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Melbourne's Suburban Rail Loop

RMIT University, 445 Swanston St, Melbourne, Building 80, Level 2, Room 2

# Melbourne Suburban Rail Loop

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**PUBLIC TRANSPORT**  
**RESEARCH GROUP**



**GROUP  
OF EIGHT  
AUSTRALIA**

**MONASH**  
INSTITUTE OF  
TRANSPORT  
STUDIES





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## **Introduction**

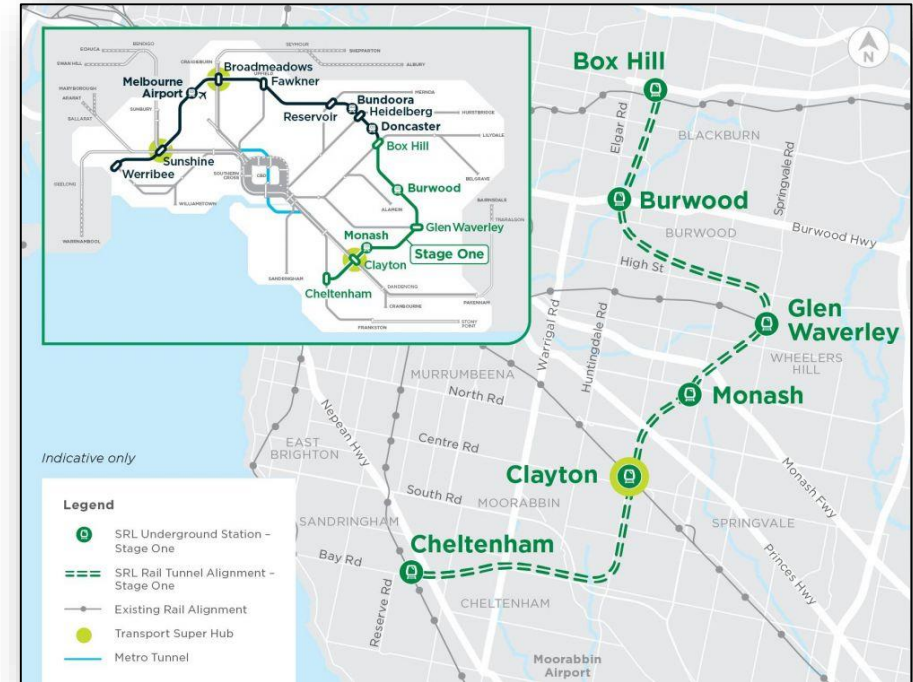
**Comparative Performance**

**My View**



# SRL is a ~90km circular metro project costing ~\$125B; stage 1 opens 2035; rest 2085

- 90kms underground circular metro
- Driverless trains/ platform doors (Singapore/ Victoria Line like)
- Stage 1 commenced target completion 2035; cost \$36.5B
- Targets:
  - Connect 4 NEICs
  - Rapid population growth
  - Monocentric (CBD) urban form constraints
  - Refocus population growth in middle not inner/outer suburbs
  - Inequitable access to jobs/services
- BCR 1 to 1.7



# This presentation outlines comparative data and my views



**Comparative  
Performance**

**My View**



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**Introduction**

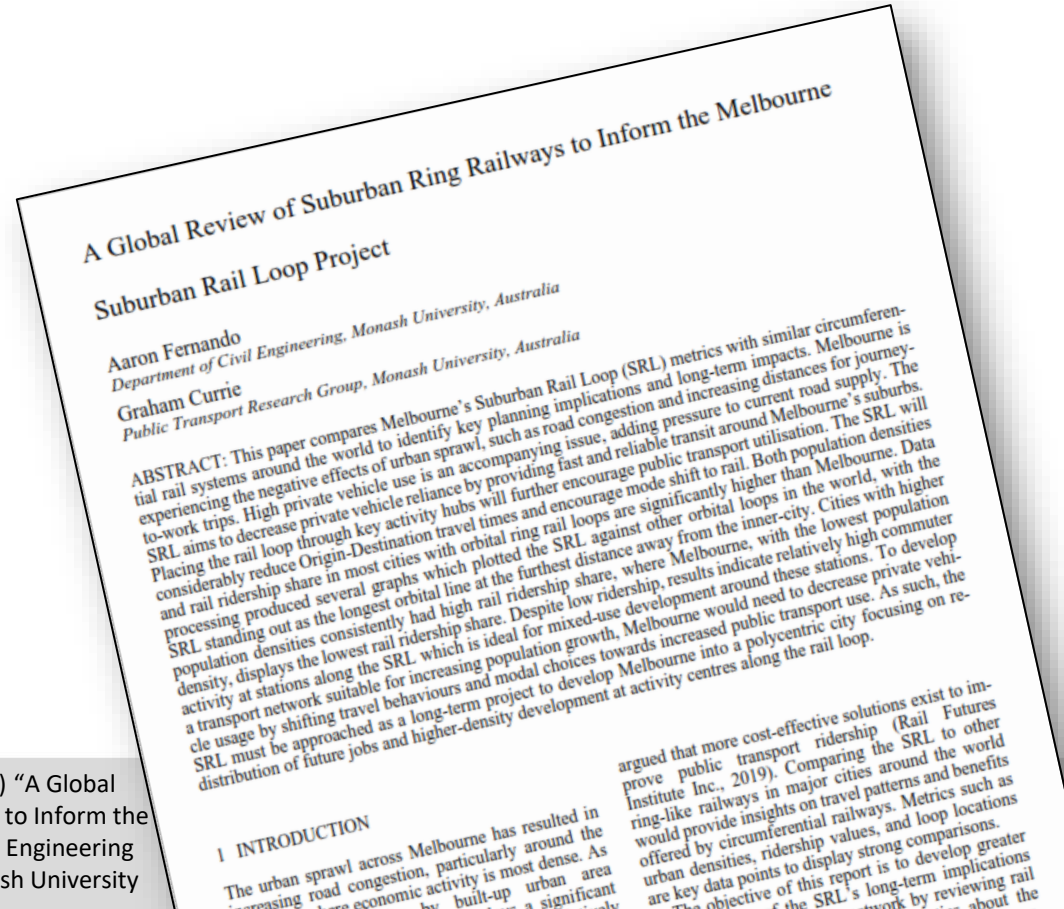
**Comparative Performance**

**My View**



# We researched SRL vs existing loop metros in a student research project

- Compares: SRL vs global loop railways
  - Shanghai Metro Line 4 (China)
  - Moscow Central Line (Russia)
  - Berlin Ringbahn (Germany)
  - London Central Line (United Kingdom)
  - Circle MRT Line (Singapore)
  - Beijing Line 10 (China)
  - Seoul Subway Loop 2 (South Korea)
  - Yamanote Line (Tokyo, Japan)

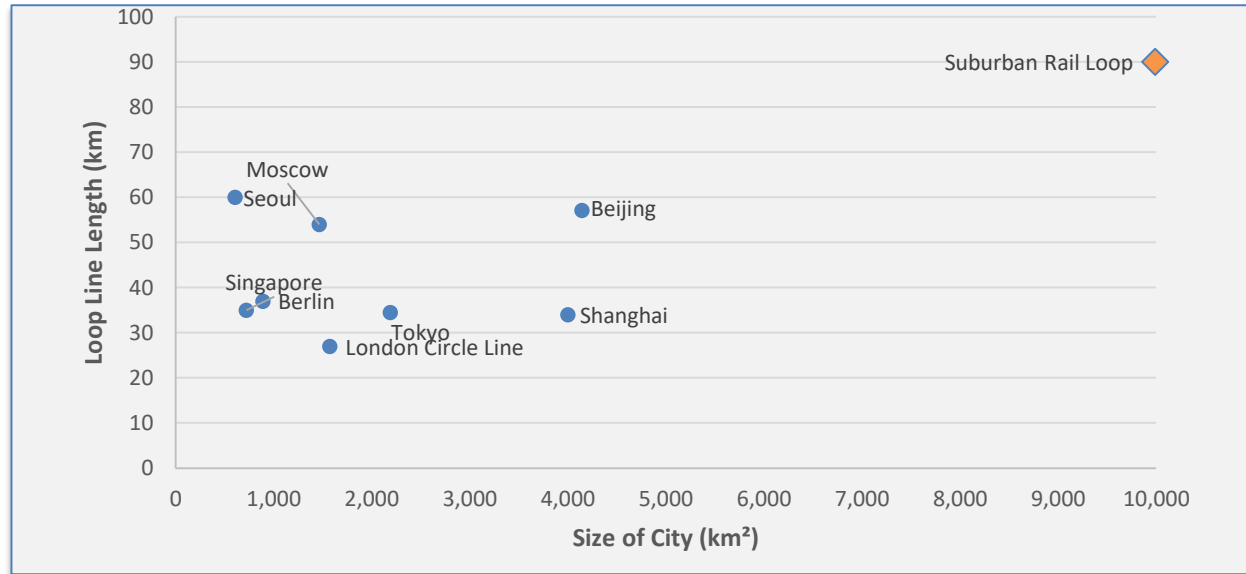


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Fernando A and Currie G (2020) "A Global Review of Suburban Ring Railways to Inform the Melbourne" Department of Civil Engineering Final Year Research Report Monash University

# SRL will be the longest loop metro for the largest city area in the world by far

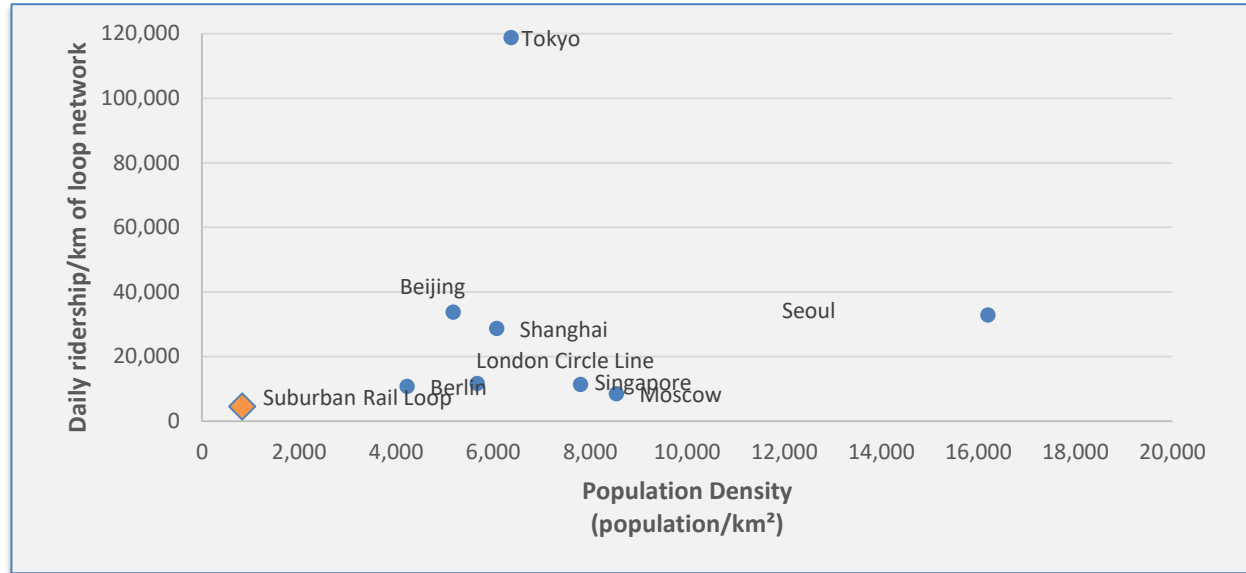
## Loop Metro Length vs City Area Size



Source: Fernando A and Currie G (2020) "A Global Review of Suburban Ring Railways to Inform the Melbourne" Department of Civil Engineering  
Final Year Research Report Monash University

# SRL will be the lowest ridership/km loop metro operating in the lowest density city context

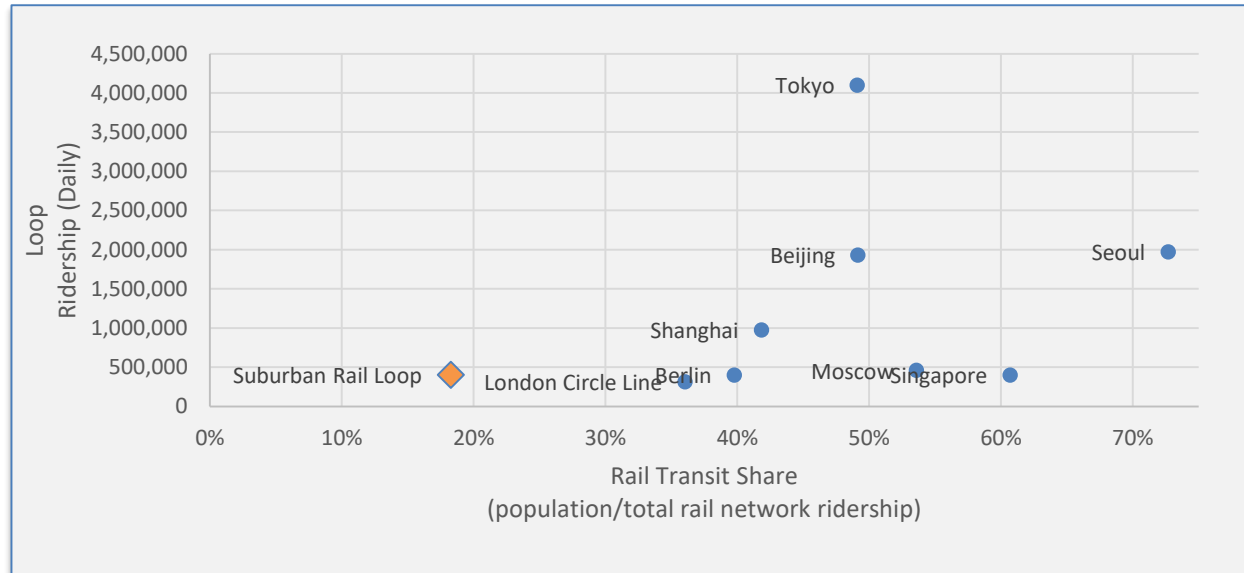
**Est Daily Ridership/km vs Population Density**



Source: Fernando A and Currie G (2020) "A Global Review of Suburban Ring Railways to Inform the Melbourne" Department of Civil Engineering  
Final Year Research Report Monash University

# SRL will have low loop metro ridership/day operating at the lowest rail transit mode share

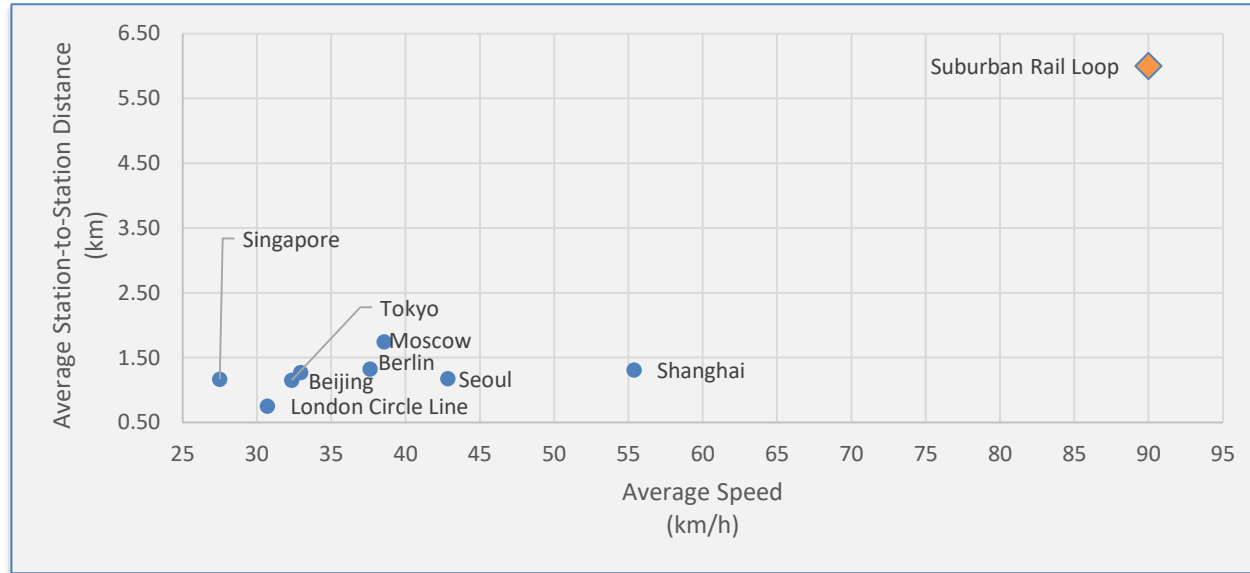
**Est Daily Ridership vs Rail Transit Share**



Source: Fernando A and Currie G (2020) "A Global Review of Suburban Ring Railways to Inform the Melbourne" Department of Civil Engineering  
Final Year Research Report Monash University

# SRL has the longest station-station distances and is the fastest loop metro in the world

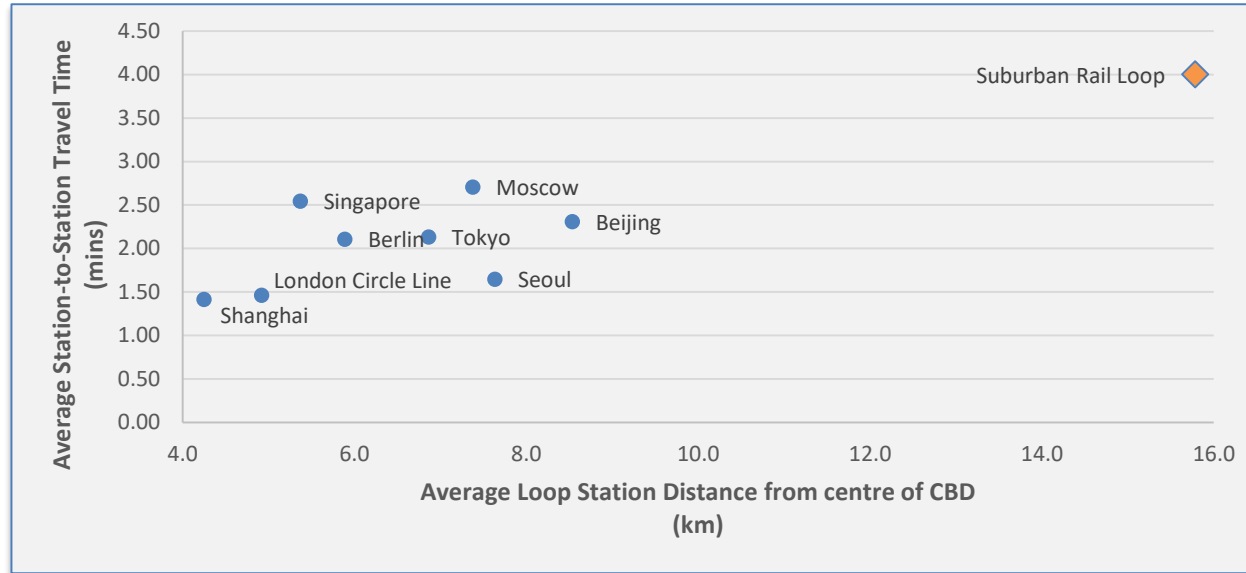
## Average Station to Station Distances vs Average Speed



Source: Fernando A and Currie G (2020) "A Global Review of Suburban Ring Railways to Inform the Melbourne" Department of Civil Engineering  
Final Year Research Report Monash University

SRL has the longest station-station distances and stations are located furthest from the CBD than any loop metro in the world

**Average Station to Station Distances vs Station Distance from CBD**



Source: Fernando A and Currie G (2020) "A Global Review of Suburban Ring Railways to Inform the Melbourne" Department of Civil Engineering  
Final Year Research Report Monash University



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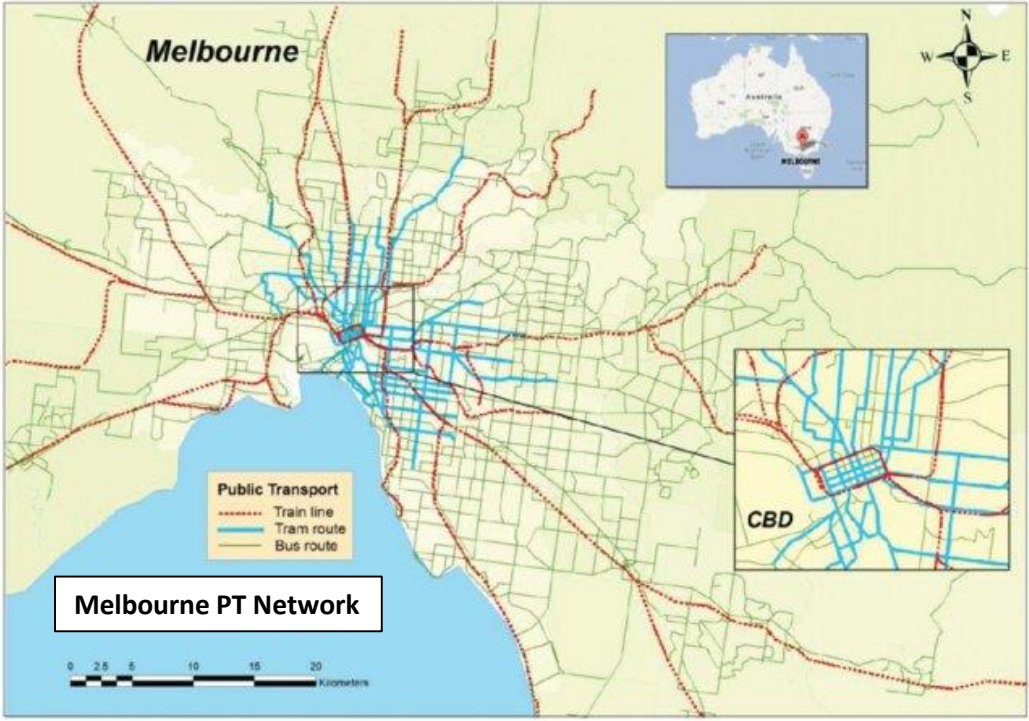
**Introduction**

**Comparative Performance**

**My View**



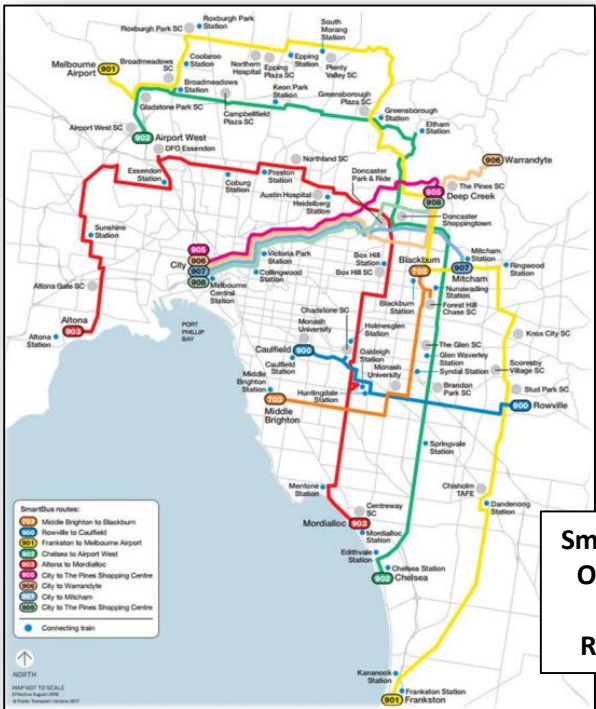
# Melbourne has long had a significant cross corridor PT problem – SmartBus was the last solution tried to address this...



...alas SmartBus, despite priority measures is quite slow and uncompetitive with car

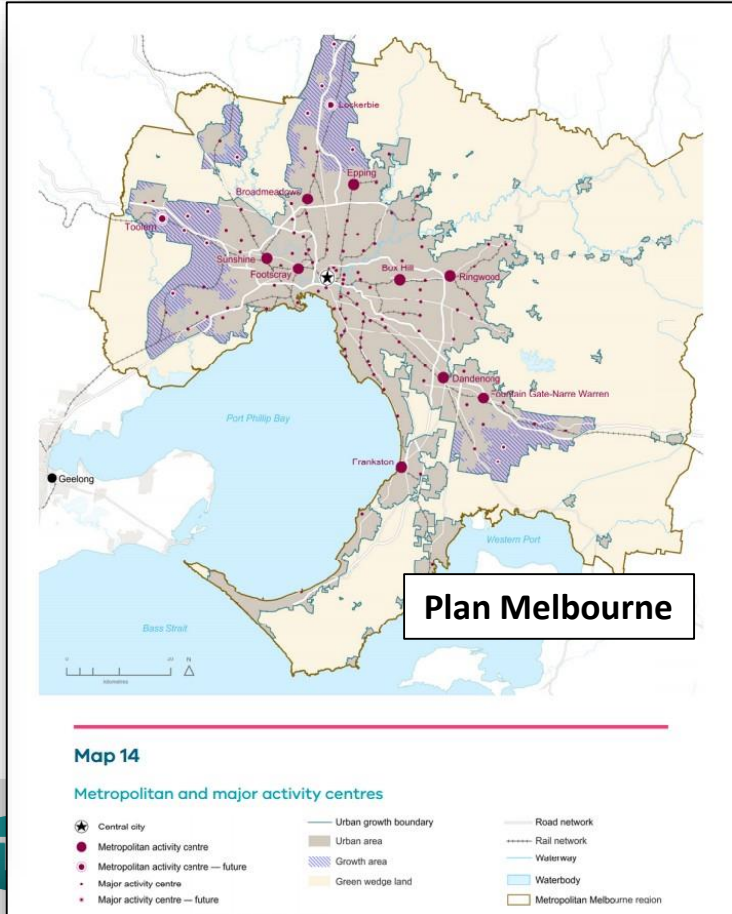
SmartBus vs Car

| Route   | SmartBus                   |                | Car                        |                |
|---|----------------------------|----------------|----------------------------|----------------|
|   | Travel Time<br>(hrs, mins) | Speed<br>(kph) | Travel Time<br>(hrs, mins) | Speed<br>(kph) |
| 901: Frankston to Melbourne Airport.<br>Length 113.6km. | 4hrs                       | 28kph          | 1hr 4min                   | 71kph          |
| 902: Frankston to Melbourne Airport.<br>Length 77.8km.  | 3hrs                       | 26kph          | 1hr 4min                   | 71kph          |
| 903: Frankston to Melbourne Airport.<br>Length 85.6km.  | 3hr 50 min                 | 23kph          | 1hr 4min                   | 71kph          |

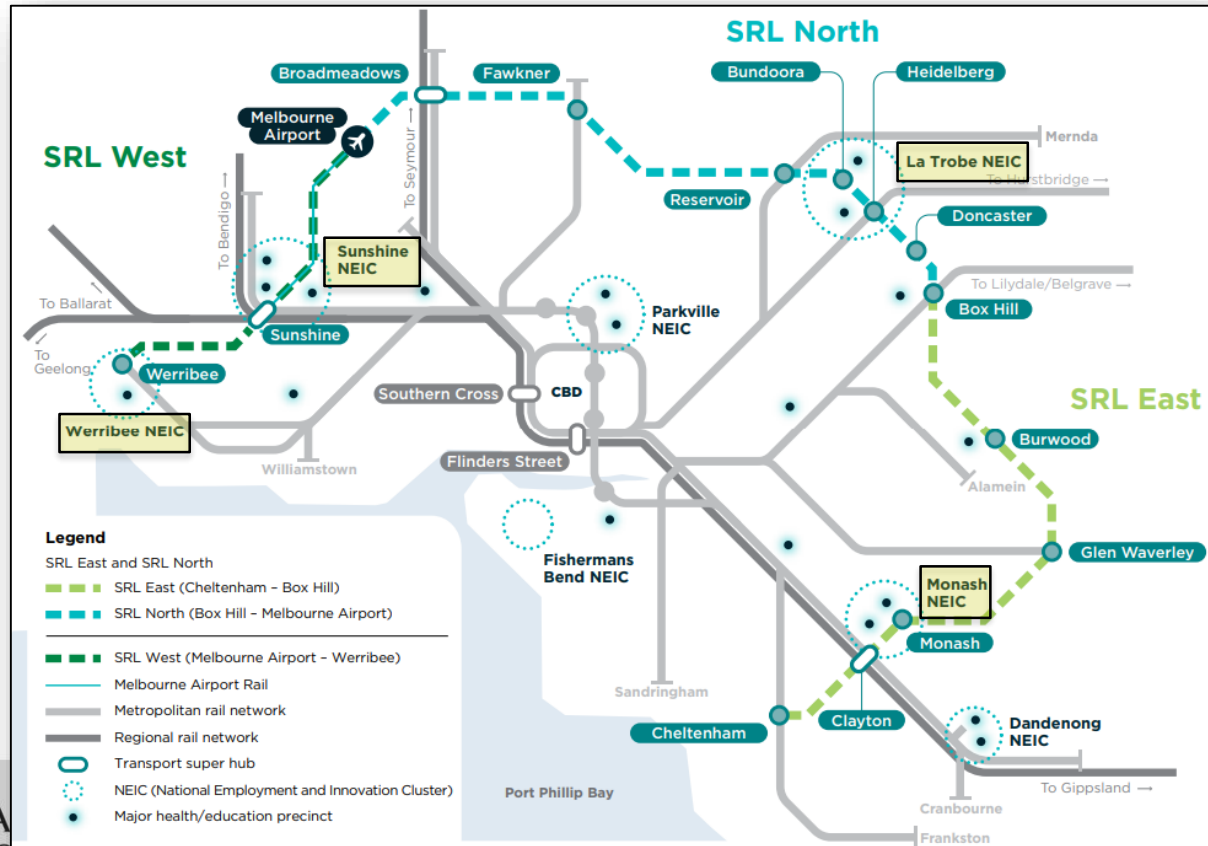


SmartBus  
Orbital  
Bus  
Routes

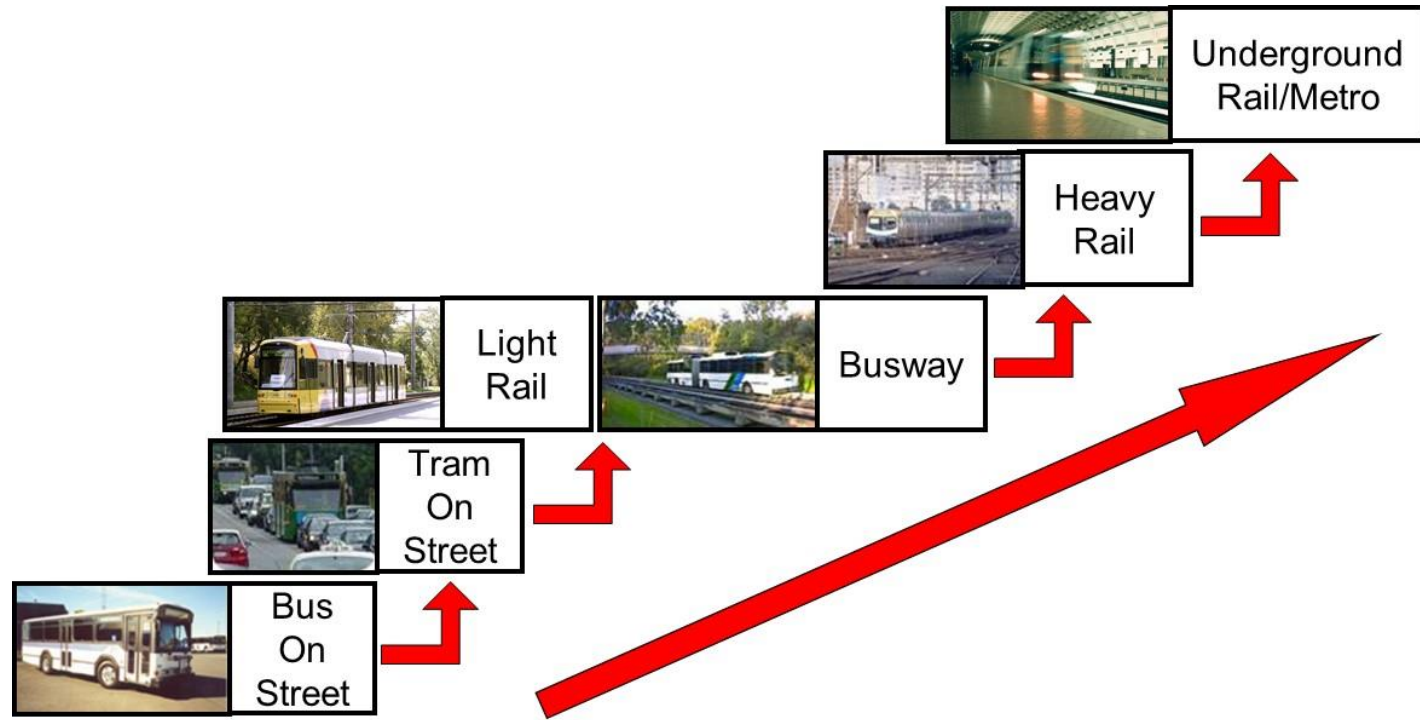
Melbourne plans have always sought to decentralise; but have failed due to poor investment (in sustainable transport)



# SRL aims to achieve this and link 4 of the new National Employment and Innovation Clusters



Metros are a significant quality upgrade above on-street bus...SRL is VISIONARY in this sense; its got great development potential but very high cost



Engineering studies demonstrate significant line capacity and speed advantages of Metros vs other modes – Cities have NO practical choice other than Metros for capacities above 20Kphpd at speed

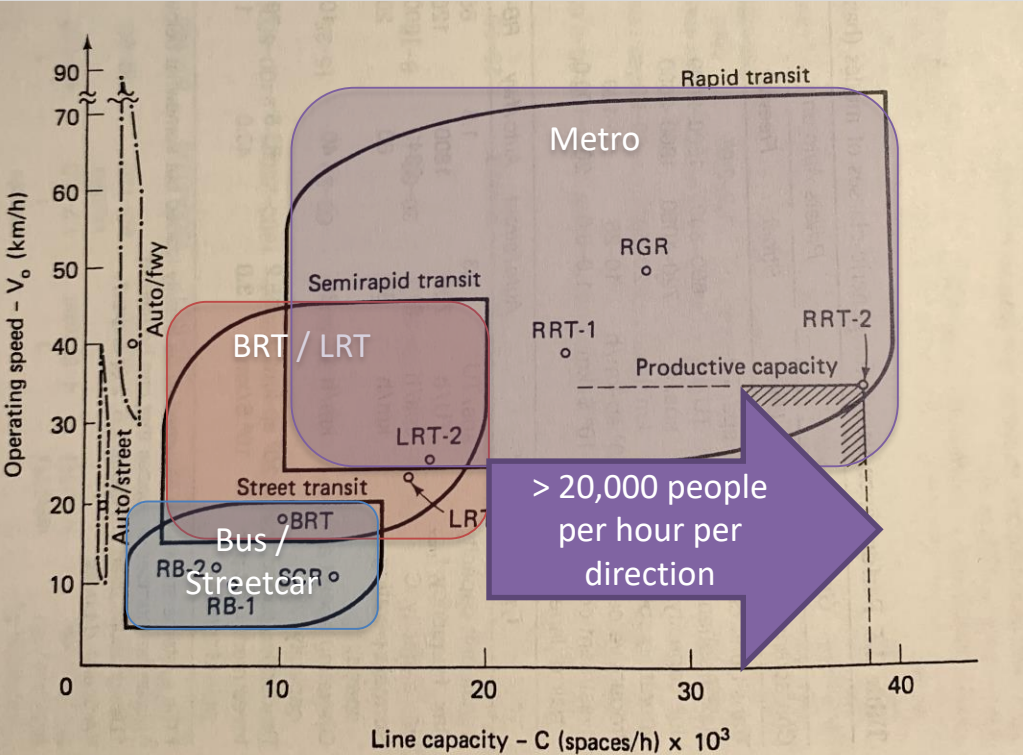
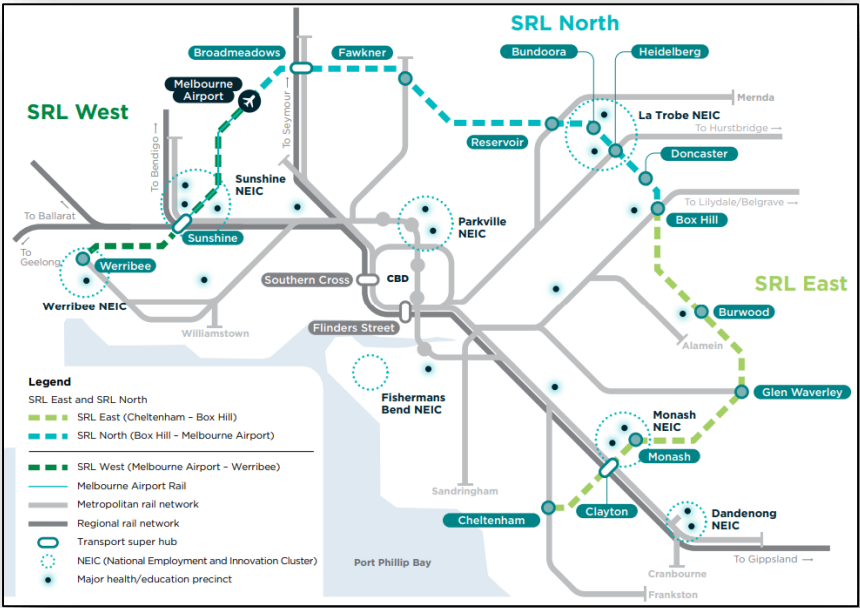
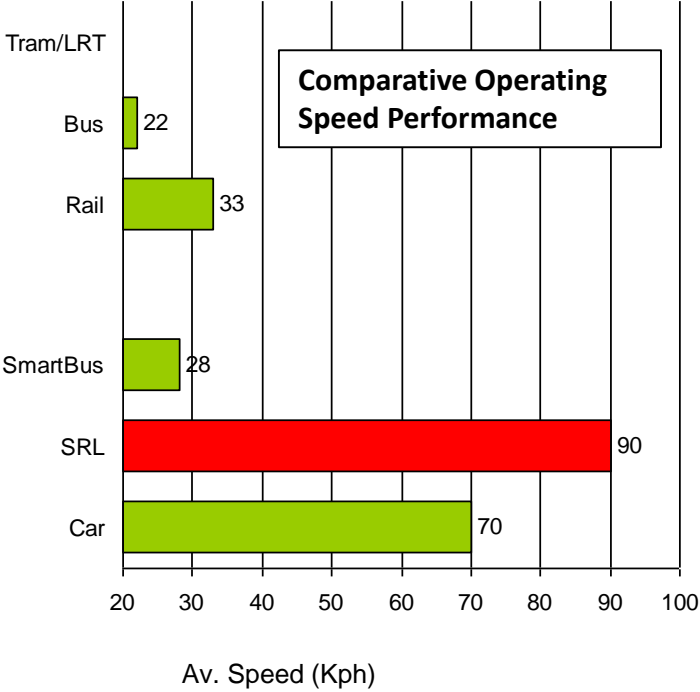


Figure 2.6 Line capacities, operating speeds, and productive capacities of different modes

Note:  
(1) Vuchic V.R., (2007) Urban Transit; Systems and Technology (p.78)



Its also very competitive with the car; something bus even SmartBus cannot achieve



However the development impacts will be .....MASSIVE; are residents ready for this? and what about FUTURE residents who will outnumber them?



**Clayton Railway Station  
Melbourne**



**Nagoya Railway Station  
Japan**

But planning of SRL has been weak; its in no city or rail plan; its not good practice for city planning...



...also VAGO identified weaknesses in the business case; limited exploration of alternative mode options



FIGURE 2C: Assessment of SRL business case content

| Business case content areas                   | Assessment |
|---|------------|
| Problem definition and evidence               | A          |
| Case for change (benefits)                    | A          |
| Options assessment                            | R          |
| Economic analysis and presentation of results | R          |
| Delivery case                                 | A          |

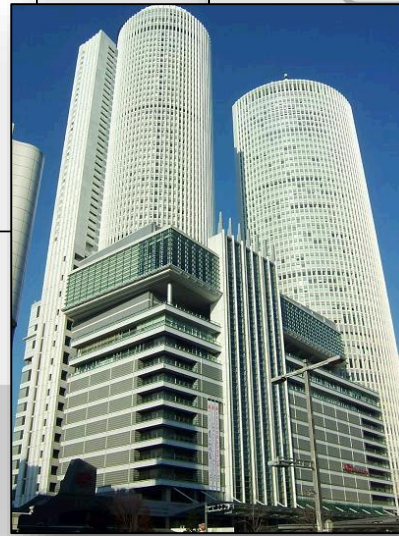
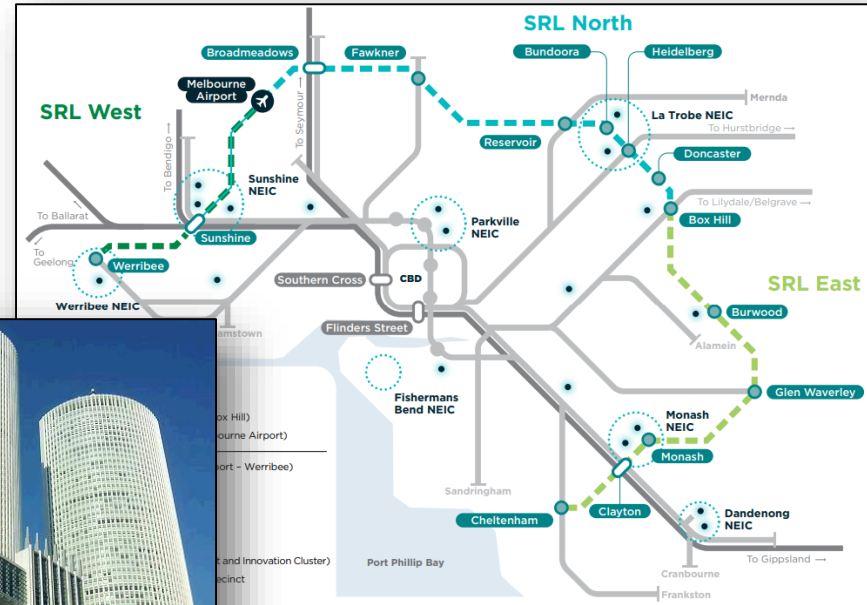
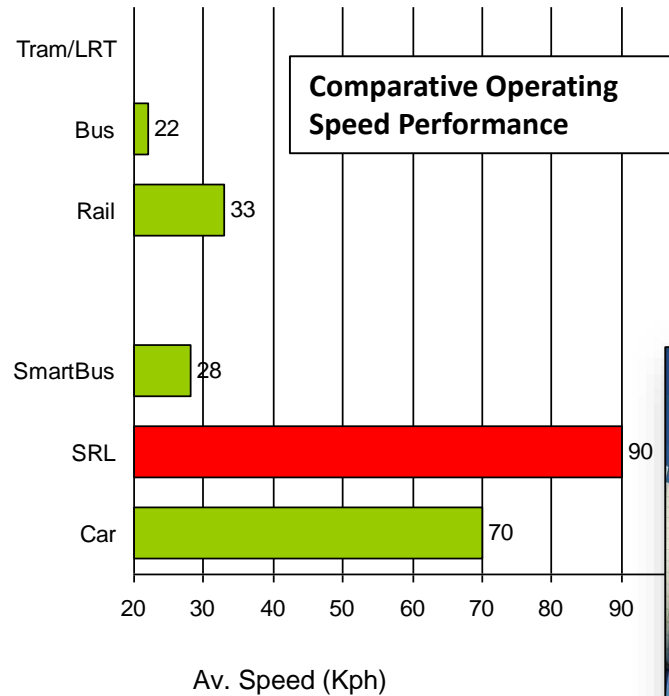
Note: We have used a green (G), amber (A), red (R) scale, where:  
G = no or minor departures from relevant guidance and/or expected processes  
A = some departures from relevant guidance and/or expected processes  
R = significant departures from relevant guidance and/or expected processes.

Source: VAGO.

In summary:

- the high-level problems and benefits articulated in the SRL business case lacked necessary and sufficient supporting evidence
- a narrow set of options were considered and analysed both before and as part of the business case development
- the economic analysis does not cover the entire SRL program and lacks consistency with the guidance in key areas.

Overall I think this is a VISIONARY project, its an AMBITIOUS, STEP CHANGE idea with much potential to create desired change - BUT not good planning



Please reach out for more information



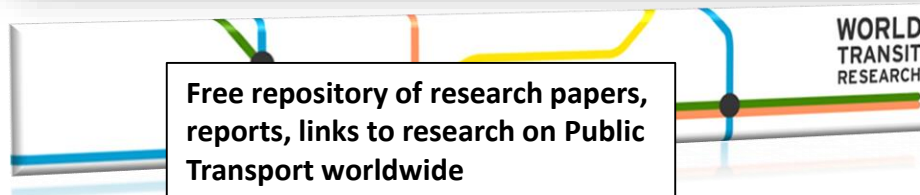
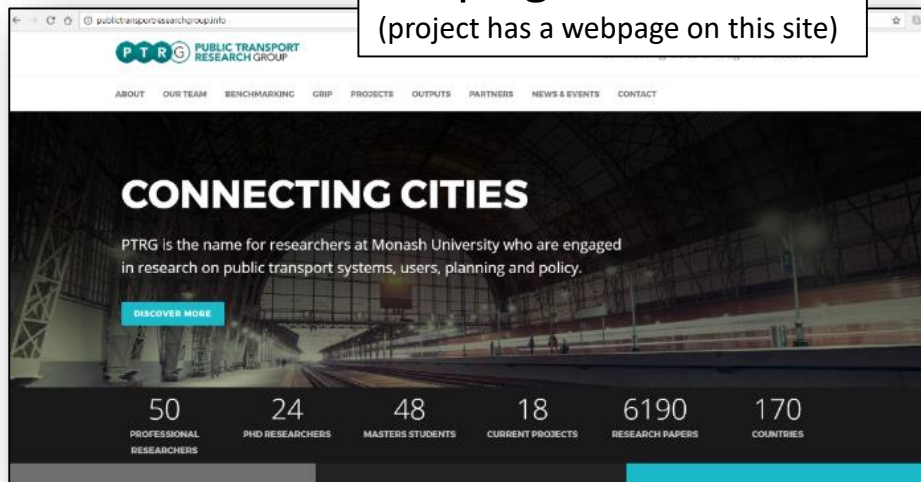
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Connect with us on



**W:** ptrg.info

(project has a webpage on this site)



Researching Transit



**RT5 – Long term  
impact of  
COVID-19 on  
Travel Behaviour**

