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

Peter Newman
Global Cities Database on 100 cities....
Private Passenger Transport Energy Use per Person, 1995

Cities

- American
- Australia/New Zealand
- Canadian
- Western European
- High Income Asian
- Eastern European
- Middle Eastern
- African
- Latin American
- Chinese

Energy Use per Person (MJ)
Proportion of Total Motorised Passenger Kilometres on Public Transport, 1995
The more that transit systems are built around rail and development is integrated around them, the higher the overall transit usage.
Strong Rail Versus Weak Rail Cities: Economic Indicators

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

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.

Percentage average increase in car VKT per capita:
- 1960-1970: 41.8%
- 1970-1980: 25.7%
- 1980-1990: 22.9%
- 1995-2005: 5.1%
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...

Source: Traffic Volume Trends and Energy Information Administration
Public Transit Boardings and Vehicle Miles Travelled in US: March Quarter 2008 vs March Quarter 2007

- Bus: 1.3%
- Paratransit: 4.4%
- Comm Rail: 5.4%
- Heavy Rail: 3.4%
- Light Rail: 7.1%
- Total PT: 2.4%
- Car-VMT: -4.0%
Passenger-kilometres by private car and light trucks, 1990 – 2009, index (1990 = 100)

- Germany
- Australia
- France
- United States
- Japan
- United Kingdom

Oil price shock and start of crisis
Per Capita Private Travel by City

Source: BTRE (2011): Australian Infrastructure Statistics Yearbook
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)

<table>
<thead>
<tr>
<th>City</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Melbourne (Commuter)</td>
<td>10.5</td>
</tr>
<tr>
<td>Perth (Transperth)</td>
<td>8.2</td>
</tr>
<tr>
<td>Brisbane (Citytrain)</td>
<td>6.4</td>
</tr>
<tr>
<td>Singapore (SMRT)</td>
<td>4.6</td>
</tr>
<tr>
<td>Vienna (U-Bahn)</td>
<td>4.3</td>
</tr>
<tr>
<td>San Francisco (BART)</td>
<td>4.2</td>
</tr>
<tr>
<td>New York City (NYCT)</td>
<td>3.3</td>
</tr>
<tr>
<td>Washington (WMATA)</td>
<td>3.2</td>
</tr>
<tr>
<td>London (TfL/LU)</td>
<td>3.1</td>
</tr>
<tr>
<td>Madrid (Metro de Madrid)</td>
<td>2.6</td>
</tr>
<tr>
<td>Chicago (CTA)</td>
<td>2.6</td>
</tr>
<tr>
<td>Hong Kong (MTR)</td>
<td>2.6</td>
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<tr>
<td>Sydney (CityRail)</td>
<td>2.1</td>
</tr>
<tr>
<td>Adelaide (Trans Adelaide)</td>
<td>0.9</td>
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</tbody>
</table>

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

Source: Rail operator annual reports and statistics; Government statistics; L.E.K. Analysts
Annual vehicle miles per driver by age, USA, 1995, 2001, 2009
Density is going up after 100 years of decline

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<thead>
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<td>Brisbane</td>
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<td>11.3</td>
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<td>9.7</td>
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<td>16.8</td>
<td>16.9</td>
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<td>12.0</td>
<td>8.9</td>
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<tr>
<td>Phoenix</td>
<td>8.6</td>
<td>8.6</td>
<td>8.5</td>
<td>10.5</td>
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<td>10.9</td>
</tr>
<tr>
<td>San Diego</td>
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<td>10.8</td>
<td>13.1</td>
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<td>14.6</td>
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<tr>
<td>San Francisco</td>
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<td>16.9</td>
<td>15.5</td>
<td>16.0</td>
<td>20.5</td>
<td>19.8</td>
</tr>
<tr>
<td>Vancouver</td>
<td>24.9</td>
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<td>18.4</td>
<td>20.8</td>
<td>21.6</td>
<td>25.2</td>
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<td>Frankfurt</td>
<td>87.2</td>
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<td>47.6</td>
<td>45.9</td>
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<tr>
<td>Hamburg</td>
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<td>57.5</td>
<td>41.7</td>
<td>39.8</td>
<td>38.4</td>
<td>38.0</td>
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<tr>
<td>Munich</td>
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<td>68.2</td>
<td>56.9</td>
<td>53.6</td>
<td>55.7</td>
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<td>Zurich</td>
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<td>58.3</td>
<td>53.7</td>
<td>47.1</td>
<td>44.3</td>
<td>43.0</td>
</tr>
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Table 1. Trends in urban density in some US, Canadian, Australian and European cities, 1960-2005
City living means leave the car keys at home

NATASHA GRANATH

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

"For young people it's got everything 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 5 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, according to Mr Dragan, but he said he would stay in the area if he had a family.
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.
<table>
<thead>
<tr>
<th>Year</th>
<th>Route Km</th>
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<tbody>
<tr>
<td>1982</td>
<td>42km</td>
</tr>
<tr>
<td>1983</td>
<td>63km</td>
</tr>
<tr>
<td>1993</td>
<td>92km</td>
</tr>
<tr>
<td>2004</td>
<td>96km</td>
</tr>
<tr>
<td>2005</td>
<td>100km</td>
</tr>
<tr>
<td>2006</td>
<td>172km</td>
</tr>
<tr>
<td>Total</td>
<td>172km</td>
</tr>
</tbody>
</table>

54 kms within freeway median
Next phase for Perth
Curtin-UWA LRT
The ‘Knowledge Arc’ Rail
“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

Legend:
- Hospitals
- Activity Centres
- Perth CBD

Proposed Line 1
Proposed Line 2

Source: HGM, 2002
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 won't work?
- Need other centres and other LRT’s
- Perth is growing fast but it's 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

- Road: $3.441 million
- Port: $389 million
- Metro rail: $4.623 million
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....
“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.