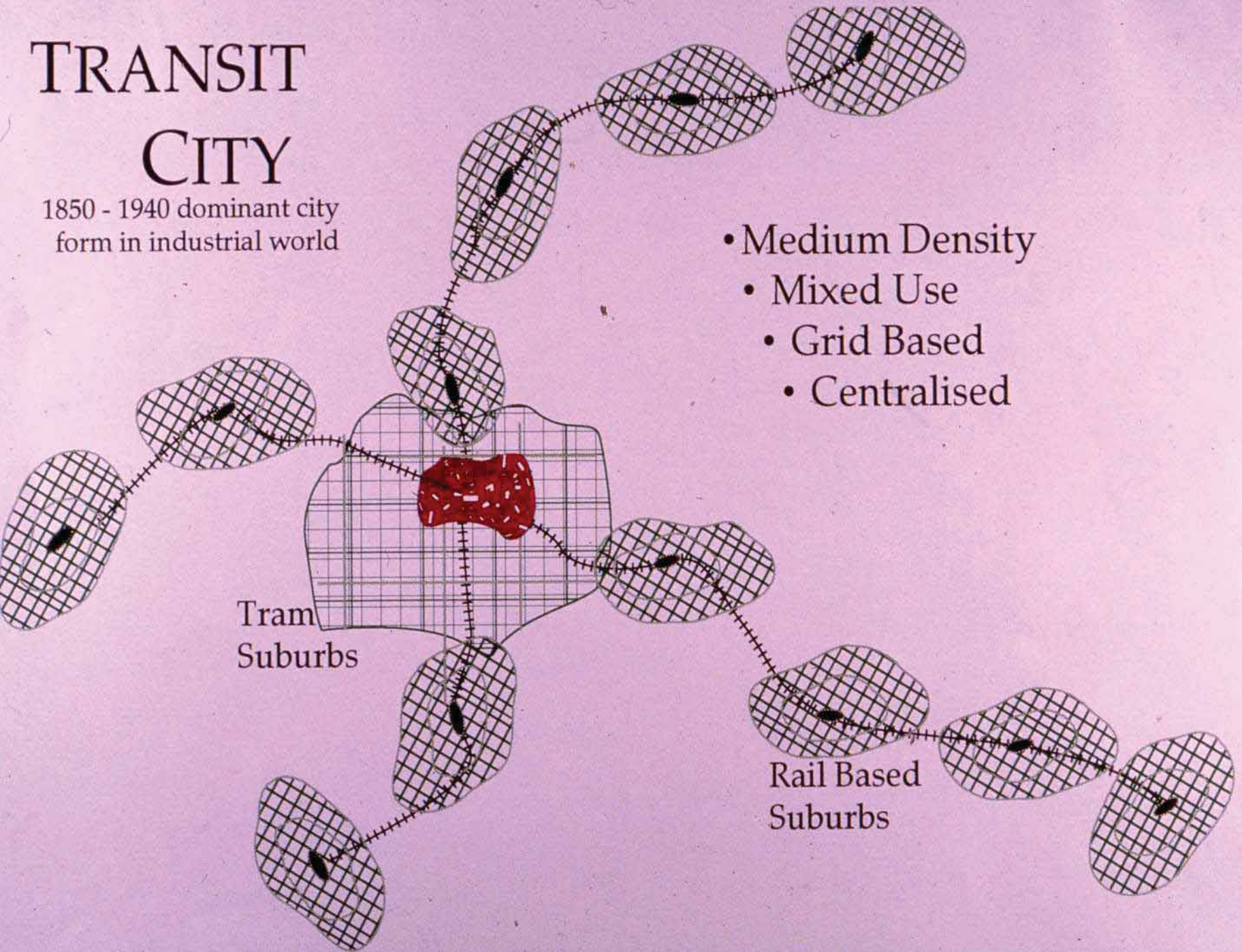




MAIN DESIGN OF THE METROPOLIS—SECTIONAL VIEW OF THE TUNNELS FROM WICK LANE NEAR OLD FORD, NOW LOOKING WESTWARD

TRANSIT CITY

1850 - 1940 dominant city
form in industrial world



- Medium Density
- Mixed Use
- Grid Based
- Centralised

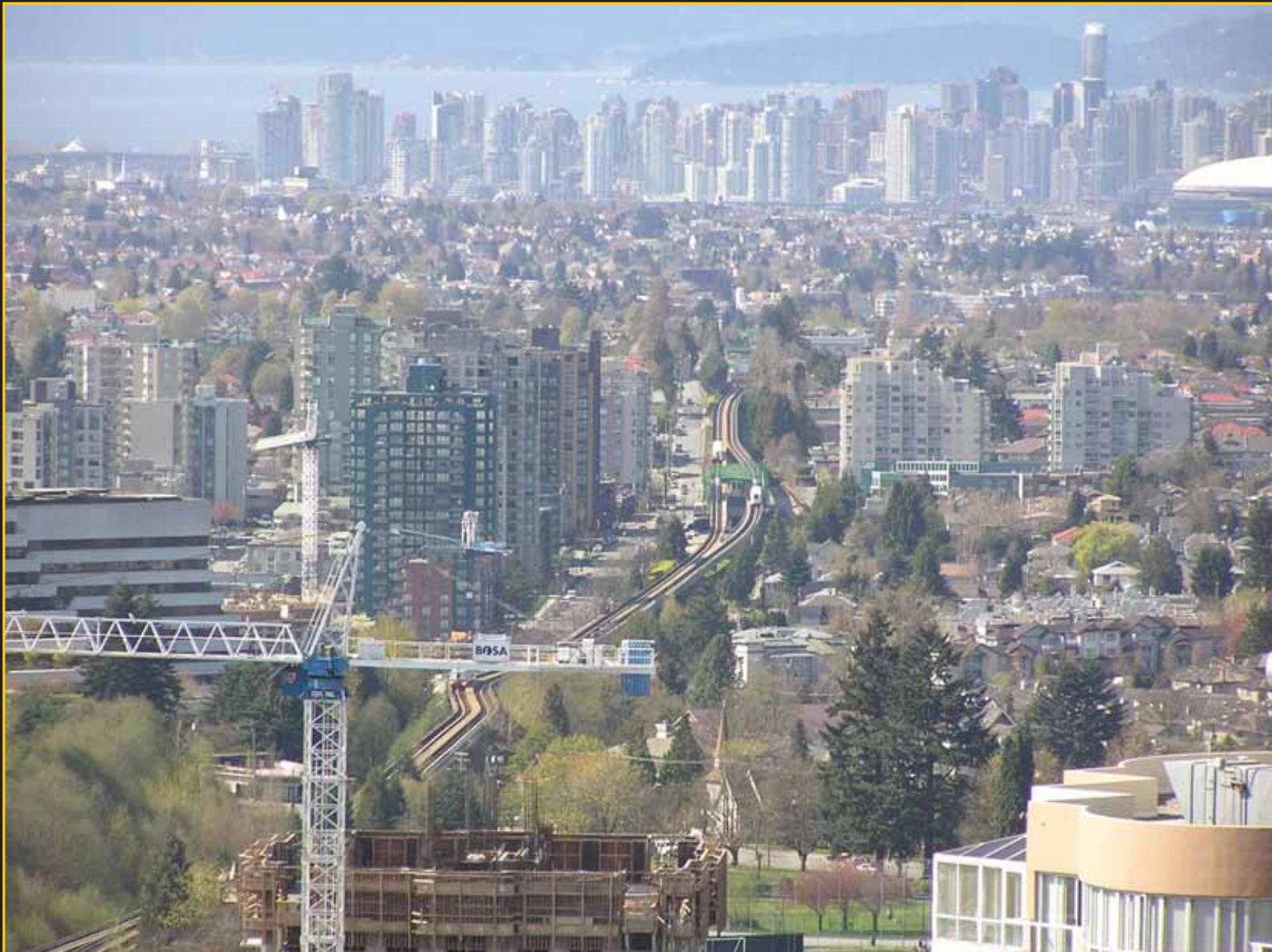
Tram
Suburbs

Rail Based
Suburbs



Tram city
fabric...

Train City Fabric





DETECTIVE NIBEL
KÜCHEN - KONDITOREI - BÄCKEREI

PHARM KLEI
KLEI
KLEI

Café Bar

COIT

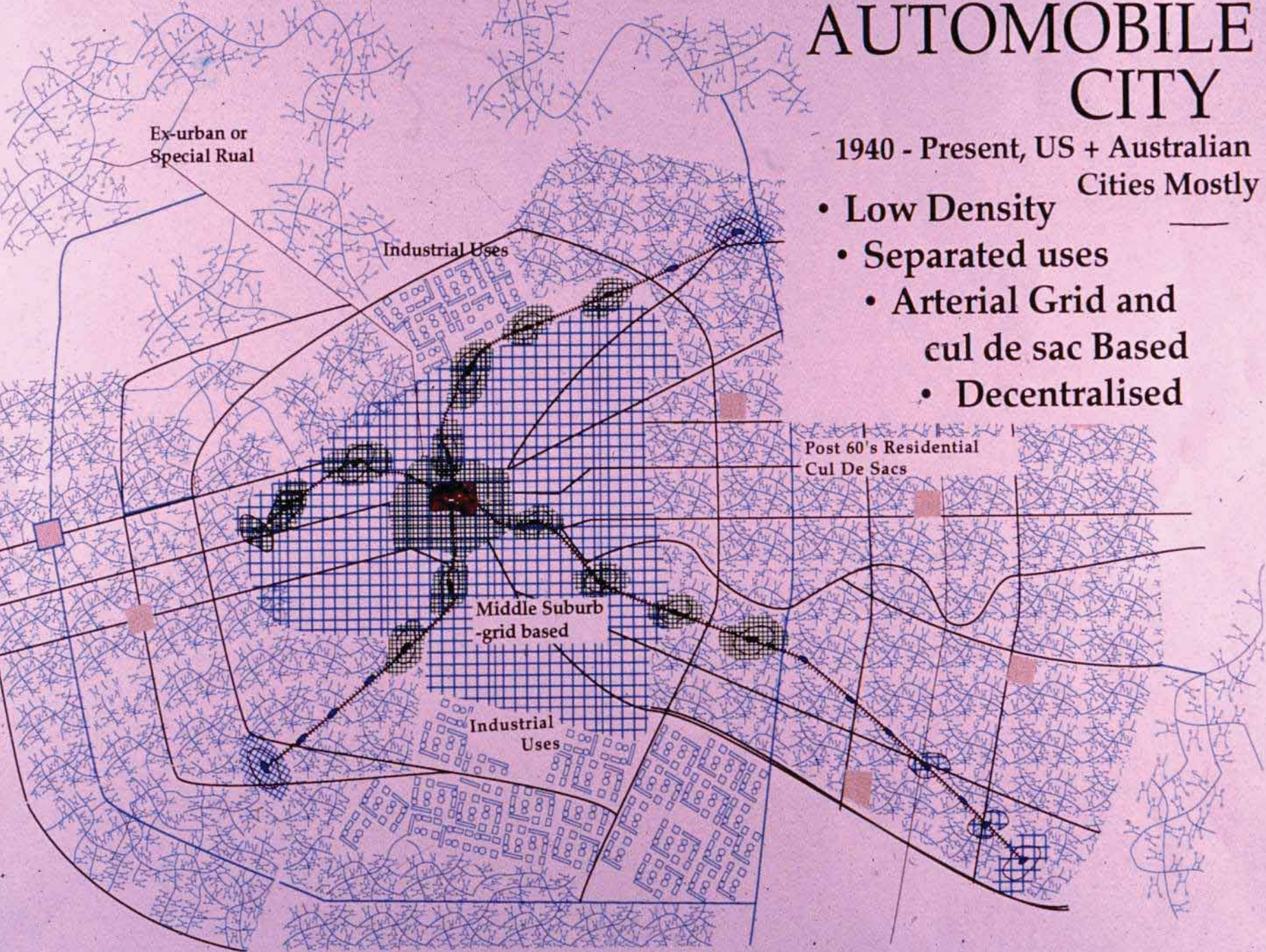
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AUTOMOBILE CITY

1940 - Present, US + Australian
Cities Mostly

- Low Density
- Separated uses
- Arterial Grid and cul de sac Based
- Decentralised



National City Lines removed transit in 44 cities....Automobile city fabric spreads everywhere



Land use does not need to be integrated with transport as cars can go anywhere...



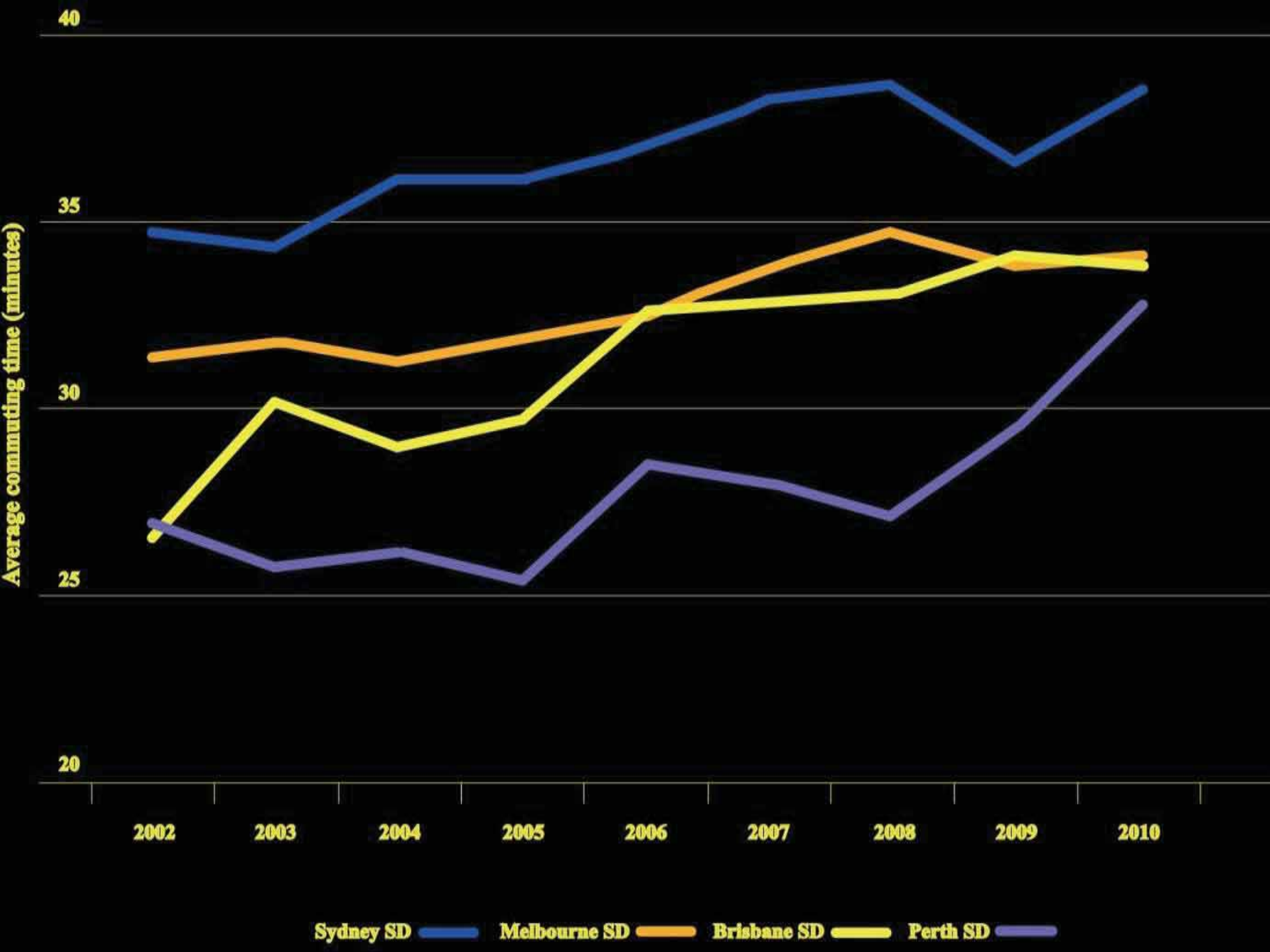


Australian fringe housing – some of the most car dependent in the world.

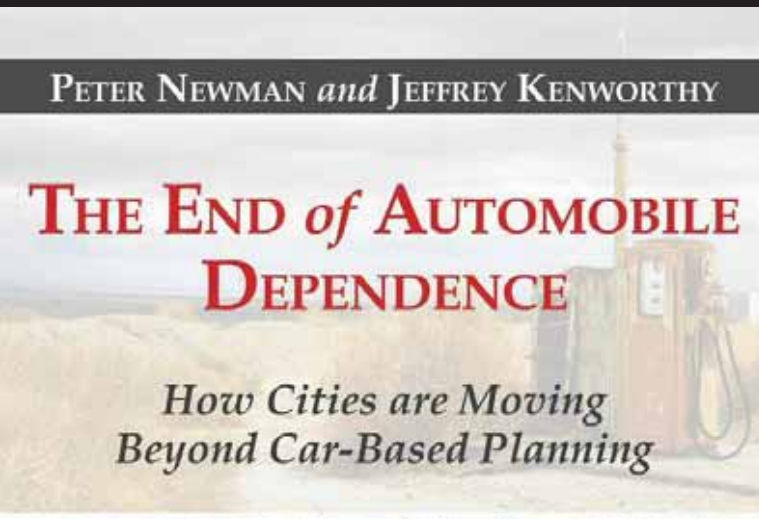


But it is hitting limits....

- The 30 minute city based on cars does not work anymore.....



So what happens next?

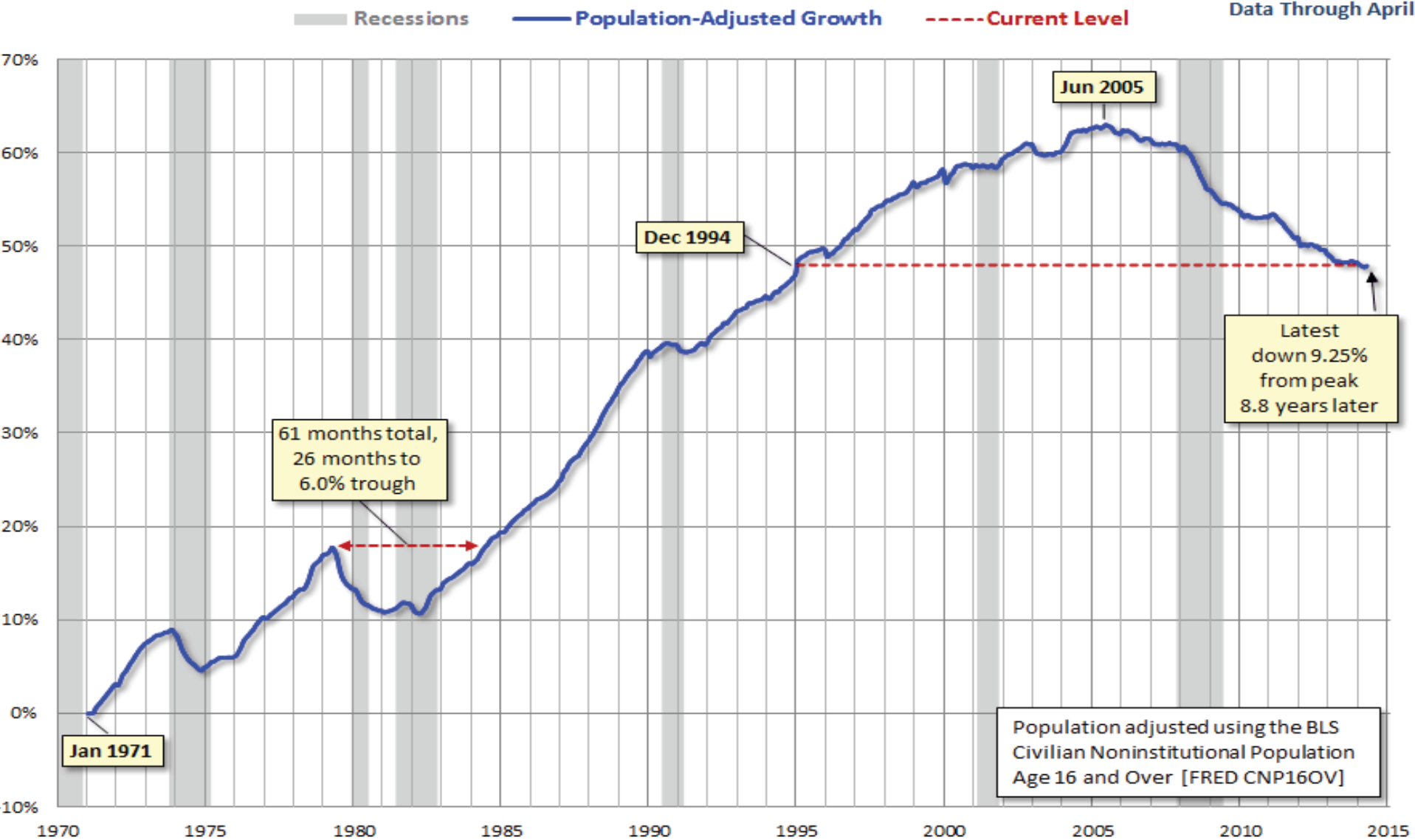


**Car
dependence
begins to
collapse**



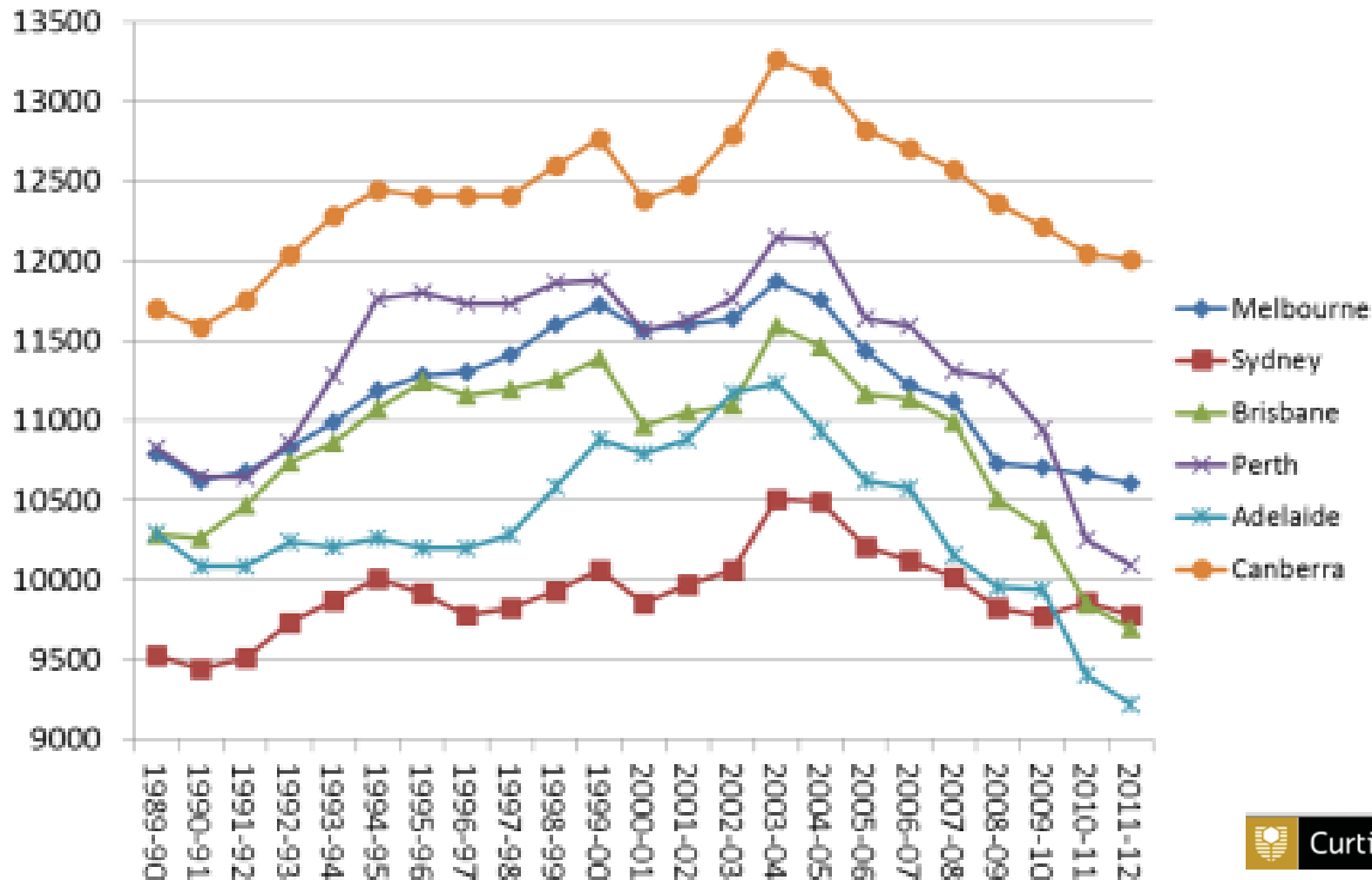
Peak car begins in every developed city

THE USA IS DRIVING LESS



Australian city car use peaked the same year...

Estimated car passenger kms per capita - Australian cities



VKT per Vehicle fell off a cliff...

National Passenger cars
Average Annual VKT (1000 km/veh)

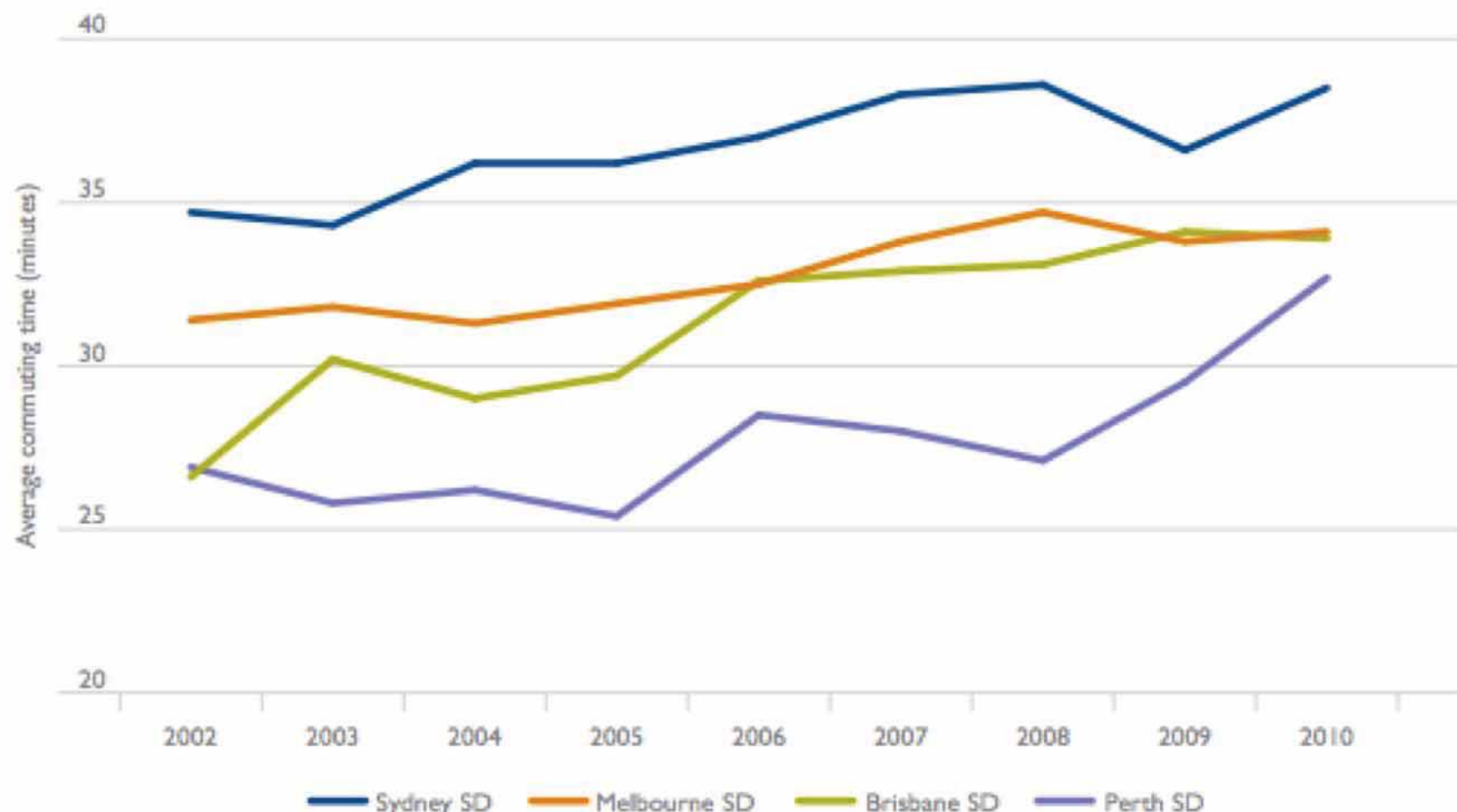


The causes of peak car...

1. Travel time benefits now moving from cars to rail....cities are hitting the Marchetti wall.
2. Cultural change....especially with the Millennials
3. Peak density decline...cities are coming back in.
4. Urban space efficiencies in the knowledge economy....people need face-to-face after all.

1. Travel time benefits moving away
from cars...

Figure 7.6 Average commuting times for full-time workers in Sydney, Melbourne, Brisbane and Perth Statistical Divisions, 2002 to 2010



Note: The HILDA Project was initiated and is funded by the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and is managed by the Melbourne Institute of Applied Economic and Social Research (MIAESR). The findings and views reported here, however, are those of the authors and should not be attributed to either FaHCSIA or the MIAESR.

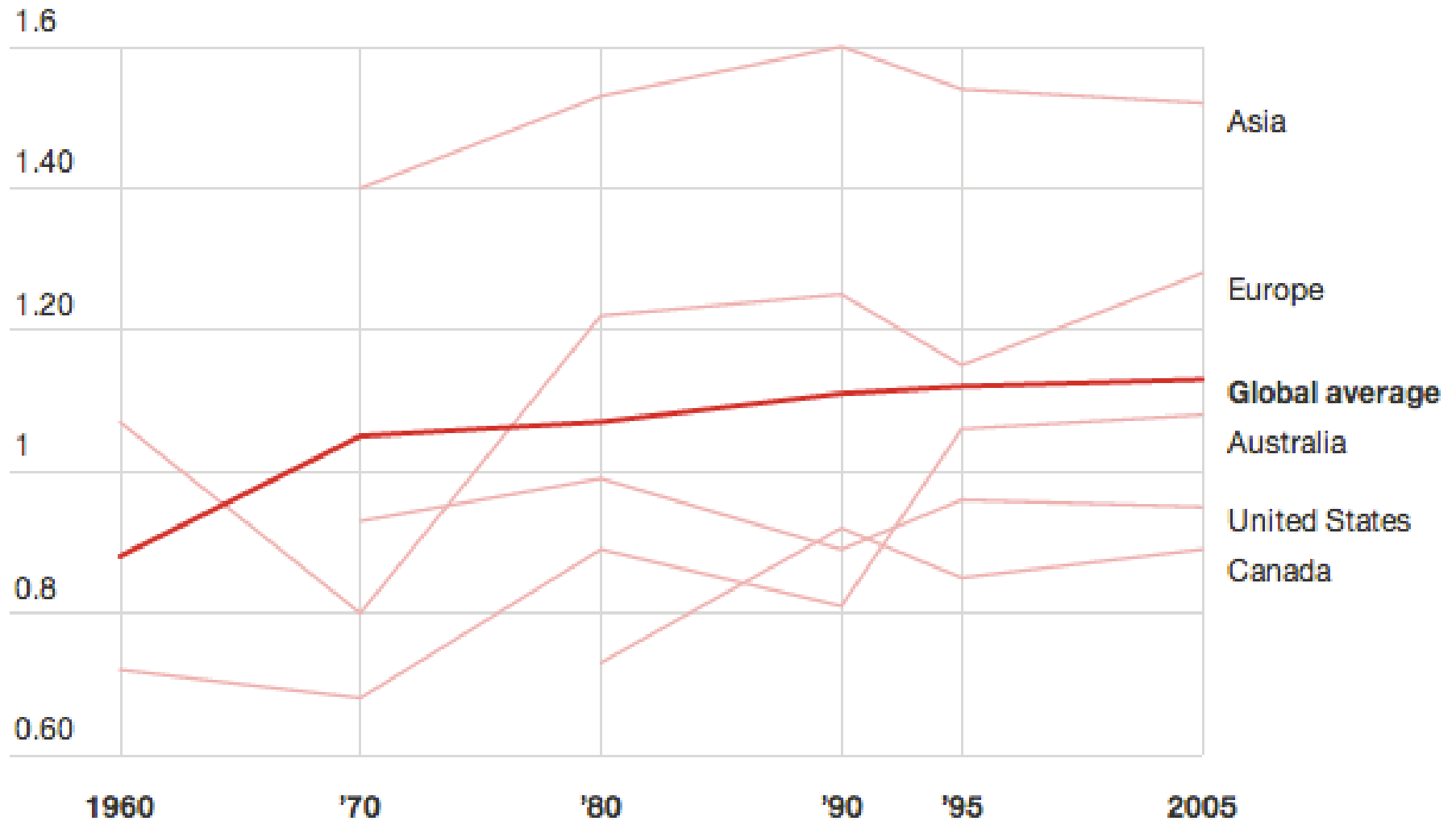
Source: BITRE analysis of HILDA customised data, provided by the National Centre for Social and Economic Modelling (NATSEM).

Rail outstripping traffic speeds...

COMPARATIVE SPEEDS IN GLOBAL CITIES	1960	1970	1980	1990	1995	2005
Ratio of overall public transport system speed to road speed						
American cities	0.46	0.48	0.55	0.50	0.55	0.54
Canadian cities	0.54	0.54	0.52	0.58	0.56	0.55
Australian cities	0.56	0.56	0.63	0.64	0.75	0.75
European cities	0.72	0.70	0.82	0.91	0.81	0.90
Asian cities	-	0.77	0.84	0.79	0.86	0.86
Global average for all cities	0.55	0.58	0.66	0.66	0.71	0.70
Ratio of metro/suburban rail speed to road speed						
American cities	-	0.93	0.99	0.89	0.96	0.95
Canadian cities	-	-	0.73	0.92	0.85	0.89
Australian cities	0.72	0.68	0.89	0.81	1.06	1.08
European cities	1.07	0.80	1.22	1.25	1.15	1.28
Asian cities	-	1.40	1.53	1.60	1.54	1.52
Global average for all cities	0.88	1.05	1.07	1.11	1.12	1.13

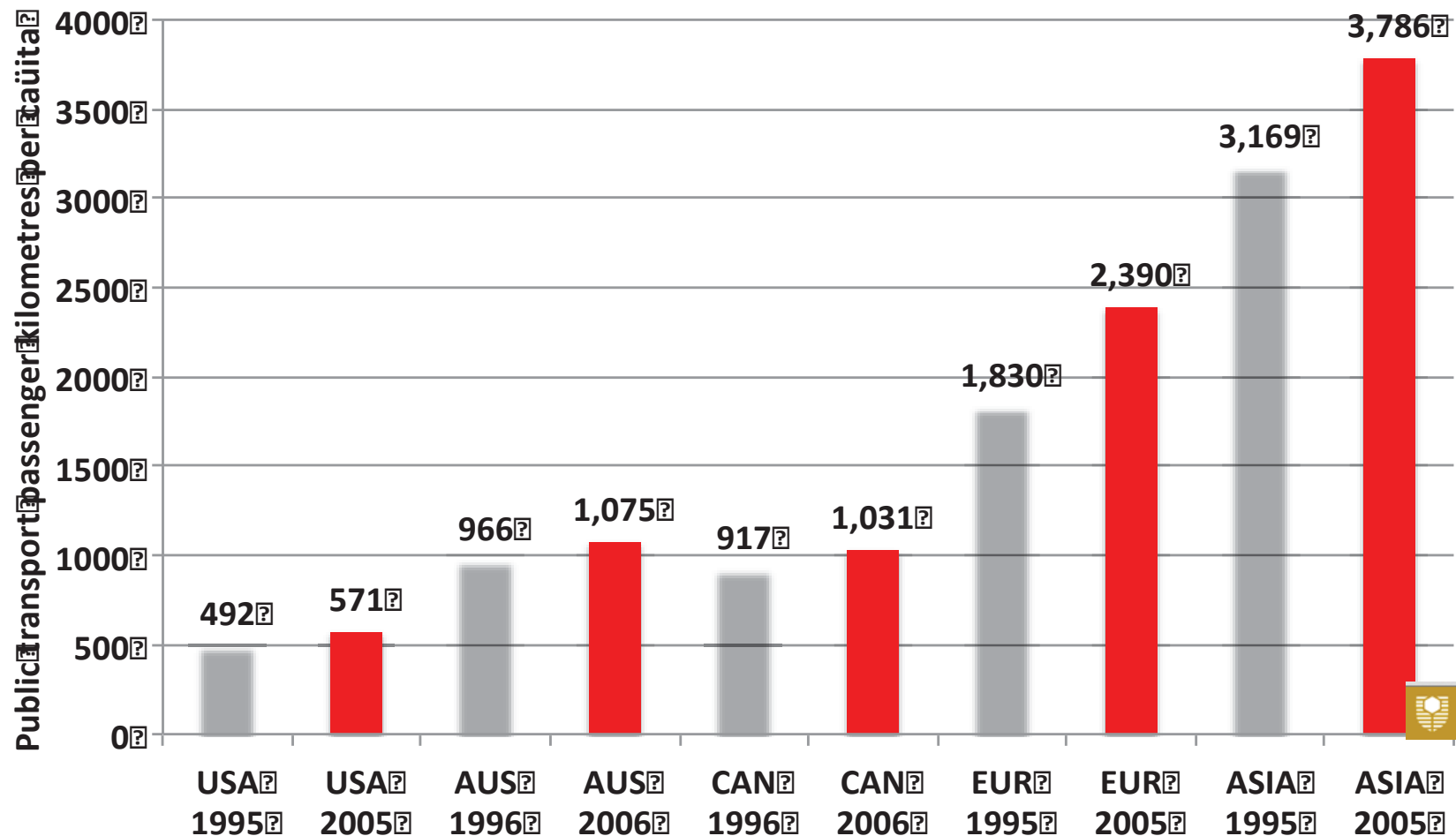
Ratio of metro rail to road speeds

Urban rail travel has been getting steadily faster relative to cars in many cities around the world.



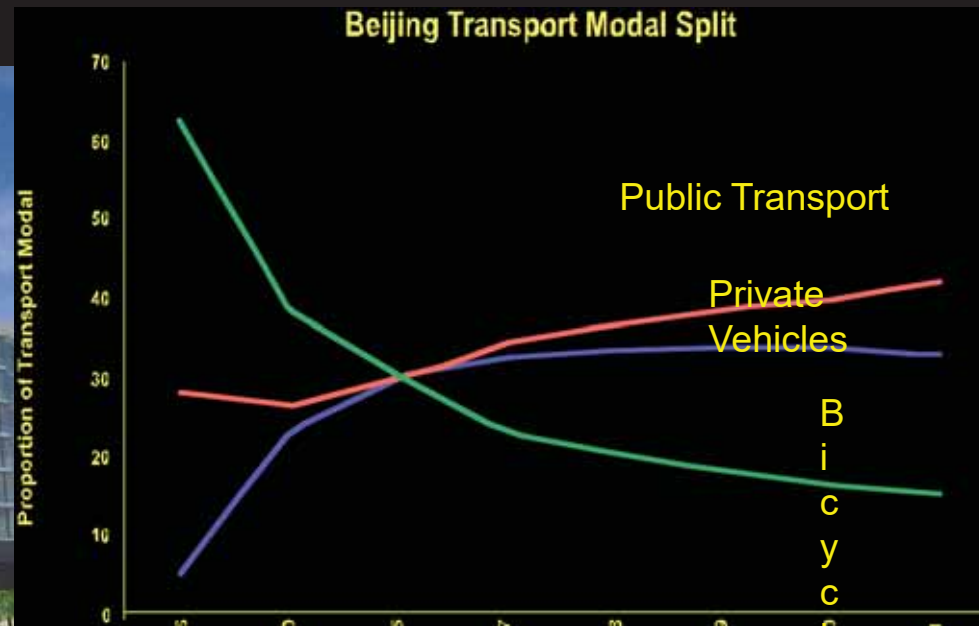
Public transport – especially rail – is now booming everywhere

Total public transport passenger kilometres per capita

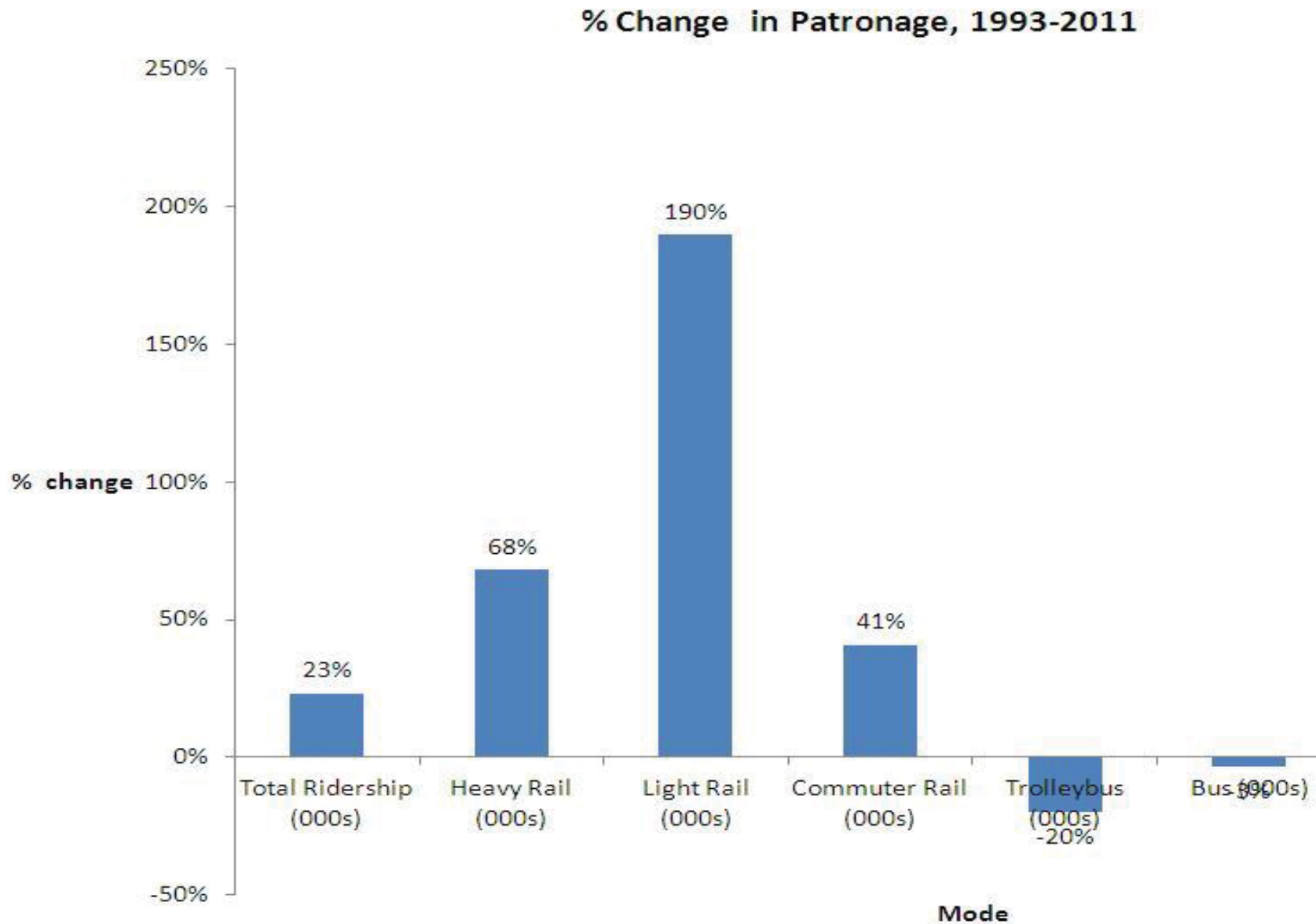


Global growth now in rail ...

- 82 Chinese cities building metros and high speed rail between cities Shanghai 8m passengers/day
- 51 Indian cities building metros Any city over 1m.
- Middle east cities building rail for first time

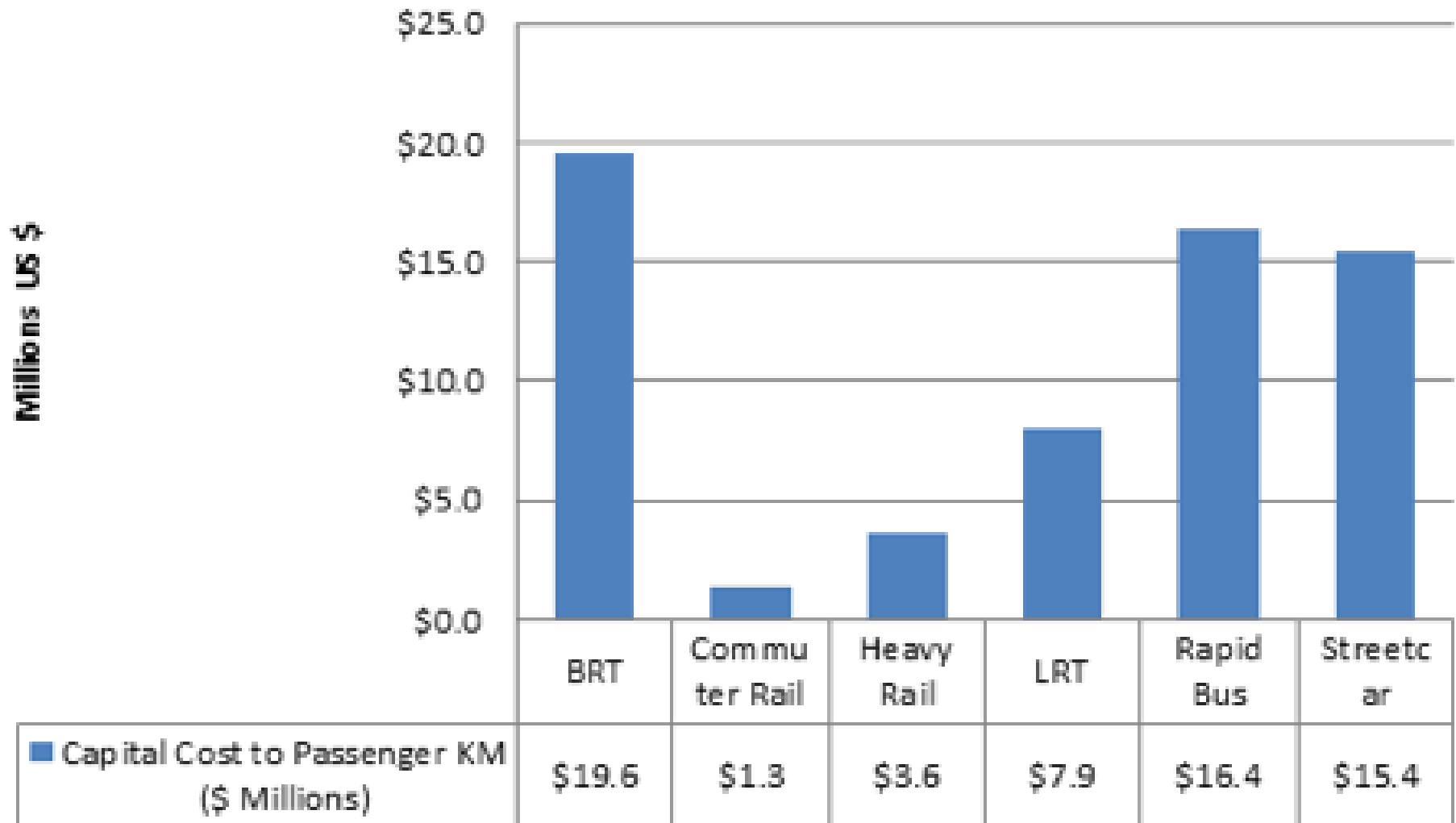


America goes for rail....esp LRT not buses



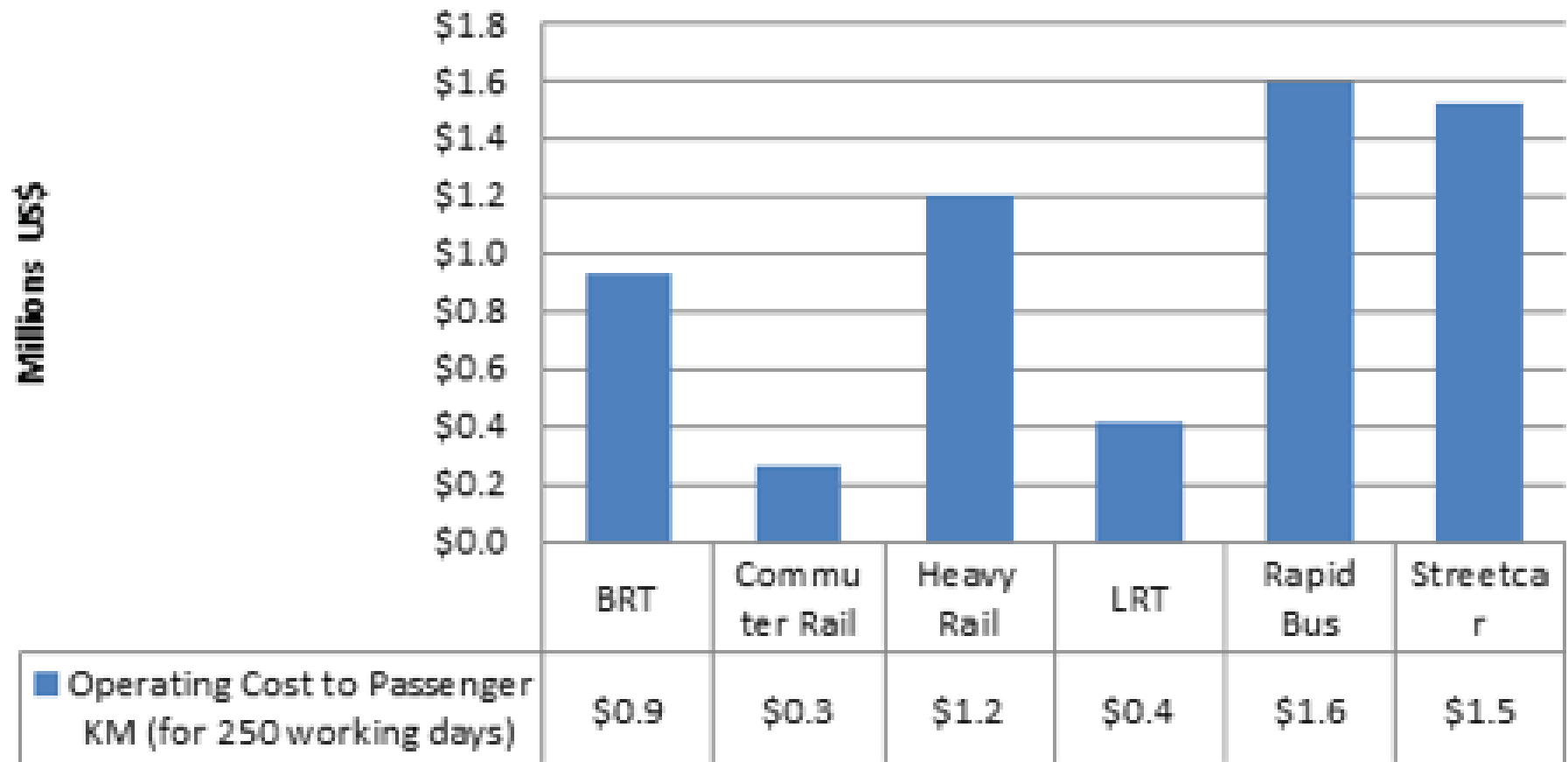
US capital cost of transit

Capital Cost to Passenger KM (\$ Millions)



US Operating cost of transit

Operating Cost to Passenger KM (for 250 working days)



The rail revival in Perth...





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



National and global model...
\$17-22 mill per km. Carrying 8 lanes of traffic.





Knowledge-city light rail...

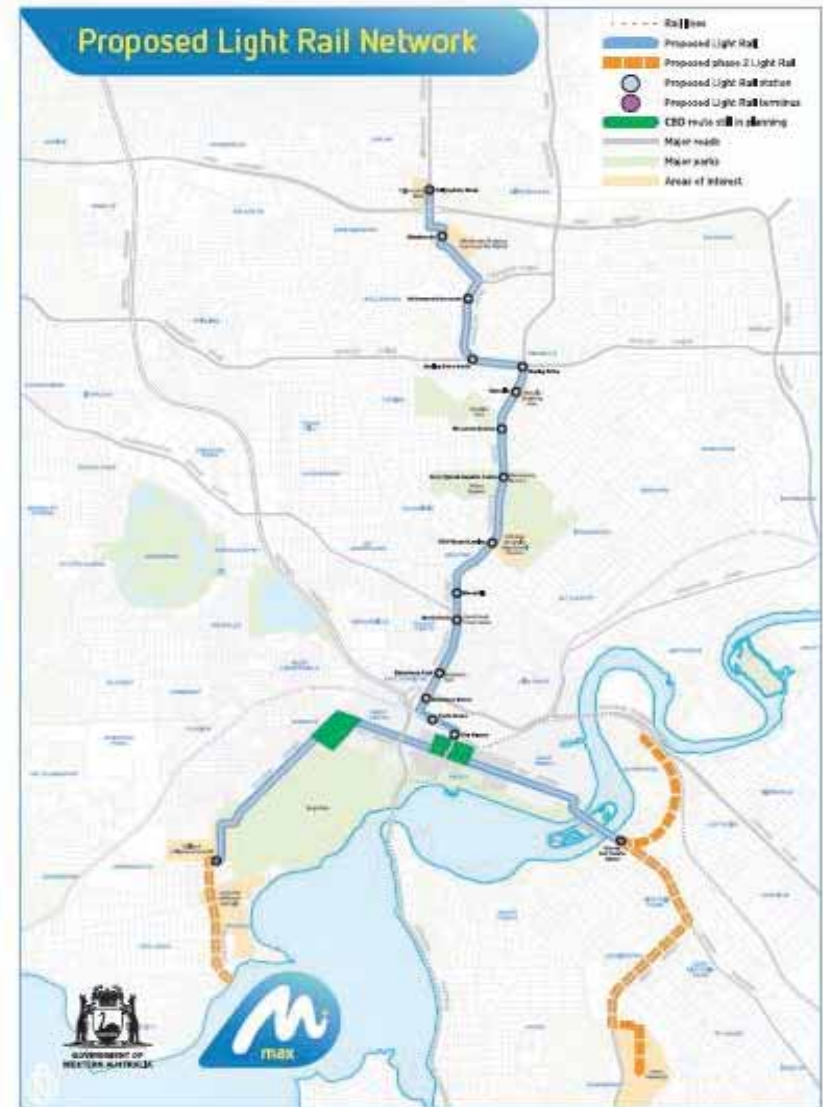
THE KNOWLEDGE ARC LIGHT RAIL: A CONCEPT FOR DELIVERING THE NEXT PHASE OF PUBLIC TRANSPORT IN PERTH

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



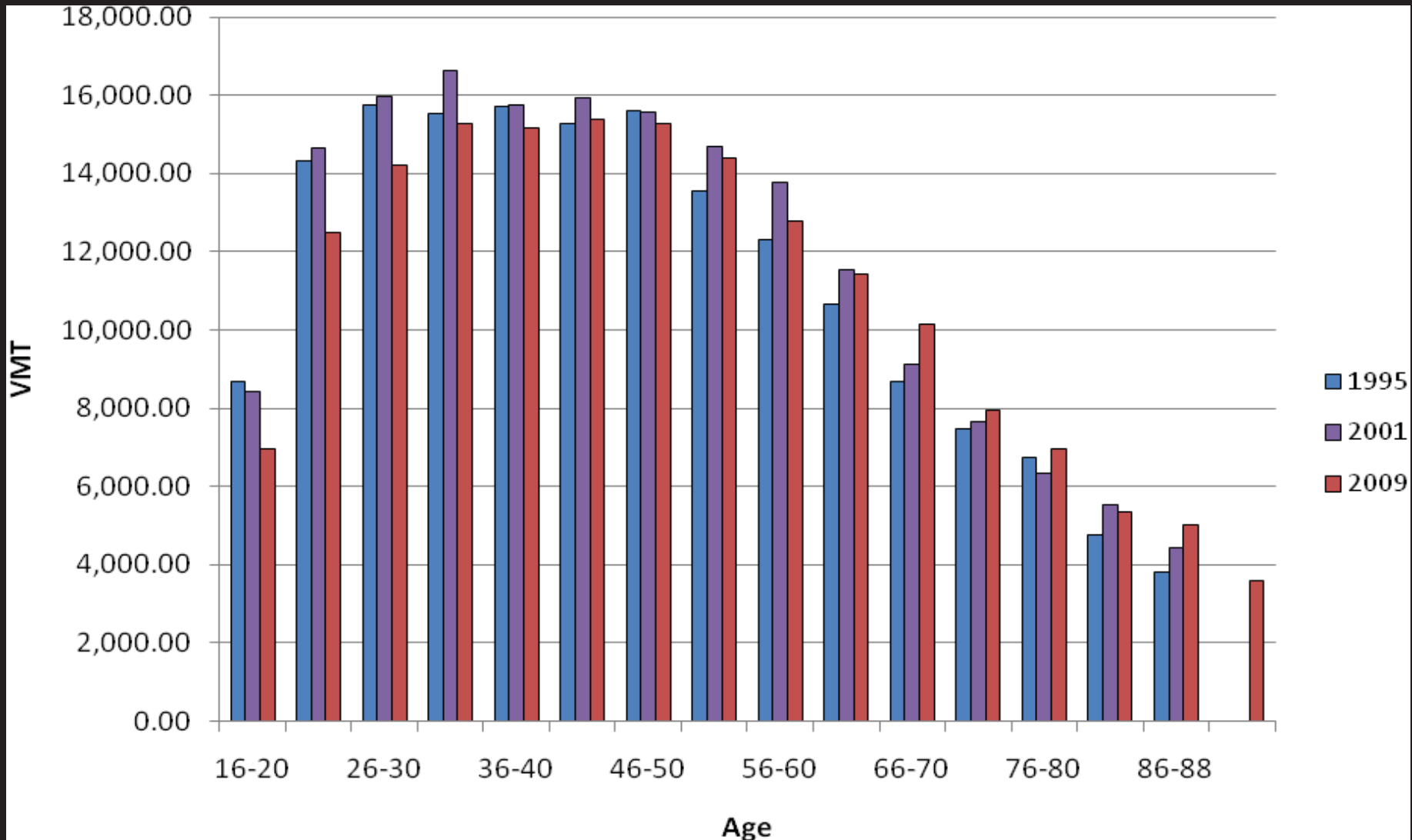
Curtin
University of Technology

PARSONS
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2. Car Culture is changing

Car use by age group





'Cars are so yesterday: young and rich leave guzzlers behind'

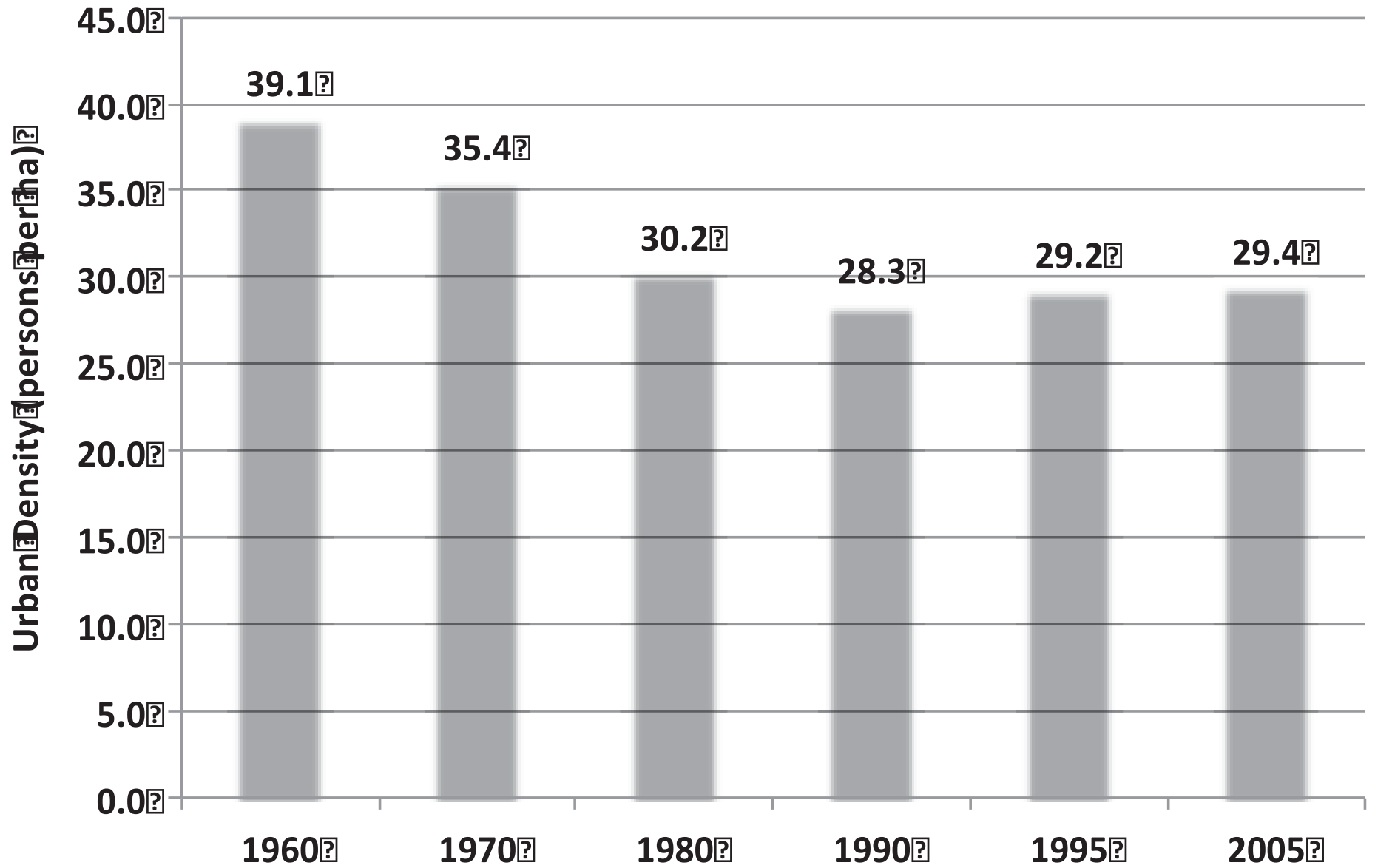


Public transit 100%
Biking 122%, and
Walking by 37%
BUT MOSTLY CITIES ARE
COMING BACK IN.....

From 2001 to 2009, car use by 16 to 34 year olds decreased from 10,300 miles to 7900 miles per capita – a drop of 23 *per cent*.

3. Peak density decline – sprawl is reversing

Urban Density Trend in 23 Cities in the USA, Australia, Canada and Europe, 1960-2005

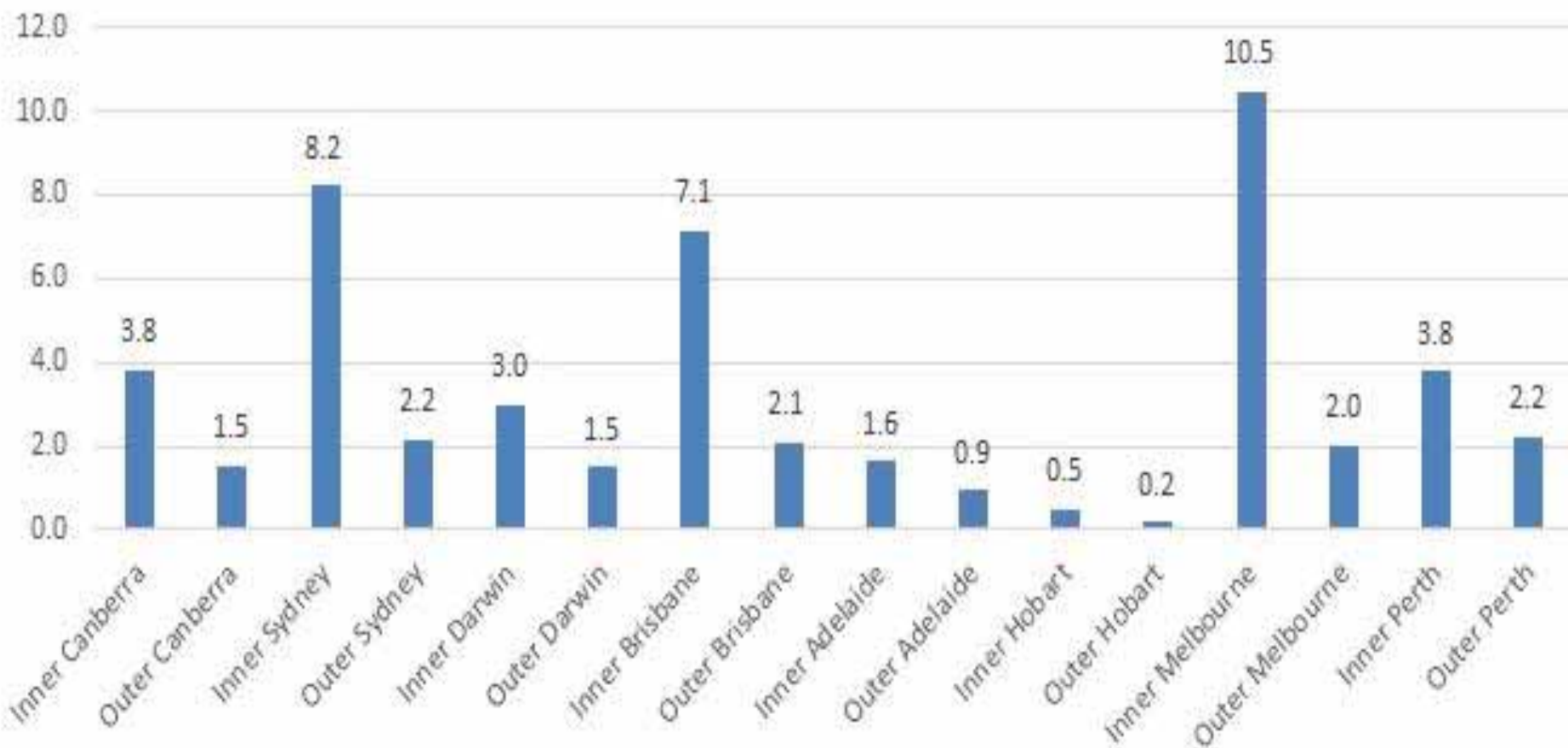


Australian cities coming back in...

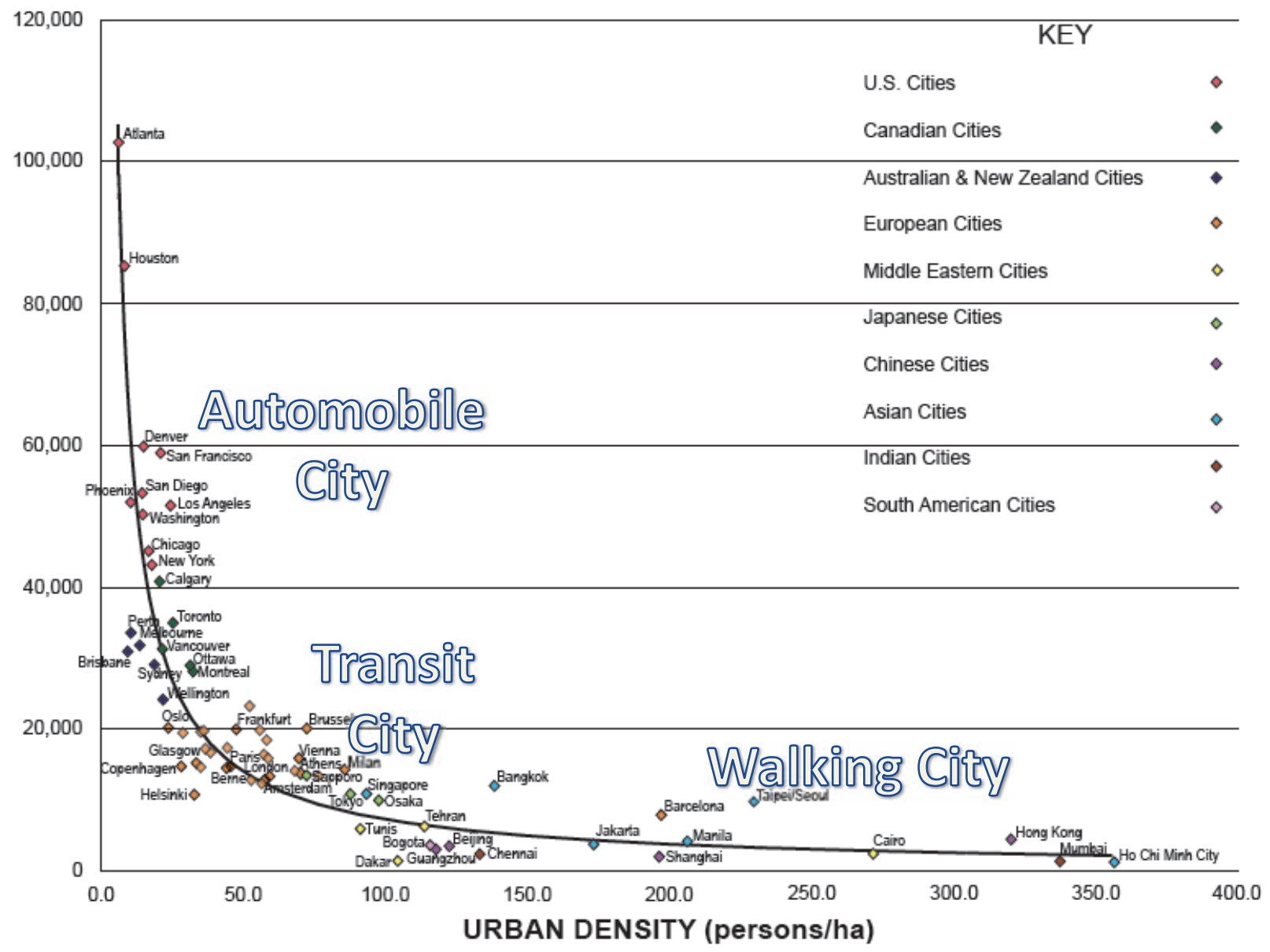
Change in Population Density 2003-2013 (People/Ha)

ABS SA2 Population data

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3235.02013?OpenDocument>



PER CAPITA PRIVATE PASSENGER TRANSPORT ENERGY USE (MJ per annum)



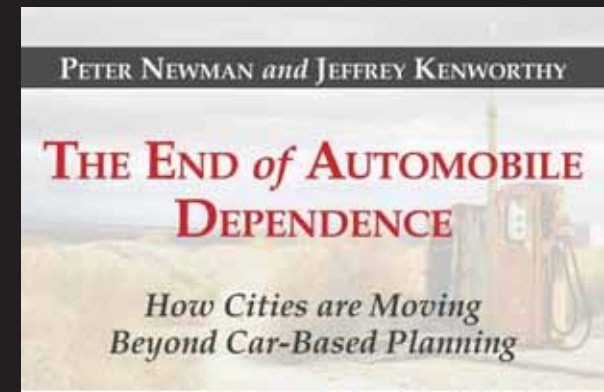
4. Knowledge economy

- Needs face-to-face contact in a walkable area
- Requires spatial efficiency that only rail can create

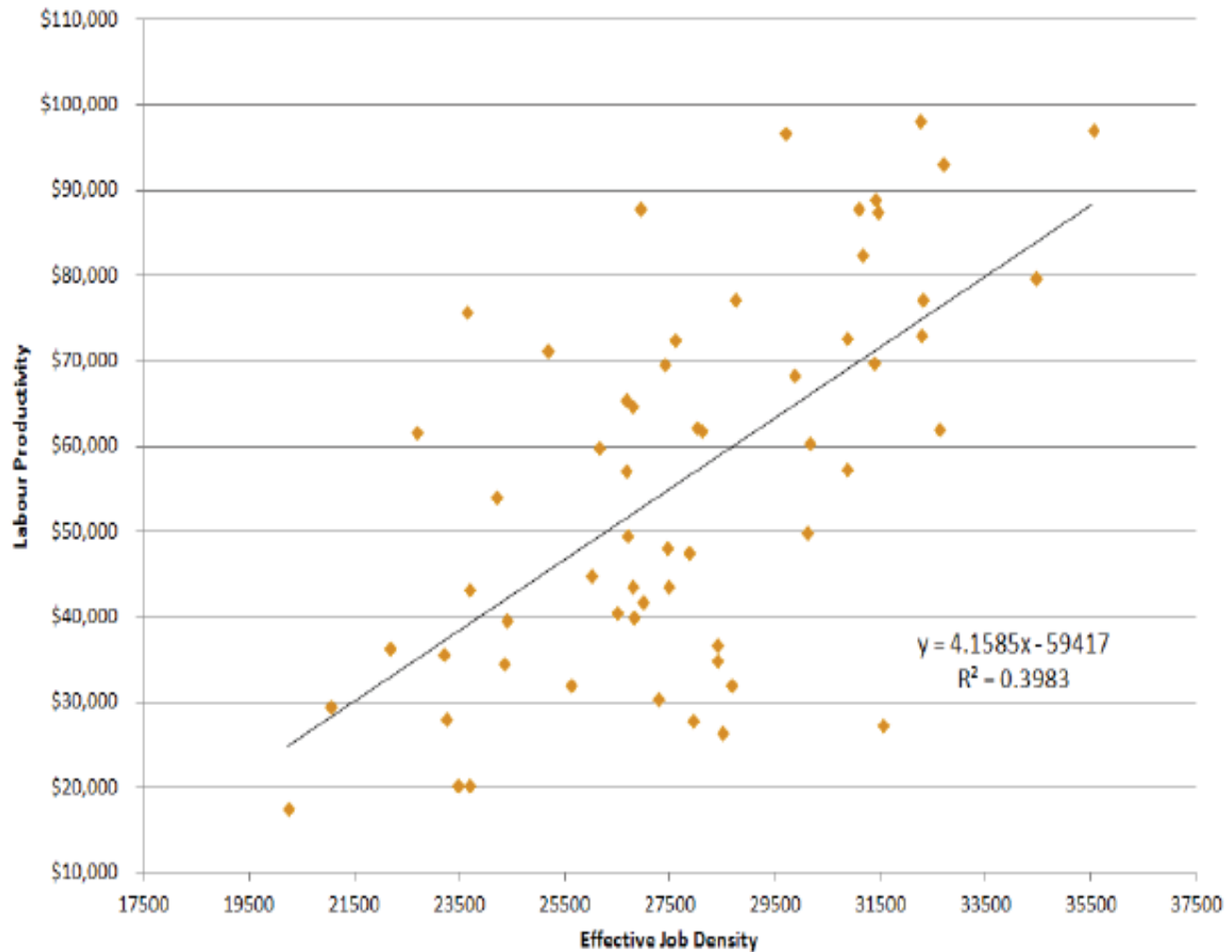


Ed Glaiser and Richard Florida were right...

The top 6 most walkable cities in the US have 38% higher GDP. 70% of knowledge economy workers in Boston live in walkable areas.



EJD and Labour productivity



Transformation of Broadway



© NYC Department of Transportation



© NYC Department of Transportation

**In Central London, traffic fell by 19%
between 2000 and 2009.**

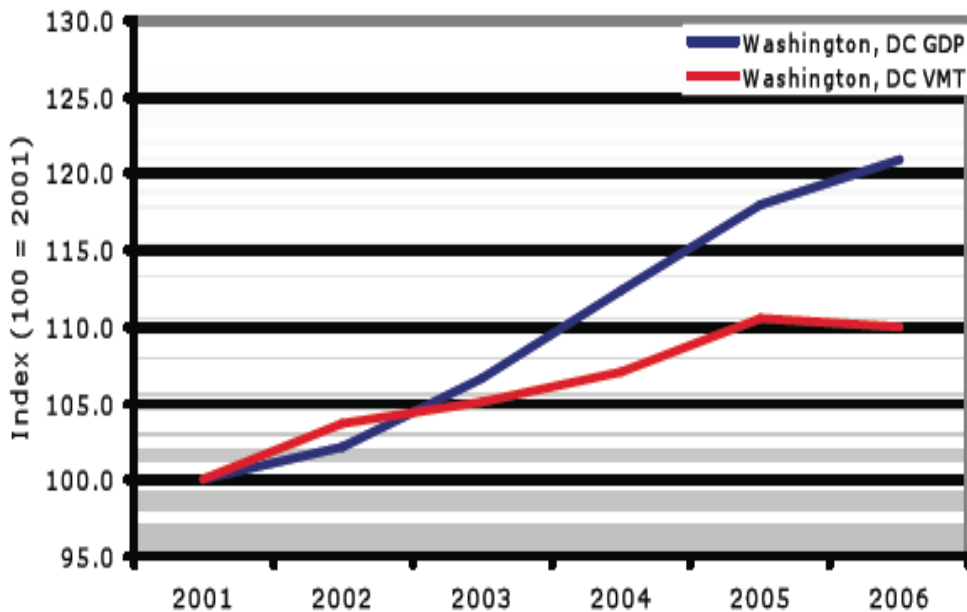
The Times Nov 6, 2012

**'café culture replaces car
culture ...'**

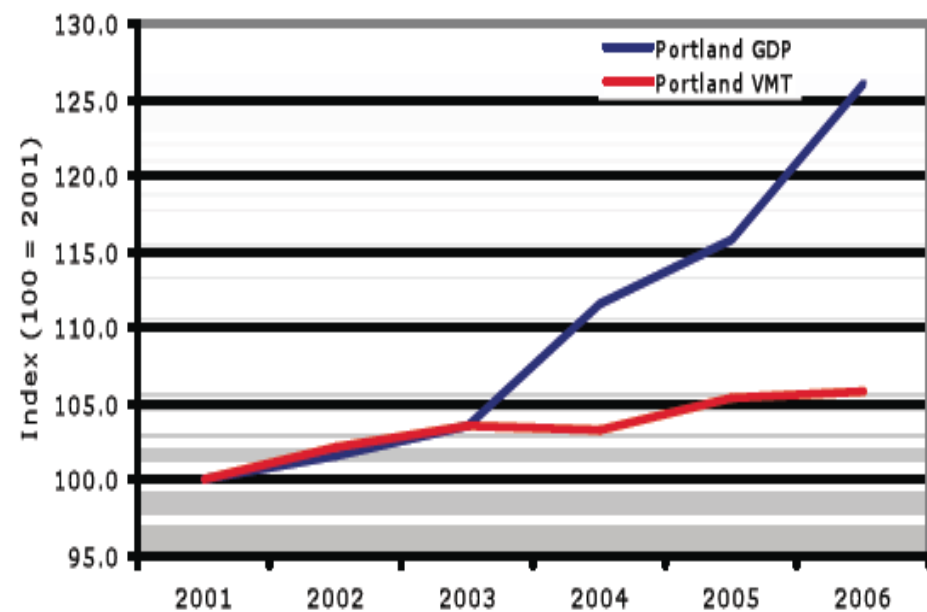


Decoupling mostly in the cities with rail investment, eg Washington DC and Portland

Indexed Primary Arterial VMT & Total GDP Growth in the Washington, DC CBSA, 2001 - 2006

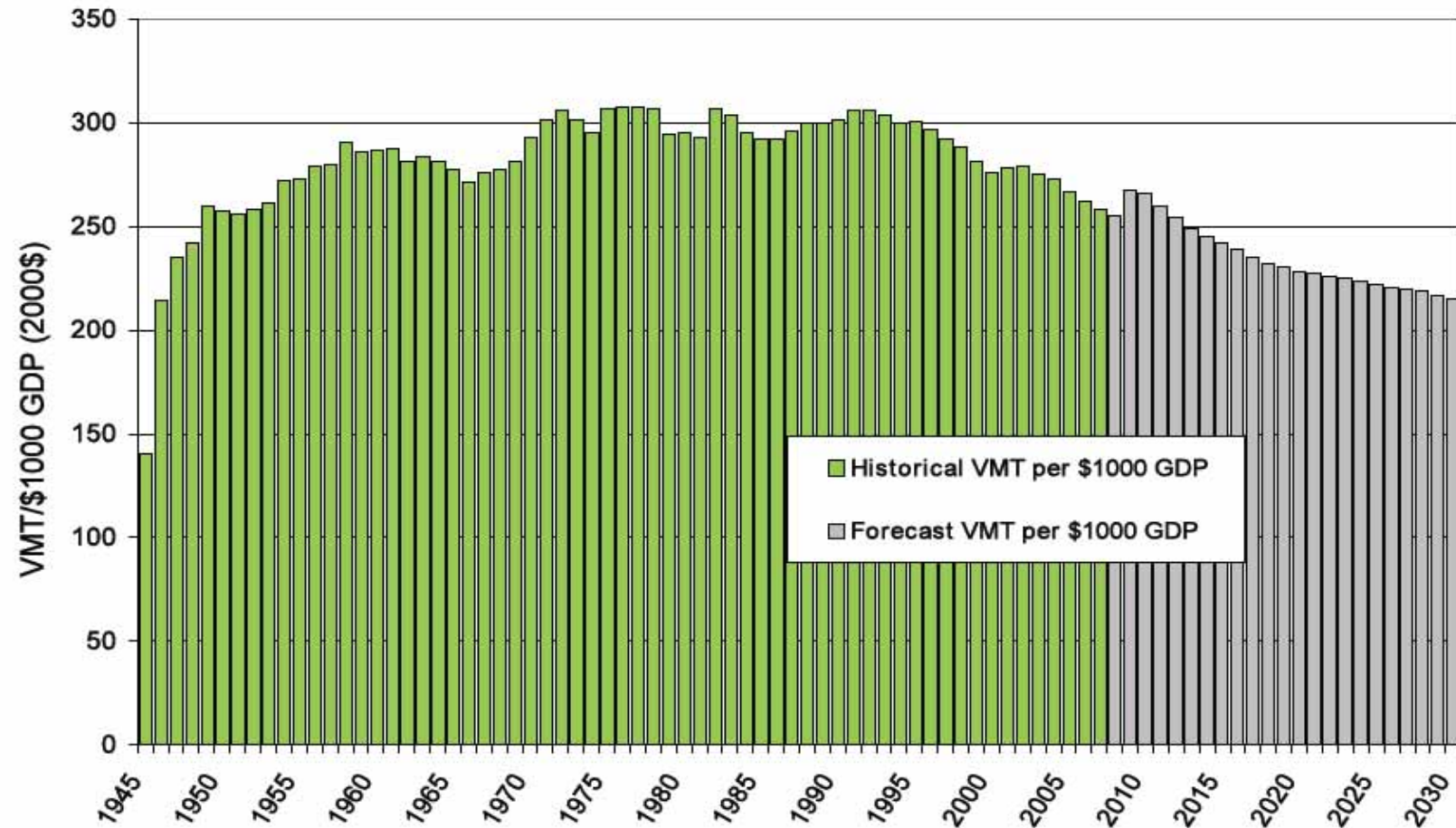


Indexed Primary Arterial VMT & Total GDP Growth in the Portland CBSA, 2001 - 2006



Car use is now officially recognised in the US to be decoupling from wealth

Transportation Vehicle Miles Traveled/\$GDP, 1945-2030



Will autonomous vehicles
'transform our cities'?

*Autonomous
vehicles take up
the same space*



*ONE LANE -
people per hr:
Freeway 2,500
Busway 5000
LRT 10-20,000
Train 50,000*

240 Persons travel
to work:

-- in 177 Cars

-- in 3 Busses

-- in 1 Tram

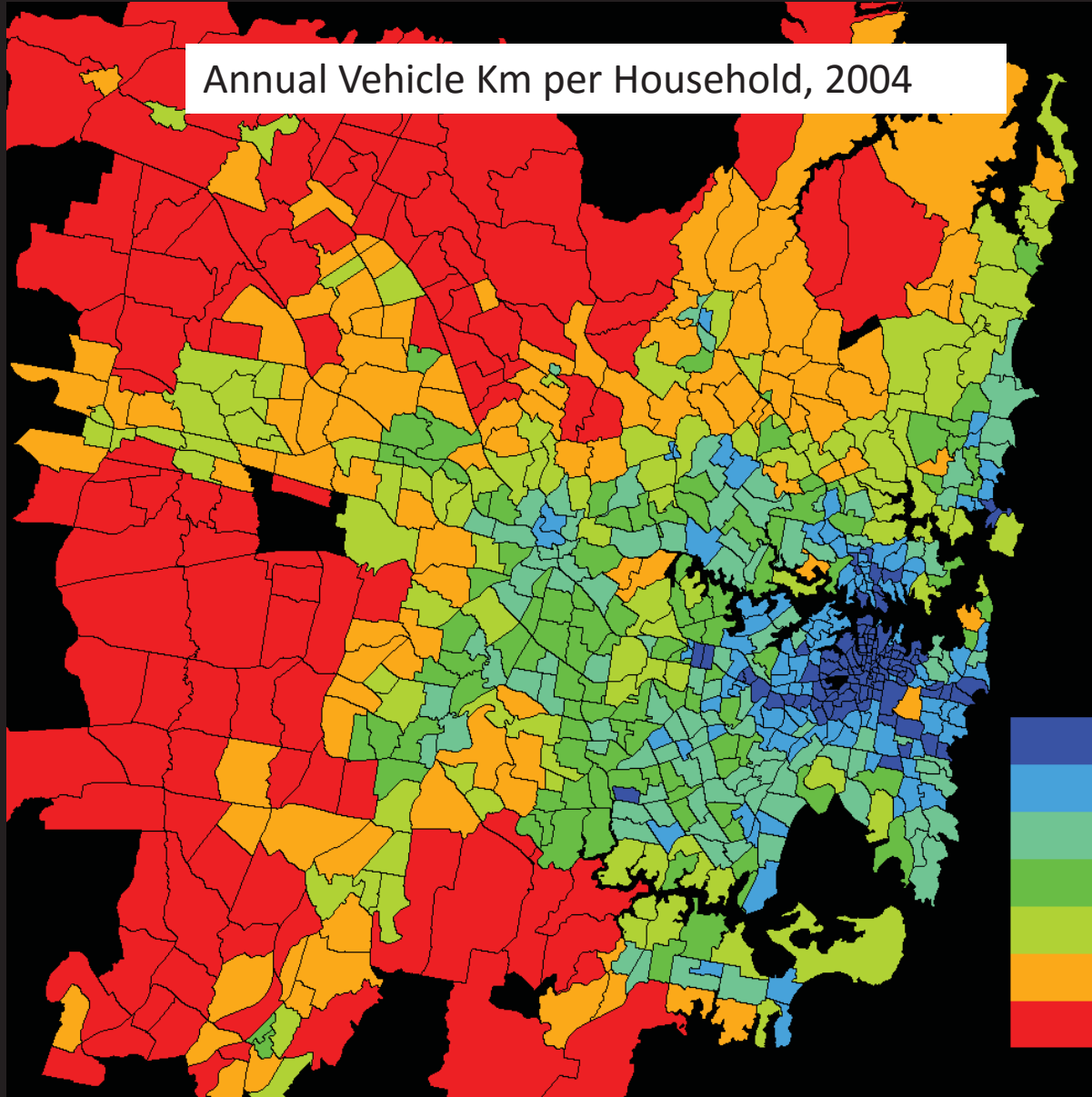


So what is the big urban agenda?

- Build integrated urban centres and urban rail deep into the suburbs....

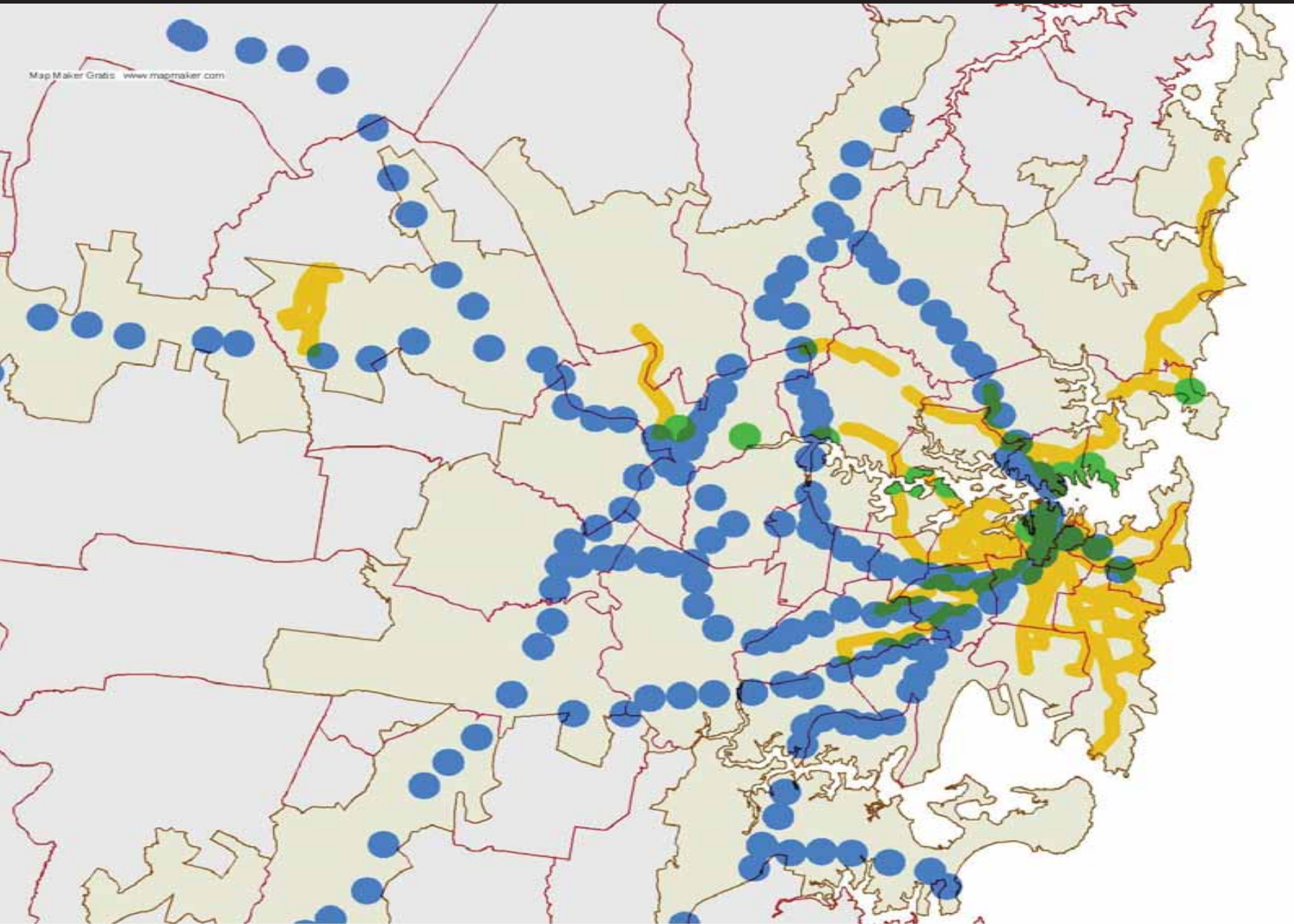
Sydney – three major rail projects into the suburbs

Annual Vehicle Km per Household, 2004

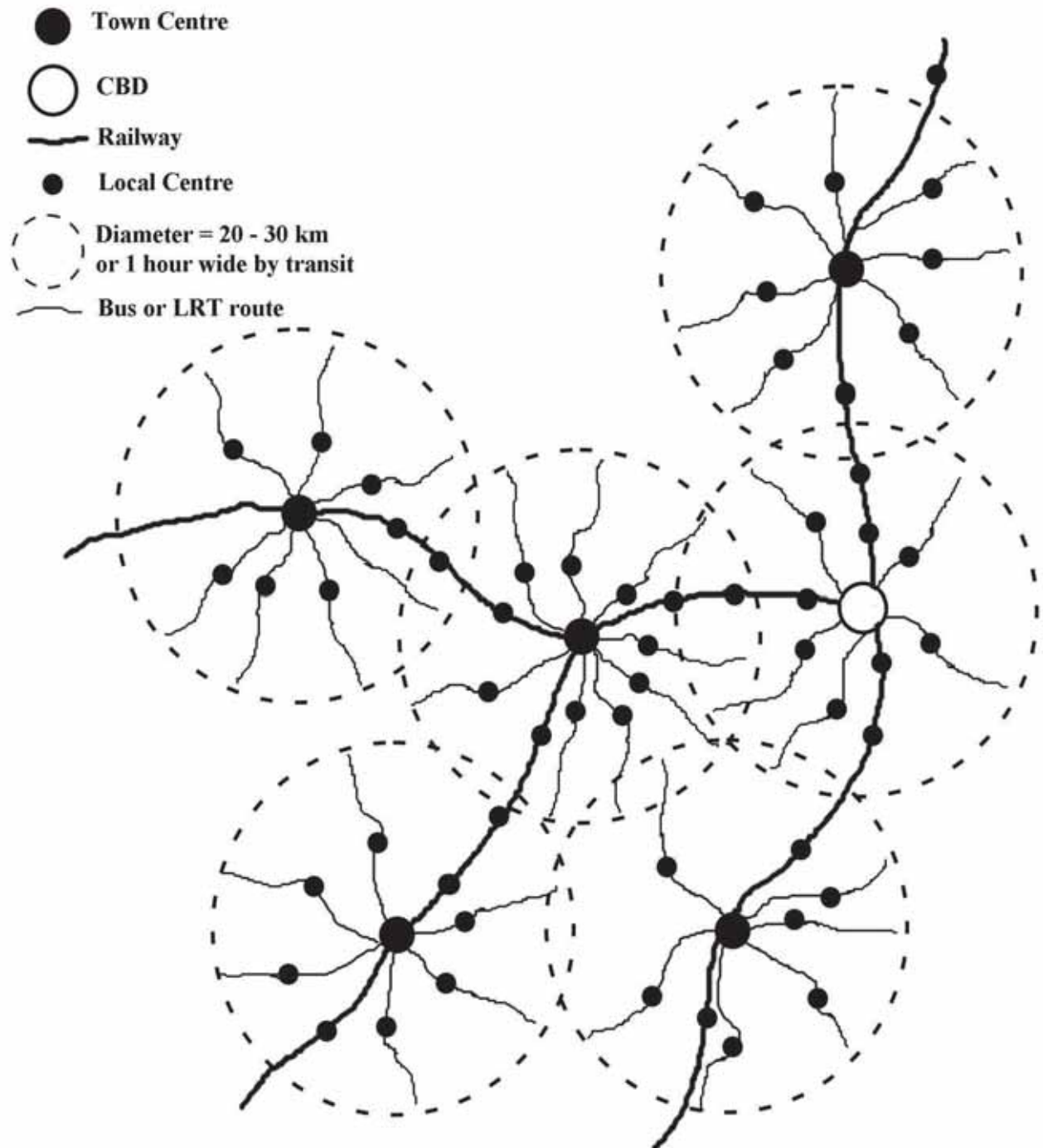


Outer suburbs residents, particularly those away from rail lines, drive much more than inner suburbs residents.

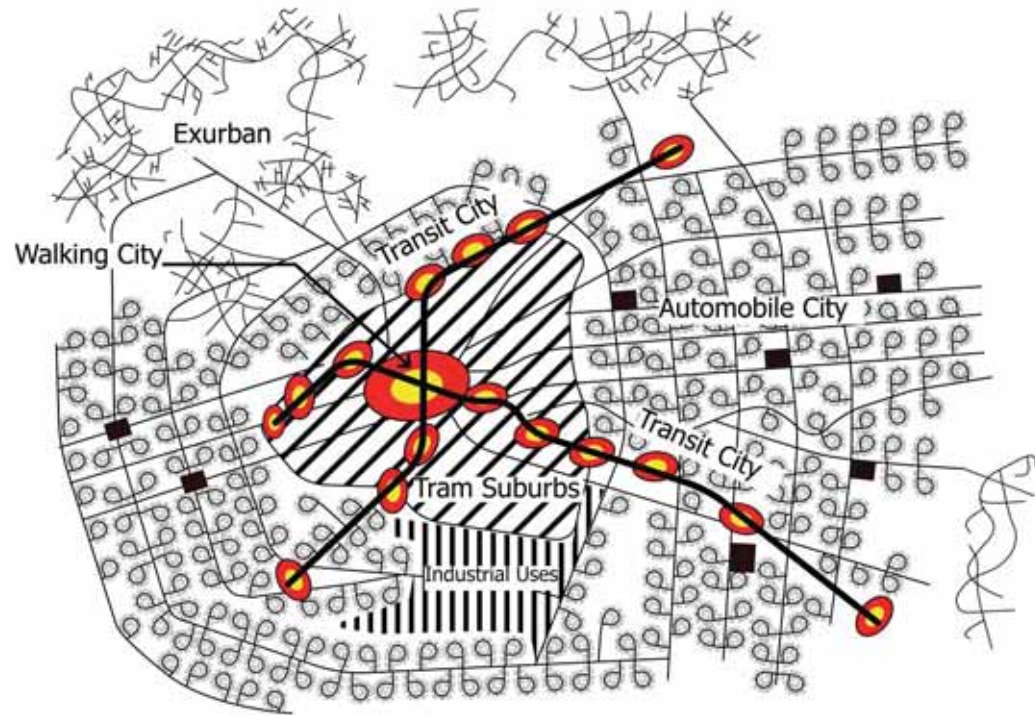
Access to Public Transport



Rebuilding Auto City as a Smart Sustainable City with real centres



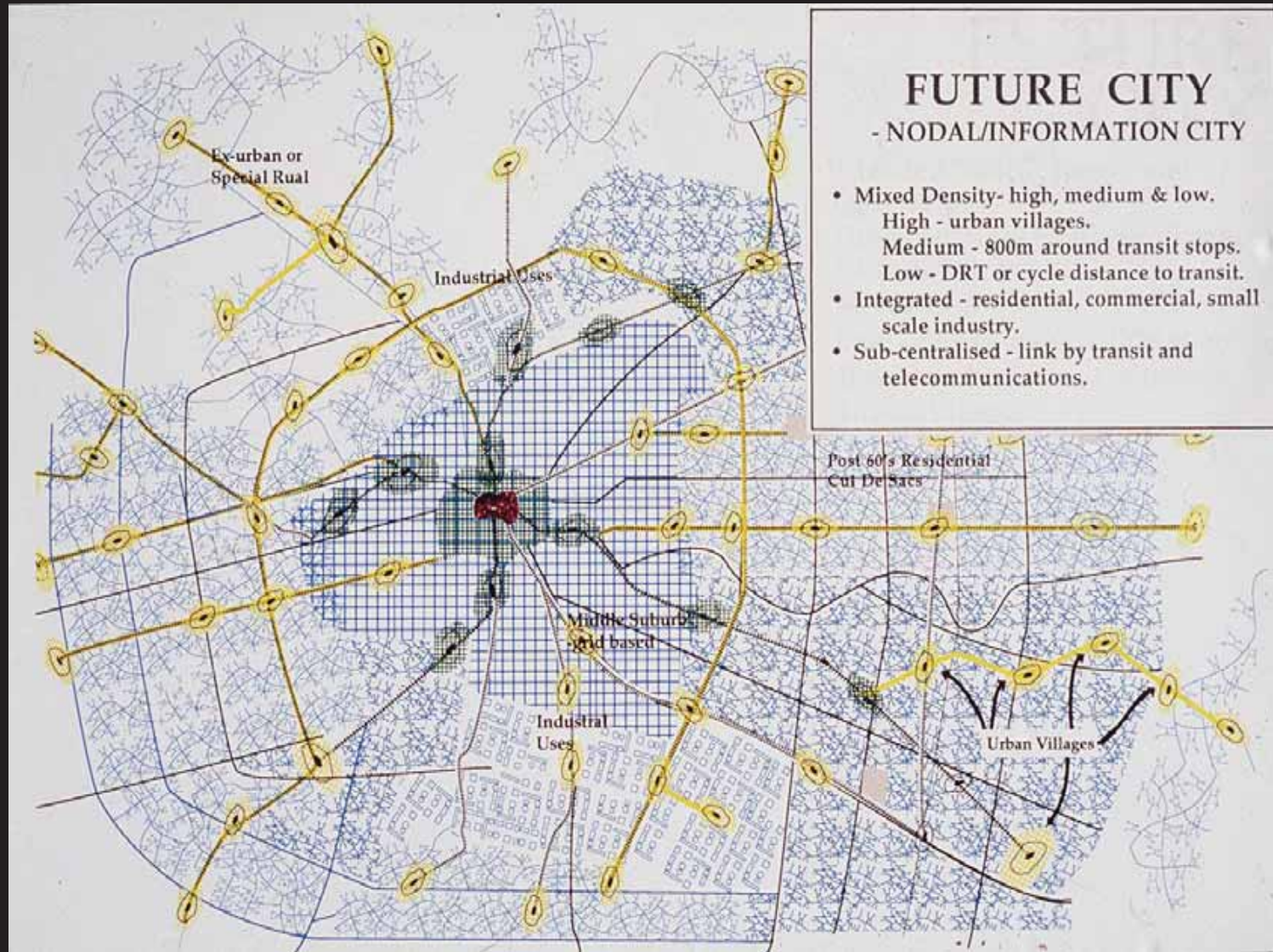
Theory of urban fabrics – three cities exist in all cities. Need to respect and rejuvenate all three...





Not much respect here...

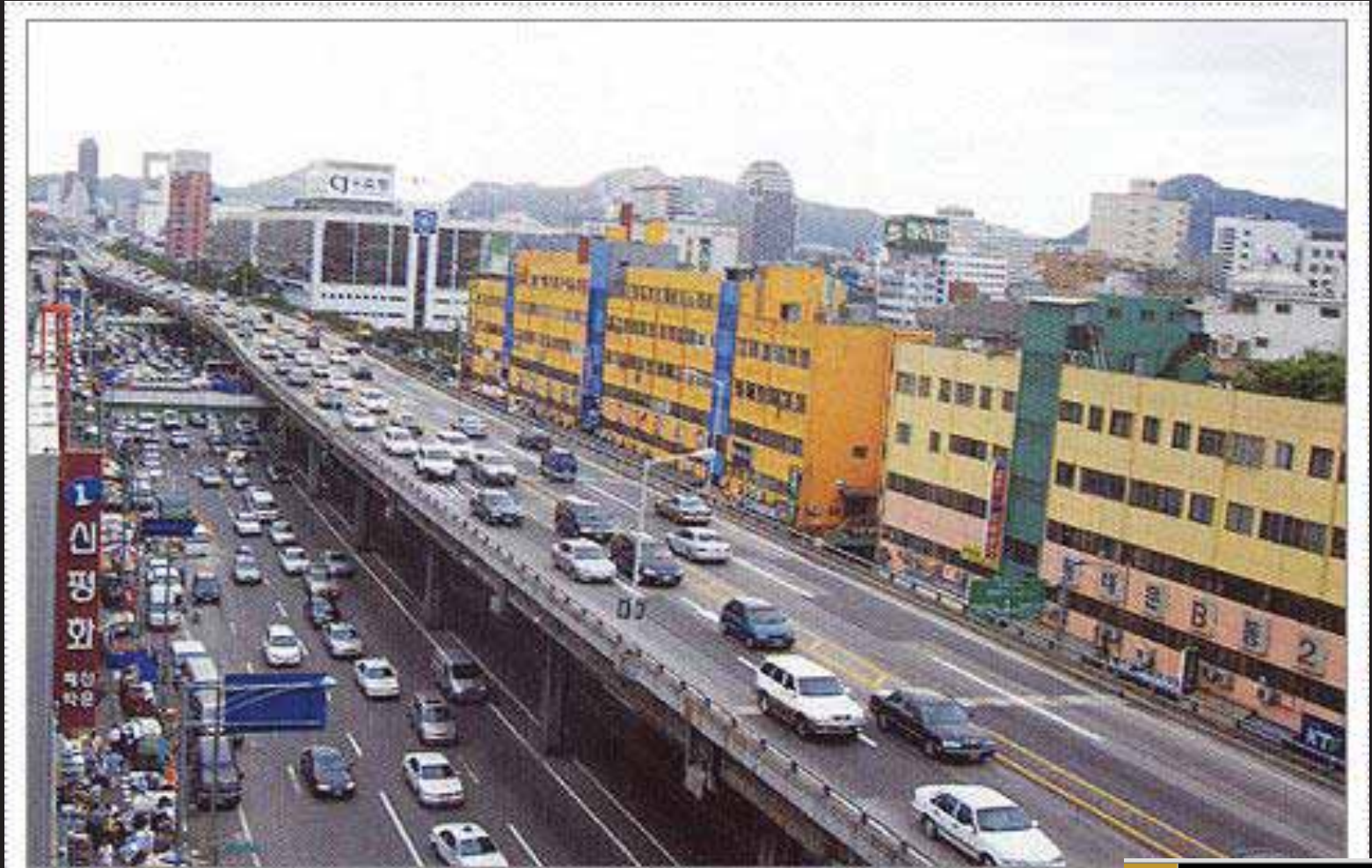
Every city wants to create integrated transit and centres for their economy...



Cities around the world are now wanting more walking and transit city fabric...

- *Integrated transport plans....*
- Need DENSE CENTRES and INFRASTRUCTURE integrated together.
- Regenerating the old fabric and creating it in the automobile city fabric....
- Change the transport priorities away from roads.

Green economy symbol, Cheonggyecheon River in Seoul, buried under freeway





Not only has the greenway become a well-loved part of the city, it has proven to benefit the city in many different ways. The temperature of the inner city has dropped several degrees, and birds, fish and other wildlife have returned to the urban core. Also, since the freeways were removed, fewer people are driving into the city, choosing to take public transit or other options.

2003

‘Cheonggyecheon – symbol of the green economy’ President Lee
The traffic just disappeared....



The narrowing of St Georges Tce – better for walking and public transport and coffee....



ESPRESSO & PANINI BAR



Melbourne.

HOW QUICKLY A CITY CAN CHANGE....



Places for People
1994

Report by Jan Gehl



Places for People
2004

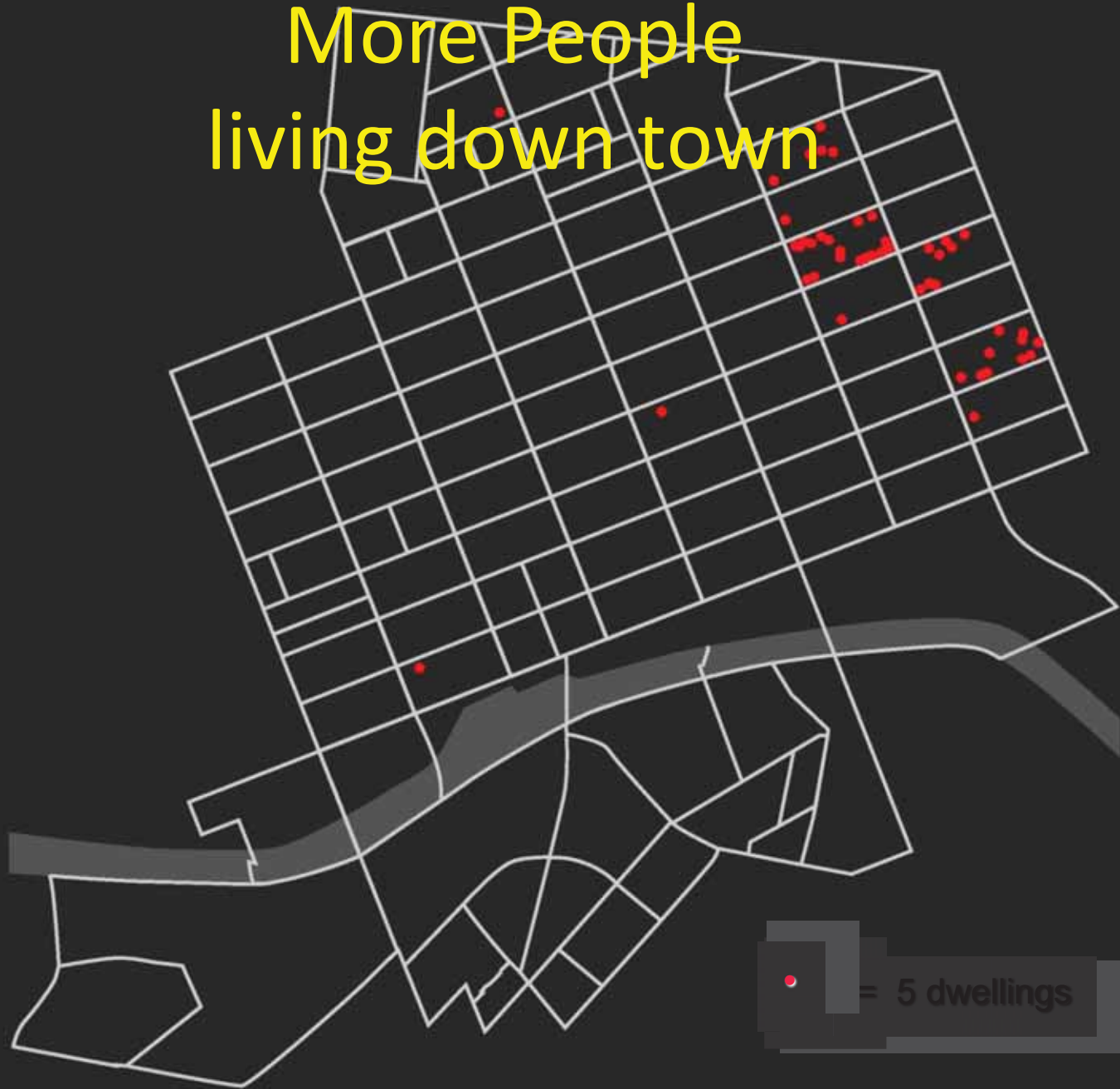
**Report Gehl
Architects**

www.gehlarchitects.dk



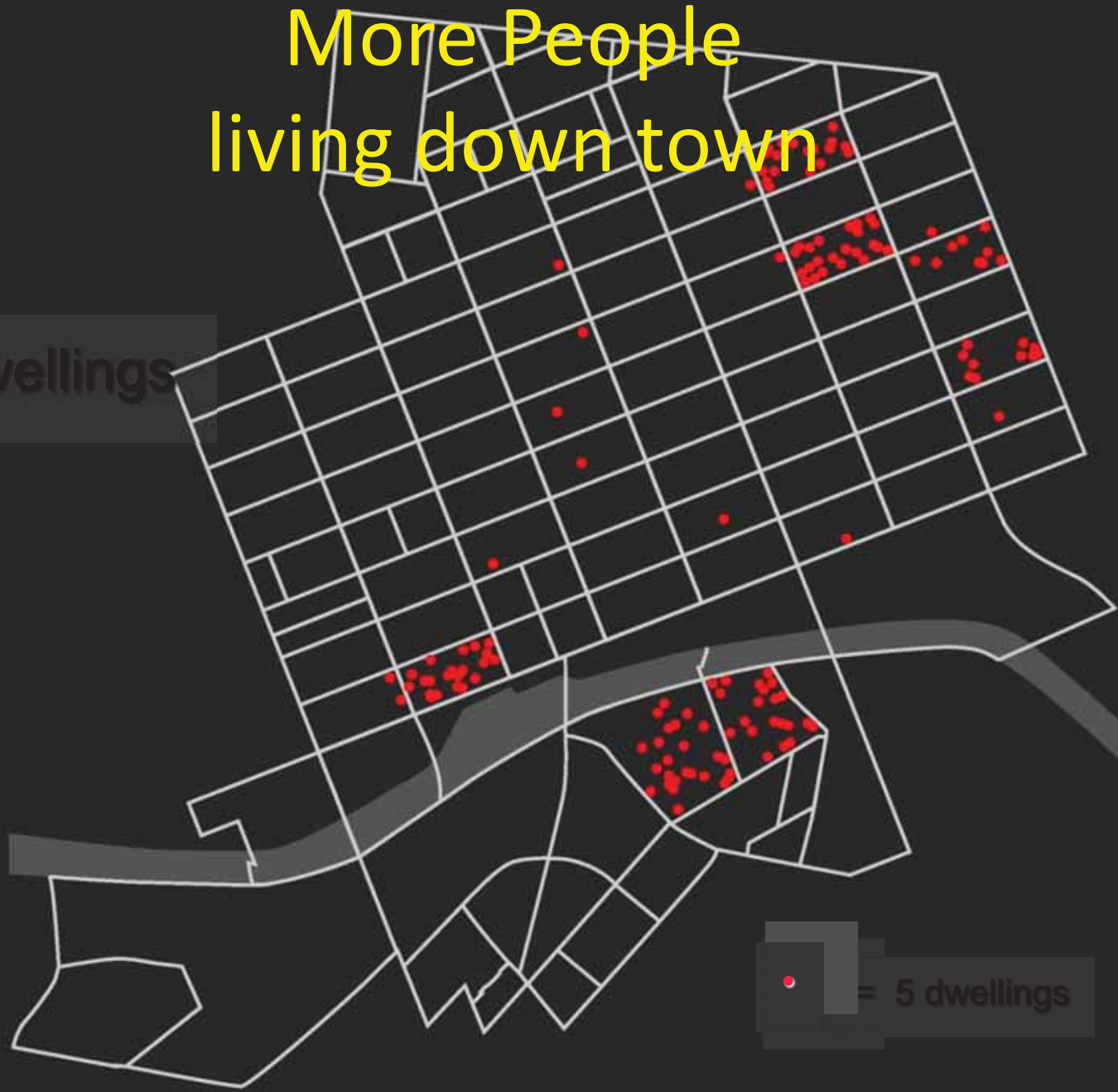
Extention and modernization of the Streetcar System

More People living downtown



More People living downtown

wellings



• = 5 dwellings

More People living downtown

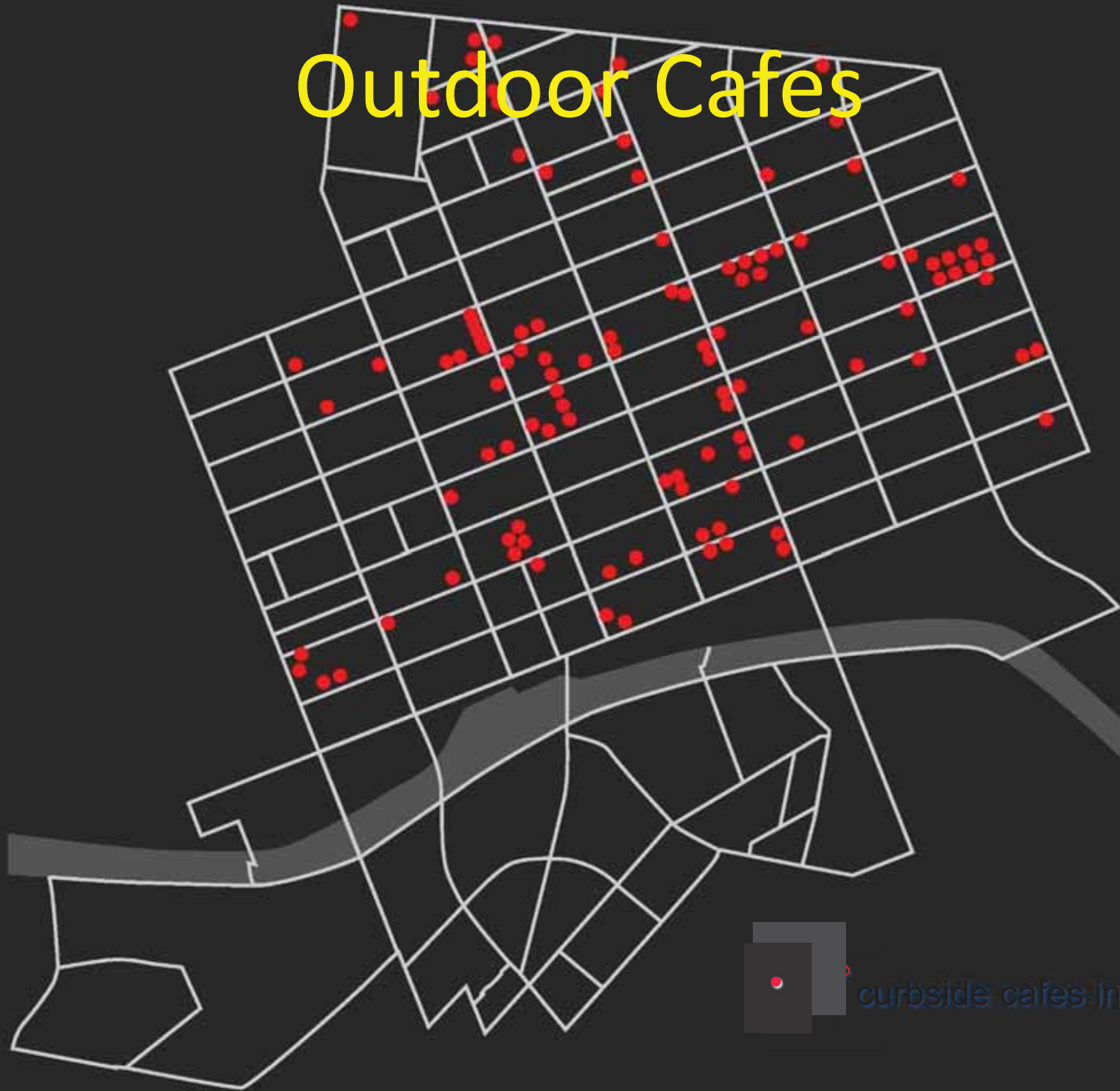


Outdoor Cafes

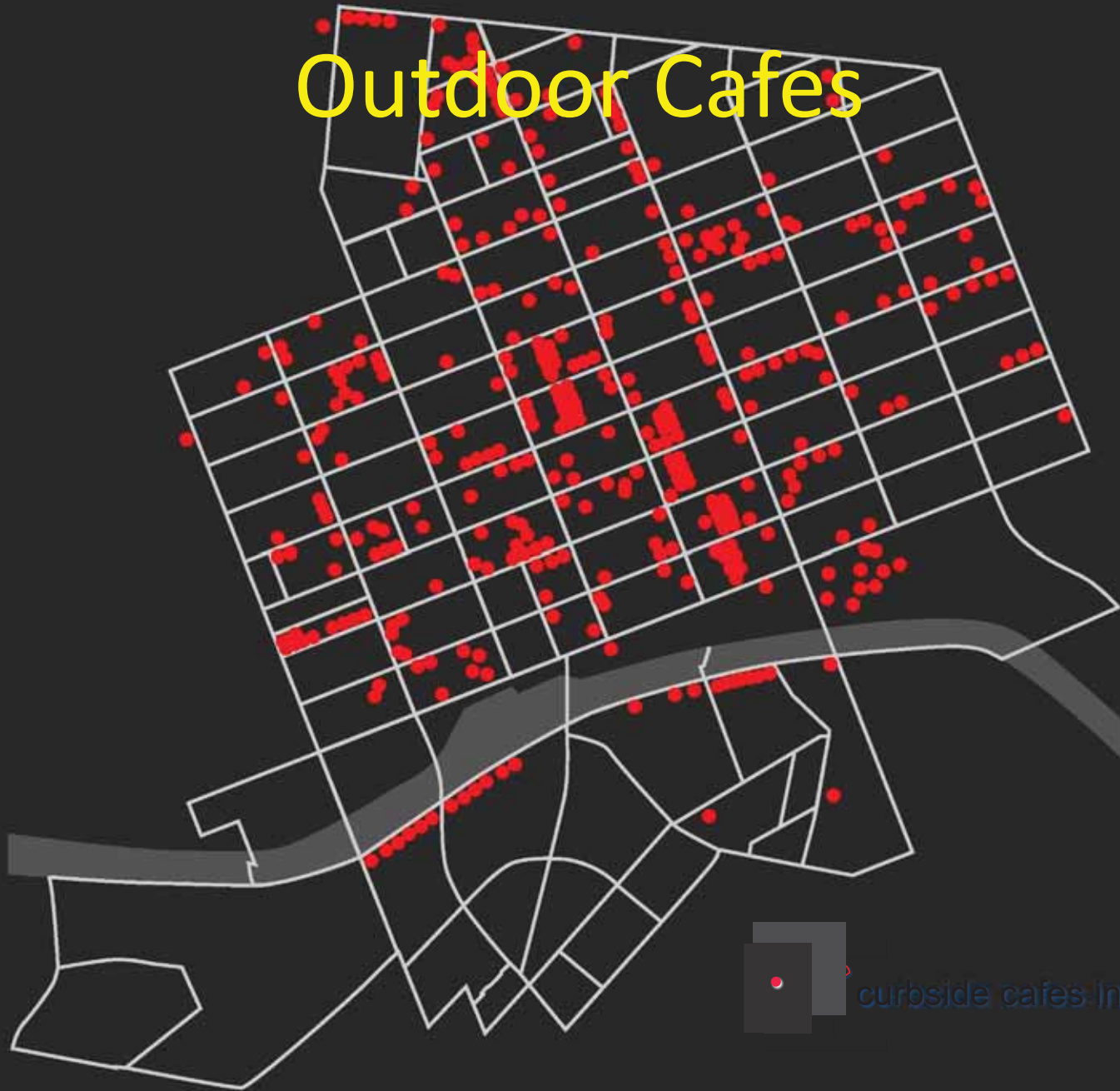


curbside cafes in 1983

Outdoor Cafes



Outdoor Cafes



curbside cafes in 2004

New life in the lane ways



Pedestrian traffic weekdays daytime: +40%
Pedestrian traffic evening: +100 %
Stationary activities +200-300%



Jan Gehl the walkability magician...

GOP GIVES DEMS FLOOR ON CHENEY OUSTER p/04

Sports

The world's largest global newspaper

GMs claim no A-Rod interest
p/19

metr

Entertainment

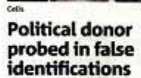
Winter arts guide
p/12

NEW YORK • WEDNESDAY, NOVEMBER 7, 2007

In the news



Walk this way



Political donor probed in false identifications

Jan Gehl There was a time when it paid to be friends with Mauricio Celis, who rustled up clients for local swagging trial lawyers and contributed generously to Democratic candidates, including Hillary Clinton. But now, Celis' friends are running for cover.

The luxury-loving Corpus Christi businessman is under investigation on suspicion of impersonating a lawyer and a sheriff's deputy.

The Republican state attorney general is suing Celis, claiming he has practiced law without a license.



"Every city I start working in says, 'This won't work here. People are more attached to their automobiles. And there's always a reason — it's too cold, it's too hot, it's too steep,'" Gehl said. But 10 years down the road, cities can't even remember how things were before. "If you want to change it back, people say no. They'll have a revolution."

New York page 02

MTA reads for text alerts



Your guide to York, U.K.

Voices page 10

Eitahayu: Thank you, Musharraf (yeah, right)

Planner points city, groups toward an unclogged New York

AMY ZIMMER
amy.zimmer@metr.com

UPPER WEST SIDE Jan Gehl isn't a household name, but the 73-year-old Danish urban planner is the go-to person for cities looking to calm traffic and create more livable streets.



He's been working with the Dept. of Transportation to design streets that are safer, easier and more enjoyable for pedestrians and cyclists. But yesterday Gehl gave a media tour here for another project: he's working on with the Upper West Side Streets Renaissance Campaign to make the neighborhood the most walkable and bike-friendly in the nation.

"Everyone wants to have a more lively, attractive, healthy and sustainable city," Gehl said. New York has "traffic ideas that

are 30 to 40 years old, that when there's a square meter, give it to the traffic."

The campaign wants New Yorkers to think about boulevard sidewalks, protected bike lanes and a car-free Broadway.

Broadway "creates a lot of traffic problems because it crosses the avenues. One can wonder, what is the role of Broadway?" asked Gehl.

"It should cost a fortune because [avenues] are the best public space you have and you rent it out."

Barbara Adler, president of the Columbus Avenue Business Improvement District, would like sidewalks with more greenery, bike racks, benches and even water fountains.

Will it happen?

"A lot of it depends on whether the DOT wants to have Columbus Avenue as a model," Adler said. Gehl would not comment on his work with the DOT, but his teams have been counting pedestrians.

"We look at places where people think they must stop here to look in a window, talk to a friend or sit on a bench," he said. "When they stop walking, [it] is a signal of good public space. In New York, it's about getting from A to B and not enjoying the space so much."

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People Cities

The Life and Legacy of Jan Gehl

Annie Matan & Peter Newman

BOGVÆRKET

Rejuvenating transit corridors and
building new ones..

The 2nd global rail revolution...

Shanghai



1990



2010

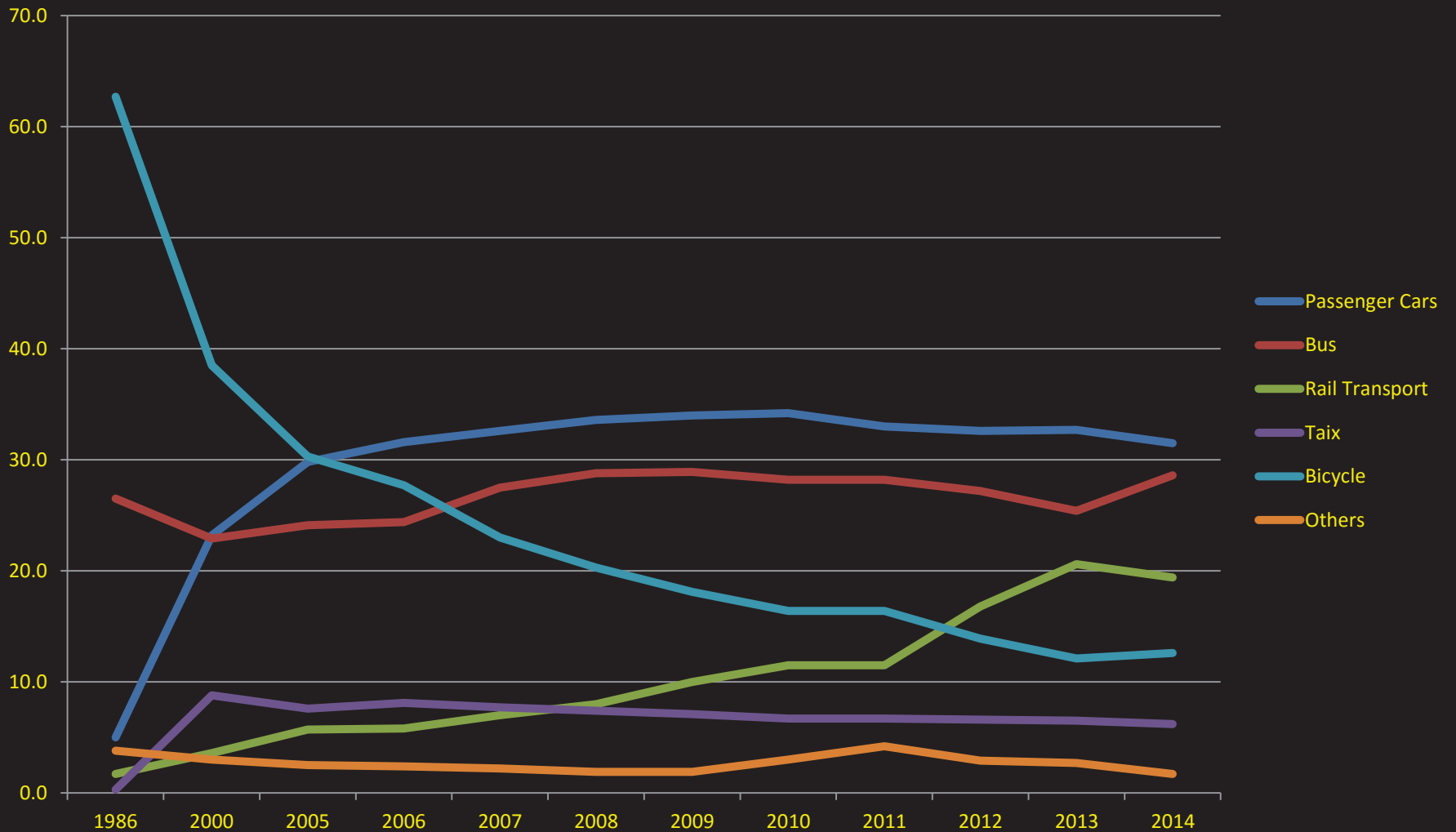
1990s - Flirting with the American model







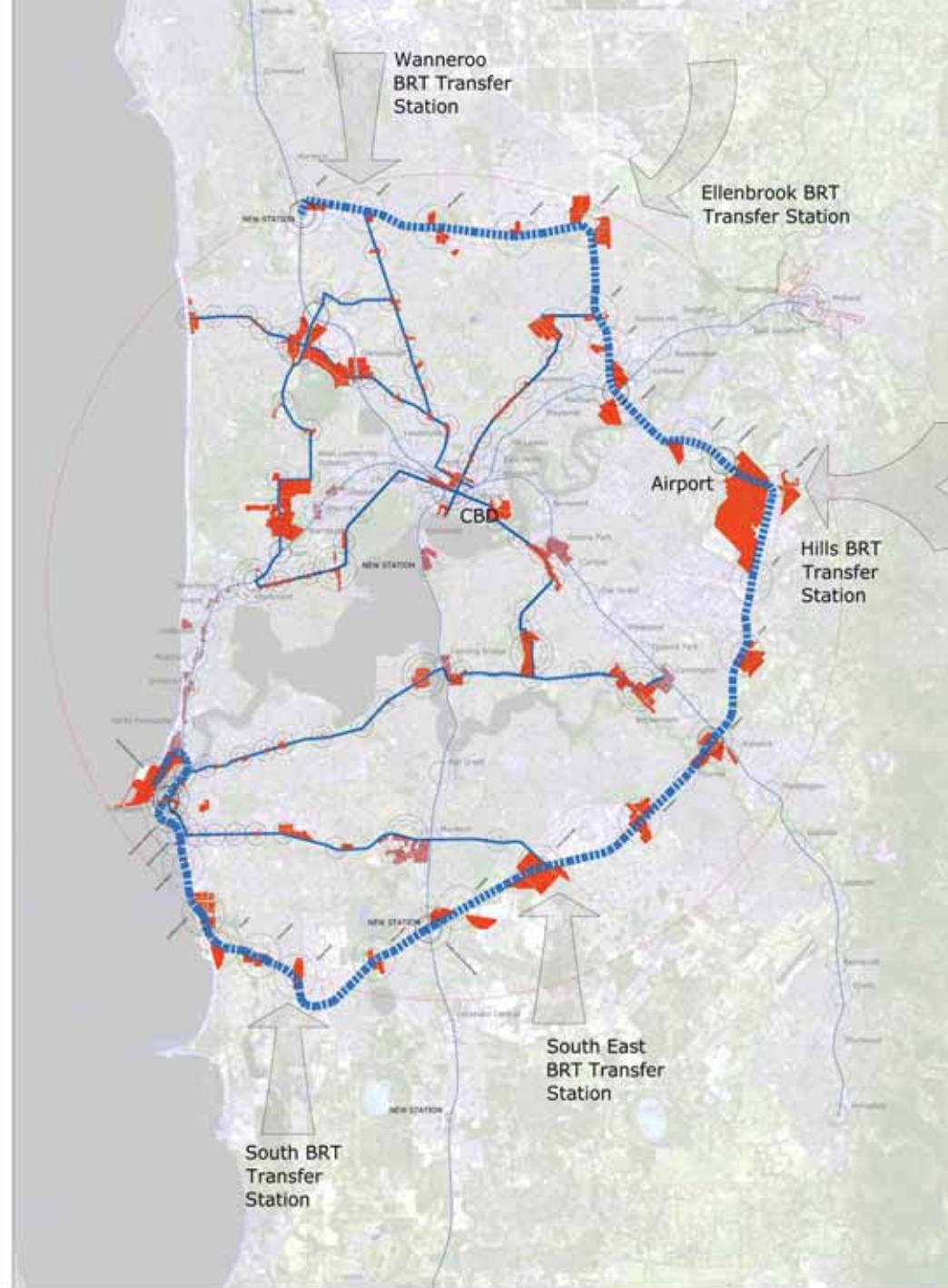
Beijing car use peaks and declines...



The only new urban form-shaping set of technologies is fast urban rail...



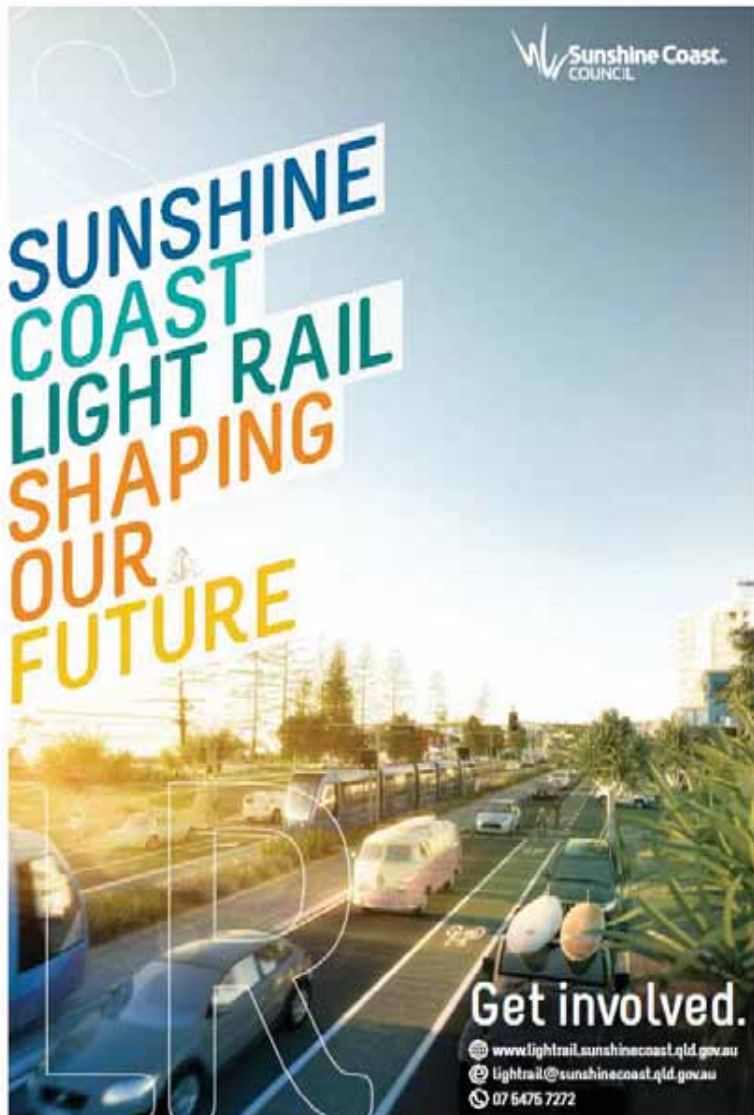
The Ring Rail,
LRT and BRT
plus
development
sites for the
next 30 years
growth in
Perth



How do you fund something that will simultaneously create walkable, affordable, dense centres and electric urban rail down corridors....?

Get it off welfare now there is a market for it....

Sunshine-based light rail...



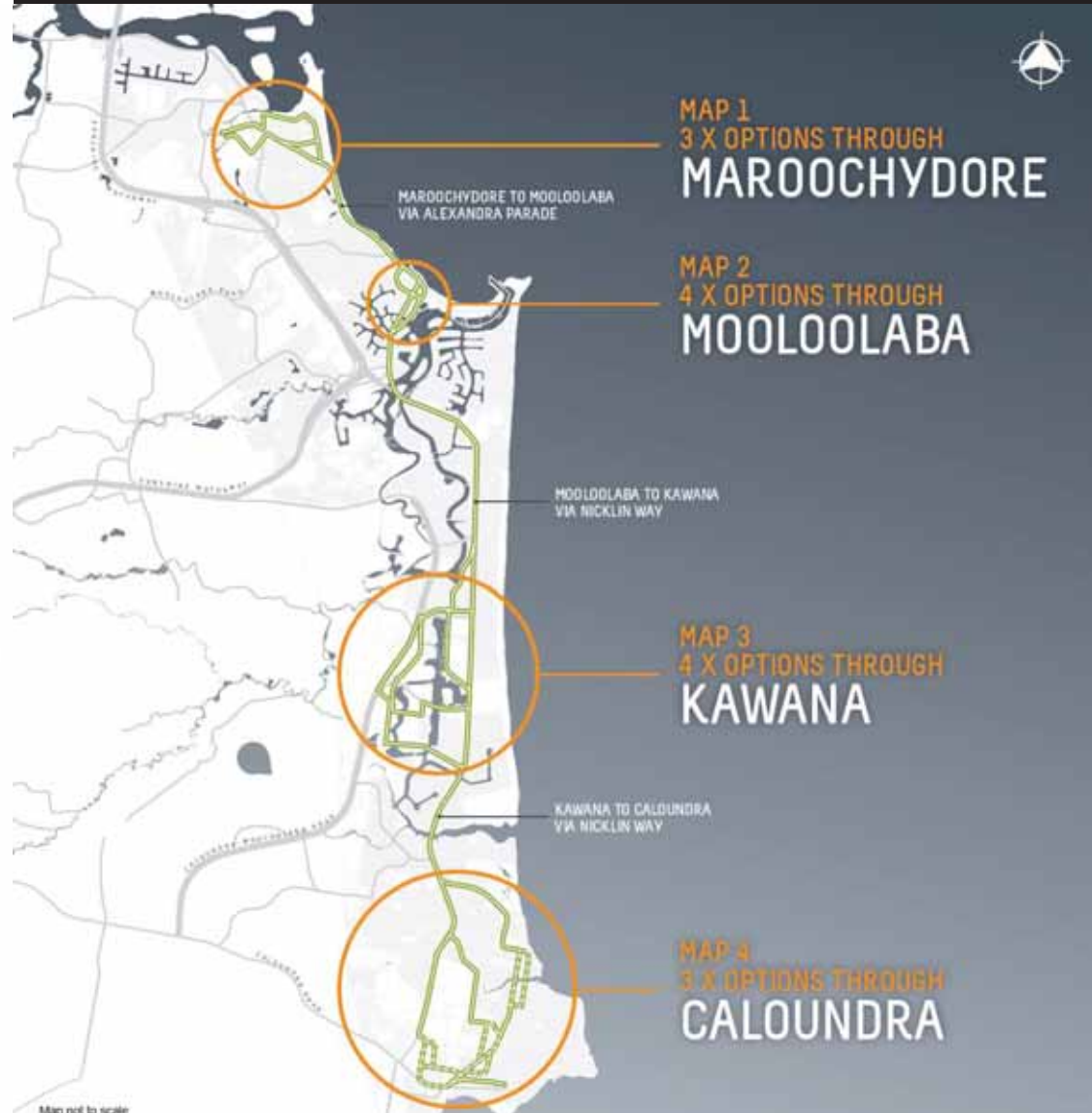
**SUNSHINE
COAST
LIGHT RAIL
SHAPING
OUR
FUTURE**

Get involved.

www.lightrail.sunshinecoast.qld.gov.au
lightrail@sunshinecoast.qld.gov.au
07 5475 7272

**Sunshine Coast
COUNCIL**

The poster features a photograph of a light rail vehicle on a track, with a large, stylized 'R' overlaid on the image. The background shows a coastal scene with palm trees and buildings under a clear sky.



▶ Turnbull looks to 'get creative' on infrastructure

PM explores radical road, rail funding

Prime Minister

Use land value....



Malcolm Turnbull, right, said direct grants were not the only way to support infrastructure. PHOTO: SCOTT FLETCHER

From page 1
Turnbull explores road, rail funding

ment, not least because of sharply constrained federal and state budgets.

Prominent economist Saul Eslake estimates Canberra could borrow an

economy from the end of the re-investment boom.

Former Infrastructure Authority board member and Curtin Un-

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



FEBRUARY 2016

ENTREPRENEUR RAIL MODEL

A DISCUSSION PAPER

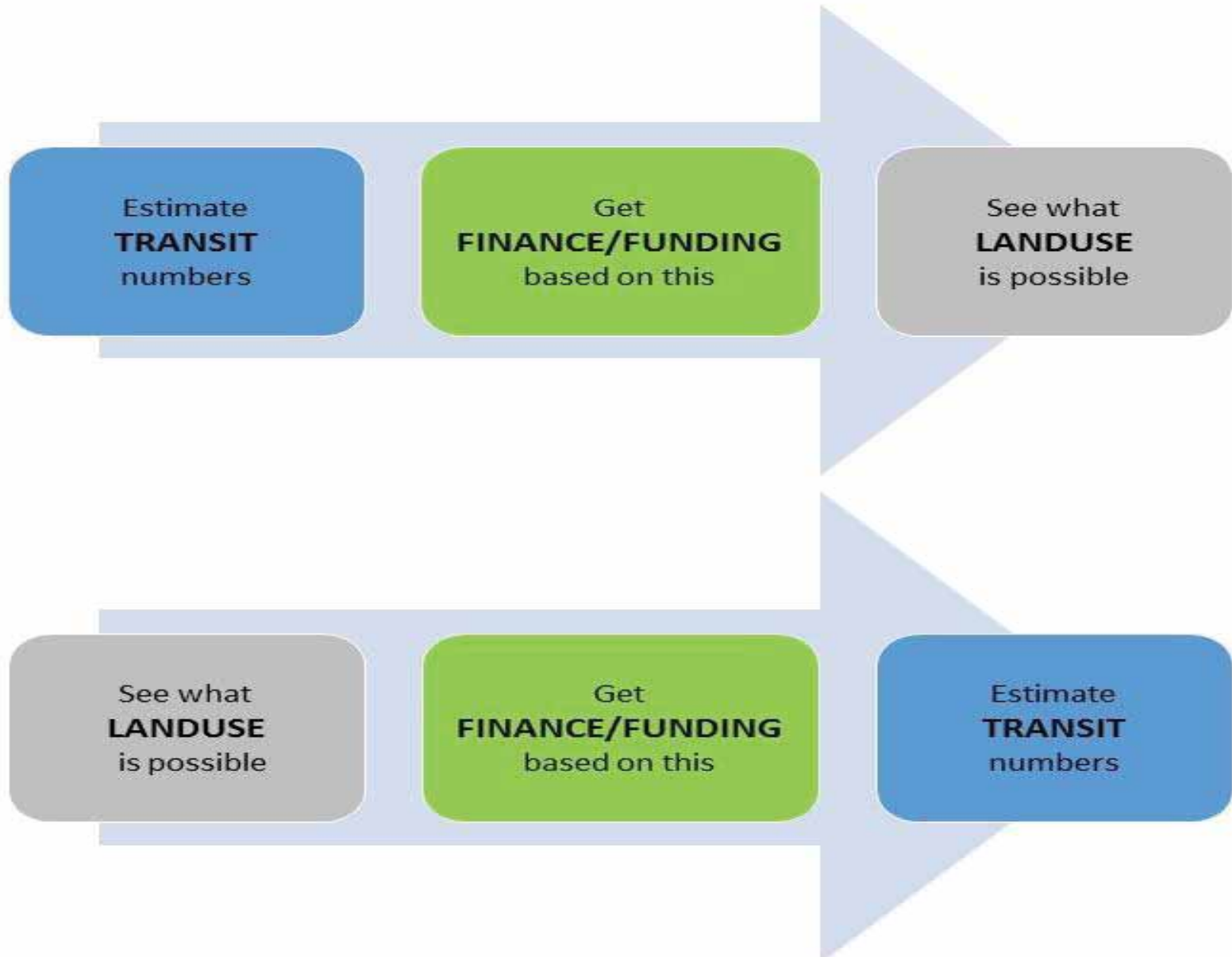


Tapping Private Investment for New Urban Rail

Prepared by Peter Newman, Brian Jones, Jemma Green and Sebastian Dawkins for Curtin University

East Fremantle Now and After Light Rail - Images by Cole Hendigan

From TFL to LFT....



How?

- Don't define the route just a corridor.
- Call for expressions of interest from consortia that can build, own, operate and finance the rail project through land development. DBFM
- Government need to manage the procurement to enable transit system integration and land assembly.
- This is the Japanese system.

Results...

- Unlocks lazy land assets
- Integrates land use and transit as both depend on finance
- Changes the politics of redevelopment as communities get their rail
- Enables private sector expertise in land development to drive city form and transit – as it has mostly been through history.

Florida's south east cities were created
by Henry Flagler 120 years ago...

Today his company is doing it again...a
private rail project is unlocking land
development and paying for the train from
the process.

Funding: a New York hedge fund.

A NEW TRAVEL ALTERNATIVE FOR FLORIDA

- ✓ First private passenger rail service

- ✓ Designed to serve tourists, business travelers and Florida residents

- ✓ Stations in key, downtown areas



ORLANDO
(3 hours)



WEST PALM BEACH
(1 hour)



FORT LAUDERDALE
(30 minutes)



DOWNTOWN MIAMI



MIAMICENTRAL

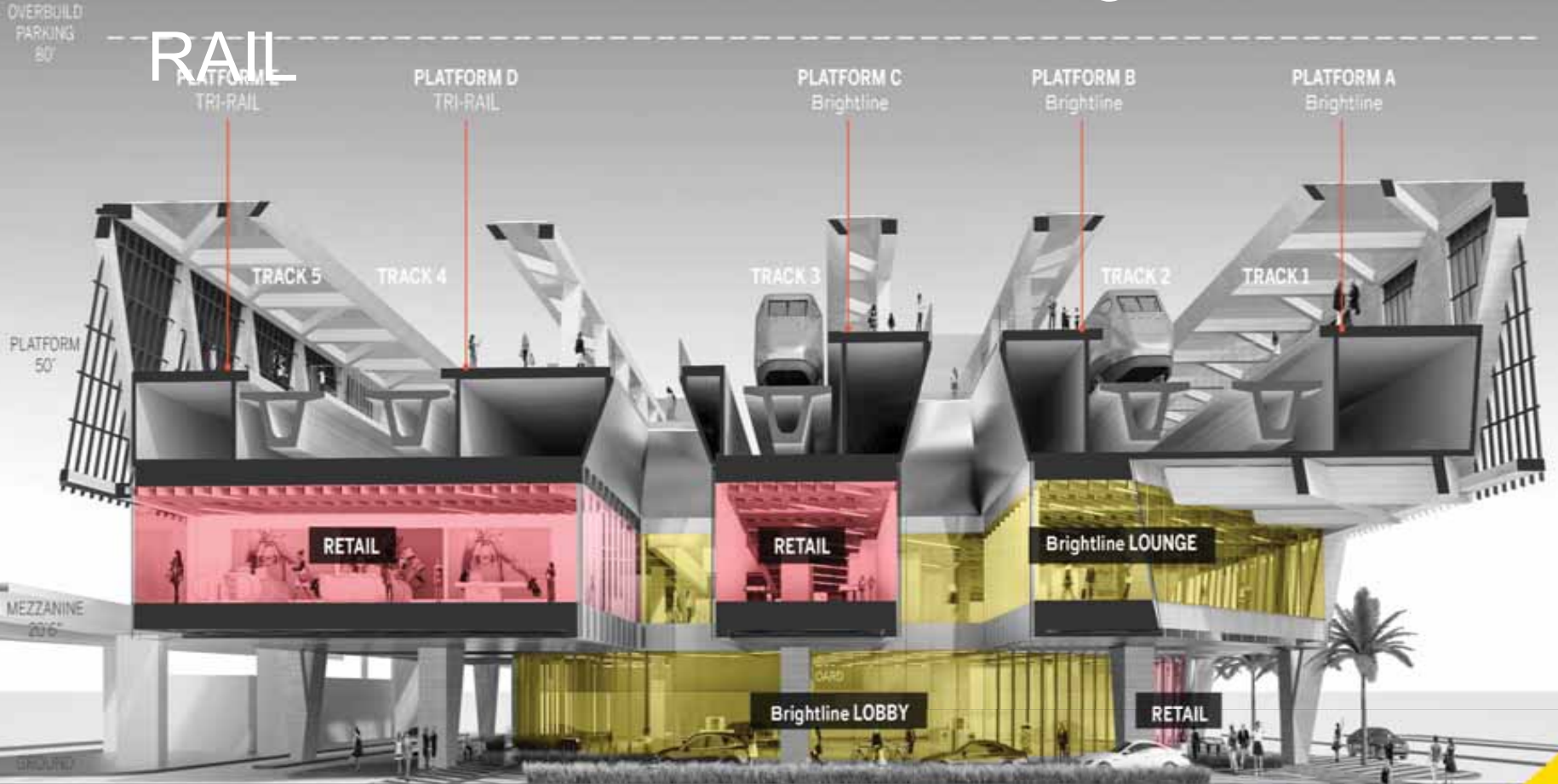
brightline

INTEGRATION OF COMMUTER



brightline

RAIL



brightline



FORT LAUDERDALE STATION

Back to the future...in order to create
more sustainable cities.

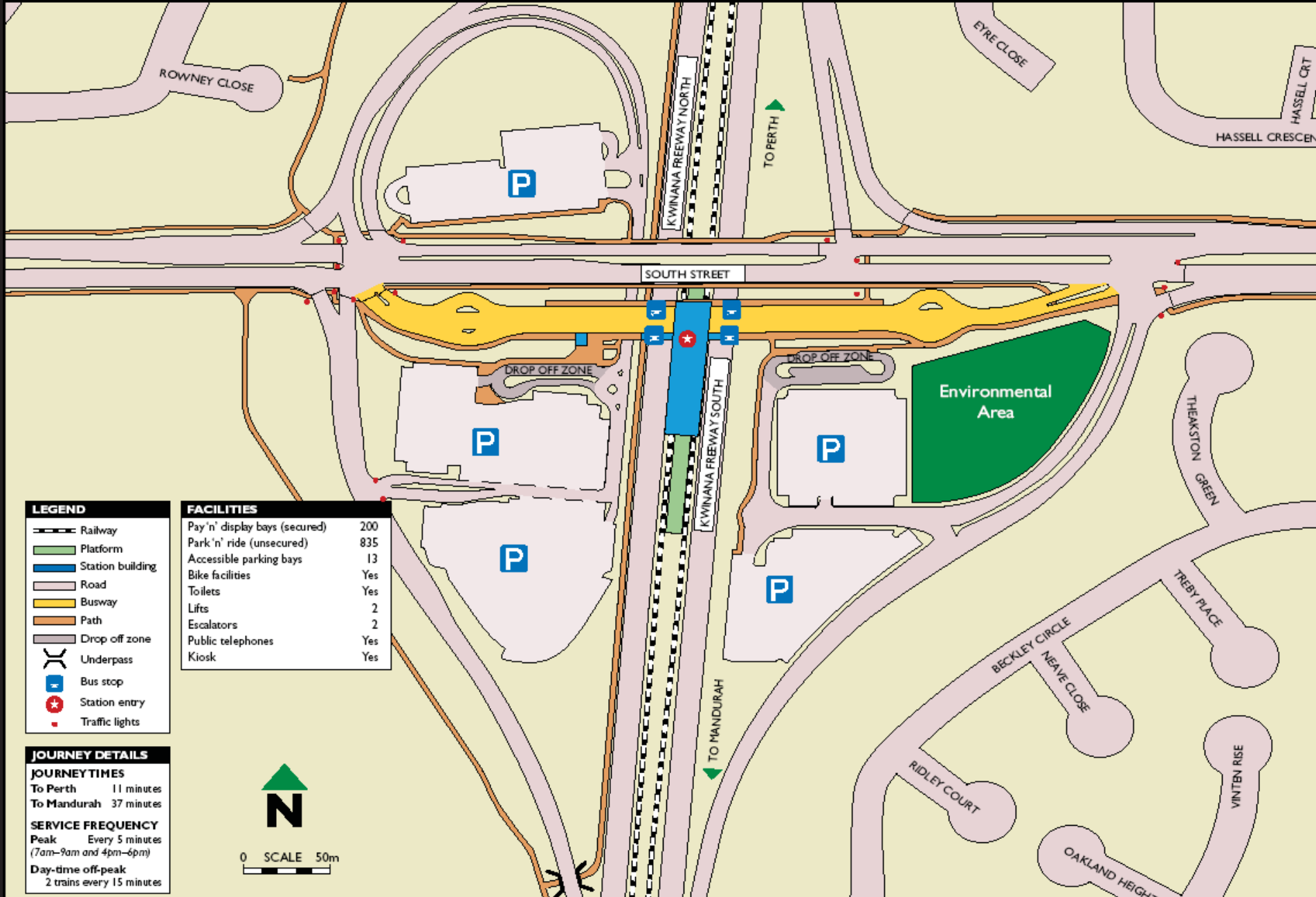
Is that all the integration that is needed?

No. It needs :

- A highly integrated bus-rail integration.
- Last mile integration with bikes, taxis, uber, autonomous vehicles....
- Highly walkable station precinct design....

National and global model...
\$17-22 mill per km. Carrying 8 lanes of traffic.





LEGEND

- Railway
- Platform
- Station building
- Road
- Busway
- Path
- Drop off zone
- Underpass
- Bus stop
- Station entry
- Traffic lights

FACILITIES

Pay 'n' display bays (secured)	200
Park 'n' ride (unsecured)	835
Accessible parking bays	13
Bike facilities	Yes
Toilets	Yes
Lifts	2
Escalators	2
Public telephones	Yes
Kiosk	Yes

JOURNEY DETAILS

JOURNEYTIMES

- To Perth 11 minutes
- To Mandurah 37 minutes

SERVICE FREQUENCY

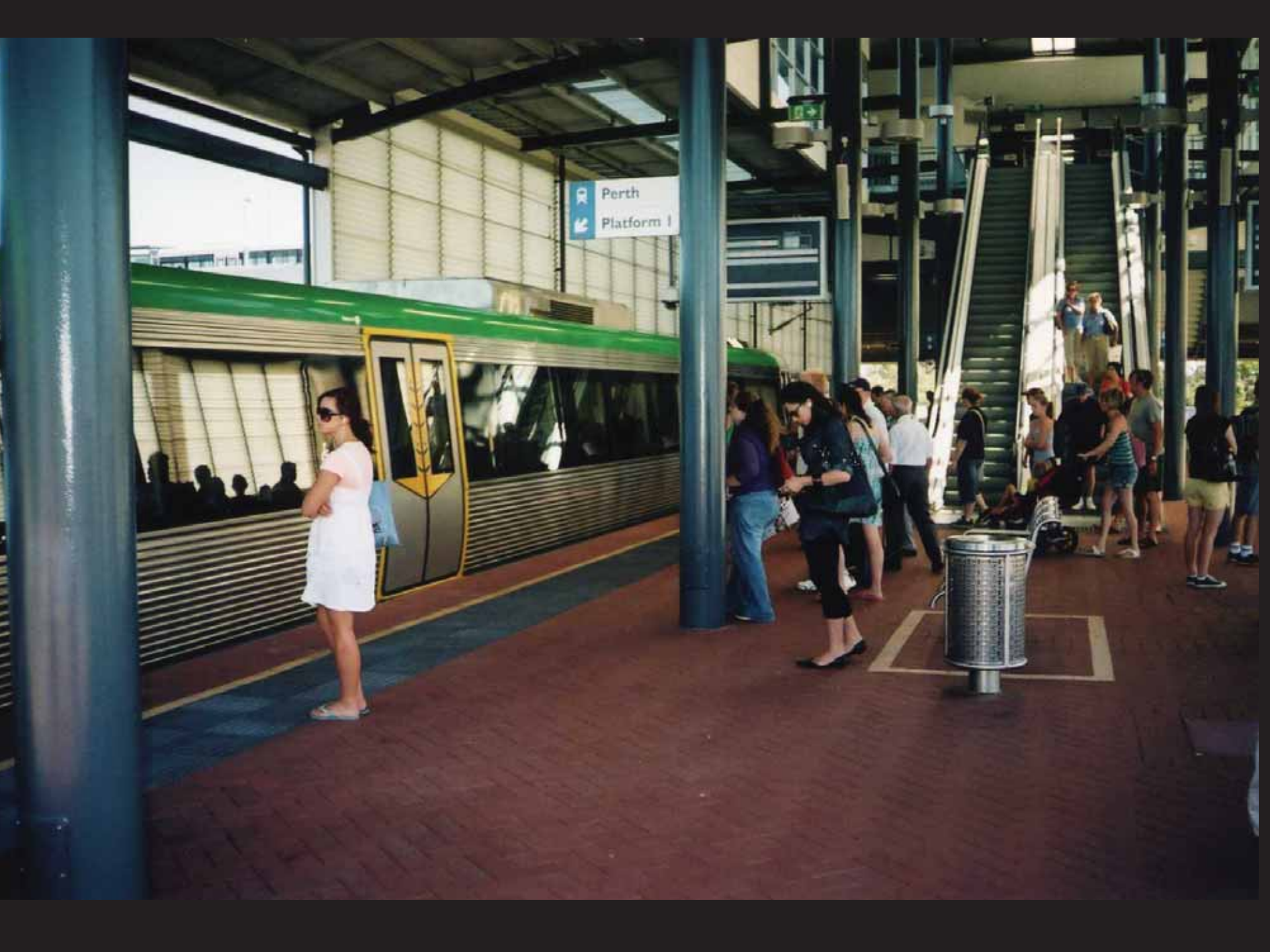
- Peak Every 5 minutes
(7am-9am and 4pm-6pm)
- Day-time off-peak
2 trains every 15 minutes

N

0 SCALE 50m







Perth
Platform 1

Build transit and build transit cities....

Murdoch 35,000 jobs, 25,000 students, 4,000 new homes...



Sydney's new light rail – fully integrated into making a walkable CBD



Can the Sunshine Coast create a
21st century city-region?